

# **ACT, PreACT, and Alabama Courses of Study**

## **Third-Party Independent Alignment Study Report September 2019**

The findings in this study are those of the independent reviewing team and do **not** represent the opinion of the State of Alabama or the testing vendor.

## Table of Contents

<b>Executive Summary</b> .....	3
<b>Structure of the ACT and PreACT Test Forms: Test Design Considerations</b> .....	6
<b>Alignment Study: Approach and Process</b> .....	18
<b>Alignment Criteria</b> .....	23
<b>Depth-of-Knowledge Alignment Analysis of the Alabama Courses of Study and ACT and PreACT Assessments: English, Reading, and Writing</b> .....	26
<b>Depth-of-Knowledge Alignment Analysis of the Alabama Courses of Study and ACT and PreACT Assessments: Mathematics</b> .....	36
<b>Depth-of-Knowledge Alignment Analysis of the Alabama Courses of Study and ACT and PreACT Assessments: Science</b> .....	41
<b>Reliability among Reviewers</b> .....	46
<b>References</b> .....	47
<b>Appendix A</b> .....	49
<b>Appendix B</b> .....	60
<b>Appendix C</b> .....	95
<b>Appendix D</b> .....	163
<b>Appendix E</b> .....	415
<b>Appendix F</b> .....	425

## Executive Summary

A third-party independent alignment study was conducted for the Alabama State Department of Education in Montgomery, Alabama from July 22 to 26, 2019. Six reviewers (three Alabama reviewers and three national reviewers) analyzed the ACT and PreACT English Language Arts assessments for alignment to the Alabama English Language Arts Courses of Study. A second committee of six reviewers (three Alabama reviewers and three national reviewers) analyzed the ACT and PreACT Mathematics assessments for alignment to the Alabama Mathematics Courses of Study. A third committee of six reviewers (three Alabama reviewers and three national reviewers) analyzed the ACT and PreACT Science assessments for alignment to the Alabama Science Courses of Study. Reviewers included English Language Arts, Mathematics, and Science curriculum experts and teachers, as well as administrators, professors of higher education, and assessment specialists. A national alignment expert and psychometrician provided training and conducted the study. Reviewers analyzed the 2019 operational tests for each content area according to Dr. Norman Webb's alignment methodology.

Data on the alignment of the ACT and PreACT assessments were collected from the committee, which was composed of Alabama educators and national content alignment experts from around the United States, following the methodology developed by Norman Webb. The data collected were then statistically analyzed to determine whether each test form met the statistical criteria established by the alignment model.

Four test alignment criteria, or alignment dimensions, were examined for each of the ACT and PreACT assessments. These were Categorical Concurrence, Depth-of-Knowledge Consistency, Range-of-Knowledge Correspondence, and Balance of Representation. The criteria have been defined and explained by Norman Webb in a series of publications describing his model of standards-based test alignment.

Taken as a whole, the third-party independent results of the alignment of the ACT and PreACT to the Alabama Courses of Study are varied for each content area. The Reading ACT and PreACT forms, English ACT and PreACT forms, and Writing ACT forms generally showed acceptable alignment to the Alabama English Language Arts Courses of Study at grades 10 and 11. The Mathematics ACT and PreACT forms and Alabama Mathematics Courses of Study alignment analysis results are mixed, showing some acceptable alignments and some areas needing improvement. Analysis of the Science ACT and PreACT forms revealed that the alignment relationship with the Alabama Science Courses of Study is in need of improvement.

This report includes the results of the third-party independent alignment study. The study involved the review for alignment of the ACT tests in the content areas of Mathematics, English, Reading, Writing, and Science to the Alabama Courses of Study. The study also involved the review for alignment of the PreACT tests in the content areas of Mathematics, English, Reading, and Science to the Alabama Courses of Study.

## **Structure of the Alabama Courses of Study**

Alabama's learning standards used in this study included the 11<sup>th</sup> and 10<sup>th</sup> grade English Language Arts Course of Study Standards. In the general content area of Mathematics, Course of Study Standards for Algebra I, Geometry, and Algebra II were used as appropriate. Within Science, the study used Alabama's Course of Study Standards for Biology, Chemistry, Physics, and Earth and Space Science. The Courses of Study Standards used in this study are organized as shown below. The complete set of Alabama Courses of Study for each content area can be found on the Alabama State Department of Education's website. The complete set of standards used in this study are also listed in Appendix B of this report.

### **Alabama English Language Arts Course of Study: Grade 10**

- Reading Standards for Literature
  - Key Ideas and Details RL.1–RL.3
  - Craft and Structure RL.4–RL.6
  - Integration of Knowledge and Ideas RL.7–RL.8
  - Range of Reading and Level of Text Complexity RL.9
- Reading Standards for Informational Text
  - Key Ideas and Details RI.10–RI.12
  - Craft and Structure RI.13–RI.15
  - Integration of Knowledge and Ideas RI.16–RI.19
  - Range of Reading and Level of Text Complexity RI.20
- Writing Standards W.21–W.30
- Language Standards L.37–L.42

### **Alabama English Language Arts Course of Study: Grade 11**

- Reading Standards for Literature
  - Key Ideas and Details RL.1–RL.3
  - Craft and Structure RL.4–RL.6
  - Integration of Knowledge and Ideas RL.7–RL.8
  - Range of Reading and Level of Text Complexity RL.9
- Reading Standards for Informational Text
  - Key Ideas and Details RI.10–RI.12
  - Craft and Structure RI.13–RI.15
  - Integration of Knowledge and Ideas RI.16–RI.17
  - Range of Reading and Level of Text Complexity RI.18
- Writing Standards W.19–W.28
- Language Standards L.35–L.40

### **Alabama Mathematics Algebra I Course of Study**

- Number and Quantity ALGI.1–ALGI.6
- Algebra ALGI.7–ALGI.24
- Functions ALGI.25–ALGI.40
- Statistics and Probability ALGI.41–ALGI.47

### **Alabama Mathematics Geometry Course of Study**

- Geometry GEO.1–GEO.41
- Statistics and Probability GEO.42–GEO.43

### **Alabama Mathematics Algebra II Course of Study**

- Number and Quantity ALG2.1–ALG2.11
- Algebra ALG2.12–ALG2.28
- Functions ALG2.29–ALG2.36
- Statistics and Probability ALG2.37–ALG2.46

### **Alabama Science Courses of Study: Biology, Physics, Chemistry, Earth and Space Science**

- Biology BIO.1–BIO.16
- Chemistry CHEM.1–CHEM.11
- Physics PHY.1–PHY.12
- Earth and Space Science ESS.1–ESS.15

## Structure of the ACT and PreACT Test Forms: Test Design Considerations

The information found in Tables 1 and 2 serve to summarize the 2019 ACT and PreACT test forms. A presentation developed by ACT with additional information about the ACT and PreACT forms can be found in Appendix F.

**Table 1: Structure of the 2019 ACT Test Forms**

<b>ACT Test Forms</b>			
<b>Content Area</b>	<b># Items</b>	<b>Item Types</b>	<b>Point values</b>
English	75 items	Multiple choice	All 1 pt.
Mathematics	60 items	Multiple choice	All 1 pt.
Reading	40 items	Multiple choice	All 1 pt.
Science	40 items	Multiple choice	All 1 pt.
Writing	3 essays	Essays	6 pts. x 4 Rubric Domains

**Table 2: Structure of the 2019 PreACT Test Forms**

<b>PreACT Test Forms</b>			
<b>Content Area</b>	<b># Items</b>	<b>Item Types</b>	<b>Point values</b>
English	45 items	Multiple choice	All 1 pt.
Mathematics	36 items	Multiple choice	All 1 pt.
Reading	25 items	Multiple choice	All 1 pt.
Science	30 items	Multiple choice	All 1 pt.

## **Overview of the Third-Party Independent Alignment Study**

The ACT, PreACT, and Alabama Courses of Study alignment study for Mathematics, English, Reading, Writing, and Science was conducted in Montgomery, Alabama, from July 22 to July 26, 2019. The study involved a review of the ACT tests (Mathematics, English, Reading, Writing, Science) for alignment to the Alabama Courses of Study. The study also involved a review of the PreACT tests (Mathematics, English, Reading, Science) for alignment to the Alabama Courses of Study.

The purpose of the alignment study was to determine the degree of alignment between the standards and the test items found on the ACT and PreACT assessments. The study was based on Webb's alignment model, a model developed by Dr. Norman Webb of the Wisconsin Center for Educational Research. The Webb model requires a balanced alignment study review approach, which brings together in-state alignment and/or subject-area experts and national alignment and/or subject-area experts with the goal of ensuring that the alignment study is valid and reliable. The primary role of the independent reviewers is to judge the depth-of-knowledge level of each item and to identify the primary, and possibly secondary, standard to which each item is aligned. Descriptions of the third-party independent reviewers for the study can be found below in the Alignment Study Participants section of this report. A detailed description of the alignment process used with the study, including summary tables showing the results of the alignment study, can also be found in this report. Overall, the third-party independent results of the alignment of the ACT and PreACT to the Alabama Courses of Study are varied for each content area. The Reading ACT and PreACT forms, English ACT and PreACT forms, and Writing ACT forms generally showed acceptable alignment to the Alabama English Language Arts Courses of Study at grades 10 and 11. The Mathematics ACT and PreACT forms and Alabama Mathematics Courses of Study alignment analysis results are mixed, showing some acceptable alignments and some areas needing improvement. Analysis of the Science ACT and PreACT forms revealed that the alignment relationship with the Alabama Science Courses of Study is in need of improvement.

### **Alignment Study Participants**

An independent alignment study of the ACT and PreACT tests administered to Alabama high school students in grades 11 and 10, respectively, was conducted in July 2019. Tests designed to measure five academic content areas were studied. These included tests in English, Reading, Writing, Mathematics, and Science. Three panels of individuals were assembled to serve as participants in this study examining the alignment of operational test forms administered in 2019 to the public school student population in Alabama. One panel of six individuals focused on examining the alignment of tests in Reading, English language, and Writing (essay) administered to Alabama students in grades 11 and 10. A second panel of six individuals focused on Mathematics tests administered in grades 11 and 10, and a third panel of six focused on Science tests administered to students in grades 11 and 10.

The study was planned so that three individuals on each panel were educators from school districts in Alabama who have worked with the state's learning standards for high school courses. The remaining three educators on each panel evaluating the ACT and PreACT assessments were

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selected from various states across the country for their content expertise in ELA, Mathematics, or Science education.

Information on the makeup of each of the three panels and the backgrounds of the panelists is provided in this section of the report. One of the national content experts in each group was identified prior to the alignment study meeting to serve as the facilitator of the panel's consensus discussions and other proceedings. All three facilitators were briefed prior to data collection on their facilitator roles, and all had recent alignment study experience, having served in an expert capacity for alignment studies in other states.

Eighteen independent alignment experts were engaged in the study as follows: six Mathematics reviewers (three Alabama reviewers and three national reviewers), six English Language Arts reviewers (three Alabama reviewers and three national reviewers), and six Science reviewers (three Alabama reviewers and three national reviewers). Both the Alabama reviewers and the national reviewers were individuals who had not been involved in the ACT or PreACT item and assessment development process but who had teaching experience and/or extensive background and expertise in content-specific curriculum.

A summary of the qualifications of the Alabama reviewers is provided in Tables 3, 4, and 5 in the following section. In addition to providing subject-area and/or curriculum expertise, the national alignment reviewers represented the diverse needs of students.

In addition to the Alabama alignment reviewers and the national alignment reviewers, two additional alignment experts were involved in the study. Neither of these individuals reviewed the ACT or PreACT items or tests. Instead, one served as an independent auditor of the process, ensuring that the study was not compromised in any way. The second national alignment expert, who has experience in conducting alignment studies using Webb's alignment model, served as the overall alignment process trainer and main facilitator of the third-party independent review process. Dr. James Augustin served in this role, and he conducted the study. Dr. Augustin is a nationally known alignment expert who has participated in a number of alignment studies as a reviewer and as a facilitator. As such, he has broad experience in conducting alignment studies using the Webb model. His role in this third-party independent alignment study was to oversee the entire alignment process, ensuring that the review was conducted correctly. Dr. Augustin was responsible for analyzing the results and providing the interpretation of the alignment results. He also provided reviewers with alignment training, including understanding Webb's depth-of-knowledge levels and understanding the alignment process. The information below provides additional information regarding both the national alignment study third-party facilitator/trainer and the national alignment study third-party independent auditor.



## **National Alignment Study Facilitator/Trainer Responsible for Conducting the Study**

### James Augustin, PhD

Dr. James Augustin has extensive experience serving as the overall alignment process trainer and main facilitator of the third-party independent review process. He also serves to analyze the alignment data, and he provides written conclusions based upon the data. Dr. Augustin is uniquely qualified to serve in this role, having participated as a national alignment expert for several state alignment studies, including programs for Alabama, Alaska, Idaho, Louisiana, Pennsylvania, Nebraska, Maryland, and Wisconsin. For these studies, Dr. Augustin served as a trainer, lead facilitator, report writer, and/or reviewer for the alignment studies, which were based on Dr. Norman Webb's methodology. He has also consulted with the Commonwealth of Puerto Rico on alignment study procedures for the Commonwealth's testing program. Dr. Augustin has contributed numerous research, evaluation, and program-development reports on curriculum and measurement topics published by the University of Wisconsin and other education and government agencies. He served as guest editor of a special issue of *Measurement and Evaluation in Counseling and Development* (2002).

In addition to Dr. Augustin's alignment study experience, he has served as a measurement consultant, providing support for the development of a number of large-scale assessment programs. He was also most recently the director of Large-Scale Assessment with a major testing company, where he was responsible for overseeing the development of multiple and complex assessments for custom large-scale assessment programs. Dr. Augustin was also a test development director for the Psychological Corporation/Harcourt Educational Measurement. In addition, he was with the Wisconsin Assessment Center at the University of Wisconsin and the Department of Psychology at North Carolina State University.

Dr. Augustin received his PhD degree in human resource development psychology, with advanced study in measurement and testing, from North Carolina State University at Raleigh. He received an MA degree in psychology from Marquette University and a BA degree in psychology from Trinity University in San Antonio, Texas.

## **National Alignment Study Third-Party Independent Auditor**

### Barbara Kapinus, PhD

Dr. Barbara Kapinus is a consultant in education, having recently consulted for such organizations as the Partnership for Assessment of Readiness for College and Careers (PARCC), the Smarter Balanced Assessment Consortium (SBAC), the Literacy Design Collaborative (LDC), and the Stanford Center for Assessment, Learning, and Equity (SCALE). She has also consulted on several projects for the U.S. Department of Education, most notably the National Center for Education Statistics (NCES). In addition, she has worked on several state reading assessments, standards development projects, curriculum efforts, and staff development programs through which she has gained extensive alignment experience. She has served as a

national alignment auditor and/or group facilitator for alignment studies using Webb’s methodology in Alabama, Alaska, Nebraska, Pennsylvania, and Wisconsin.

Most recently, Dr. Kapinus served as the director of English Language Arts for the Smarter Balanced Assessment Consortium (SBAC). Prior to her work at SBAC, she retired from the National Education Association, where she was a senior policy analyst for over thirteen years. Dr. Kapinus also served as the director of the Curriculum and Instructional Improvement Program at the Council of Chief State School Officers, where she worked on projects and state collaborations related to standards implementation, assessment, reading, workplace readiness, early learning, and Title I. Her experience also includes eight years as Specialist for Reading and Communication Skills at the Maryland State Department of Education and sixteen years in Prince George’s County Public Schools in several roles, including classroom teacher, reading specialist, and curriculum specialist.

Dr. Kapinus has published works on reading research, research applications, assessment, and education policy and instruction. She has served on numerous committees of the International Literacy Association, the National Assessment of Education Progress, and the National Reading Conference, including those committees responsible for alignment.

Dr. Kapinus received an undergraduate degree in history from the University of California at Berkeley and MA and PhD degrees in reading from the University of Maryland at College Park.

### **Mathematics Third-Party Independent Reviewers**

For the ACT and PreACT Mathematics alignment study, six of the eighteen independent alignment experts were engaged in the study of ACT Mathematics and PreACT Mathematics test forms. Additional information concerning the Alabama reviewers and the national reviewers can be found in the sections below.

### **Alabama Mathematics Third-Party Independent Reviewers**

The Mathematics educators from Alabama who served as reviewers have extensive experience in Mathematics education instruction and/or curriculum. They represented a variety of occupations in the field of education. The reviewers were from both urban and rural areas of Alabama. The Alabama third-party independent Mathematics reviewers’ information is summarized in Table 3 below.

**Table 3: Alabama Mathematics Third-Party Independent Reviewers**

<b>Reviewer</b>	<b>Current Position</b>	<b>Years in Teaching</b>	<b>Years as Curriculum Specialist or Other</b>	<b>Urban or Rural</b>
Leslie Calloway	Math Teacher	8	NA	Rural & Urban
Lisa Crownover	Math Teacher/County Math Curriculum Specialist	13	3	Rural
Phenicia Nunn	Education Specialist, ALSDE, AMSTI Math	22	7	Urban

**National Mathematics Reviewers**

Lesla Clarkson, EdD (Group Facilitator)

Dr. Lesla Clarkson is currently associate professor of mathematics education at the University of Minnesota. Prior to this position, she was director of the BioSMART program at Saint Paul Public Schools and a postdoctoral fellow of mathematics education at the University of Minnesota. Dr. Clarkson also served as an assistant program evaluator for the Center for Applied Research in Educational Improvement at the University of Minnesota and as director of diversity and multicultural programming at Concordia University. Dr. Clarkson also has K–12 mathematics teaching experience in Los Angeles, California, at LA Lutheran High School and at LA Unified School District.

Dr. Clarkson is uniquely qualified to serve as a third-party independent reviewer not only because of her vast educational curriculum and teaching experience but also because of her experience in general and alternate assessments and her understanding of mathematics curriculum, including differentiated instruction. For example, she has served on the Minnesota Board of Teaching as a higher education faculty member, and she has served as a Science, Technology, Engineering, and Mathematics (STEM) Competitiveness Research Cluster (SCRC) Fellow at the University of Minnesota. Additionally, she has served as a mathematics national alignment expert for alignment studies based on Webb’s methodology in Alabama, Alaska, Maryland, and Pennsylvania.

Dr. Clarkson received a BS degree from Concordia University in Seward, Nebraska, where she majored in mathematics and physical education. She received an MA degree from California State University, Los Angeles, where she majored in secondary curriculum and instruction, and she received an EdD degree from the University of Minnesota, where she majored in mathematics.

### Tom Muchlinski, PhD

A dedicated mathematics education professional, Dr. Muchlinski is an instructor of mathematics education at the University of Minnesota and the Executive Director of the Minnesota Council of Teachers of Mathematics. He has also been a mathematics specialist for the Minnesota Department of Education and an assistant professor at Southwest Minnesota State University. As a mathematics specialist, he facilitated state mathematics standards development and advised the state commissioner of education on policy and legislation affecting mathematics education. He has taught undergraduate mathematics education courses as well as supervised student teachers at the University of Minnesota and Southwest Minnesota State University. As a high school teacher, Dr. Muchlinski taught in Minnesota schools for twenty-six years; his courses included Algebra I through Advanced Placement Calculus. He is active in many organizations such as the National Council of Supervisors of Mathematics, National Council of Teachers of Mathematics, and Phi Delta Kappa International. Dr. Muchlinski has also served as a project coordinator for the Minnesota Mathematics Achievement Project (MNMAP) at the University of Minnesota. His responsibilities included designing and coordinating data collection procedures and assisting with data analysis. Dr. Muchlinski disseminates his research findings through journal articles and conference presentations. He has participated as a mathematics national expert for alignment studies based on Dr. Webb's methodology for the states of Alaska, Idaho, Maryland, Wisconsin, and California.

Dr. Muchlinski received a BA degree in Mathematics from St. John's University, an MS degree in Curriculum and Instruction from St. Cloud State University, and a PhD in Mathematics Education from University of North Carolina at Chapel Hill.

### Courtney LaRoche

Ms. LaRoche is an experienced educator and leader in K–12 mathematics education. She is currently the K–12 math resource teacher leader for Wayzata Public Schools in Plymouth, MN. In this role she supports and leads K–12 math teachers in the district by facilitating curriculum review, providing professional development, coaching teachers, and improving district wide systems that support mathematics. In the past two years, she has supported the implementation of College Preparatory Mathematics at the middle and high school levels and Bridges in Mathematics at the elementary level. As the 2016 and 2017 Charles A. Dana Center International Facilitation Fellow, she has traveled to Zama, Japan, to support the implementation of the DoDEA College and Career Readiness Initiative with secondary teachers at Camp Zama. Ms. LaRoche has also served as the Vice President of Middle School and Region 6 Director for the Minnesota Council of Teachers of Mathematics, planning the annual spring conference for Minnesota state educators to share effective practices in mathematics. She has served as a national alignment reviewer for Webb-based alignment studies in Alaska, Alabama, and Wisconsin. Additionally, she partnered with the Minnesota Department of Education and SciMath Minnesota to write the 8<sup>th</sup> grade SciMath Minnesota Framework, a framework that makes the Minnesota math standards more accessible to teachers.

Ms. LaRoche received an MEd degree from University of St. Catherine, St. Paul, MN. She holds a BA degree in Architecture from the University of Minnesota.

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## English Language Arts Third-Party Independent Reviewers

For the ACT and PreACT English Language Arts alignment study, six of the eighteen independent alignment experts were engaged in the study of ACT English, Reading, and Writing test forms and PreACT English and Reading test forms. Additional information concerning the Alabama reviewers and the national reviewers can be found in the sections below.

### Alabama English Language Arts Third-Party Independent Reviewers

The English Language Arts educators from Alabama who served as reviewers have extensive experience in English Language arts education instruction and/or curriculum. They represented a variety of occupations in the field of education. The reviewers were from both urban and rural areas of Alabama. The Alabama third-party independent English Language Arts reviewers' information is summarized in Table 4 below.

**Table 4: Alabama English Language Arts Third-Party Independent Reviewers**

Reviewer	Current Position	Years in Teaching	Years as Curriculum Specialist or Other	Urban or Rural
Tara Bruce	Success Coach	13	5	Urban
Charlotte Parker	Curriculum Leader	23	1	Rural & Urban
Kwantrice White	HS ELA Teacher	12	NA	Urban

### National English Language Arts Reviewers

#### Margaret E. Weldon, EdD (Group Facilitator)

Dr. Margaret Weldon has served as an English language arts national expert for alignment studies based on the methodology of Dr. Norman Webb for Alabama, Alaska, Nebraska, Idaho, Maryland, Nebraska, Oklahoma, Pennsylvania, and most recently Wisconsin. She has served as a trainer/facilitator as well as an independent reviewer. She was an assessment specialist for the Alabama Department of Education, and in this role she managed the writing assessment program development and administration for grades 5, 7, and 11. She led the development of the reading assessment (grades 3–8) for the Alabama Reading and Mathematics Test and the reading comprehension and language subject-area tests of the Alabama High School Graduation Exam (third ed.). She also collaborated on the development of the Alabama Early Learning Assessment K, 1, and 2 reading tests. Dr. Weldon has conducted statewide writing programs for teachers and administrators, covering composition, instructional strategies, holistic scoring, and reading instruction. She has participated in National Assessment of Educational Progress (NAEP) item reviews for reading and writing and in standard setting using bookmark and modified-Angoff methodologies.

Dr. Weldon was a classroom teacher and administrator for nineteen years for Montgomery Public Schools and worked as a central office administrator, directing the implementation of the state assessment program for a school system of 35,000 students. She has also served as an English department chairperson and a Title I reading specialist.

Dr. Weldon received a BS degree in secondary English education, an MS degree in secondary reading education, and an EdD degree in educational leadership, foundations, and technology from Auburn University.

#### Jacquelyn Graham, PhD

Dr. Jacquelyn Graham has extensive experience in the field of English language arts education. She has served as an English language arts national expert for alignment studies based on the methodology of Dr. Norman Webb in California, Nebraska, and Oklahoma. Currently she is a professional development coach consultant with the Association for Supervision and Curriculum Development in Virginia and an adjunct professor of education at St. Petersburg College in Florida. As a professional development reading and English language arts consultant, Dr. Graham helps administrators and teacher leaders build expertise in faculty members to improve teaching quality. As an adjunct professor, she teaches core education online courses for teacher education program candidates in both undergraduate and alternative certification programs.

Dr. Graham's English language arts experience includes ten years as a classroom teacher at the elementary, middle school, and college levels. She has coordinated the reading/English language arts program in elementary and secondary education settings, assisted students with reading difficulties via small-group instruction, taught a developmental writing course, and diagnosed students' reading difficulties at grades seven and eight. In addition, Dr. Graham has served as a research analyst for the American Institutes for Research (AIR). Her responsibilities included directing research and policy analyses over a range of education, assessment, and evaluation programs for all aspects of research, including project management, research design, survey instrument development, statistical analysis, reports, and briefings.

Dr. Graham received a BS in elementary education, an MEd in reading education from Indiana University of Pennsylvania, and a PhD in English education with a specialty in composition from the University of Maryland. Her related professional work experience includes curriculum development and test development. As a curriculum developer, Dr. Graham helped to develop a plan for the implementation of reading portfolios for use in county middle schools. Dr. Graham also has test development experience with the Maryland Department of Education. In addition, she served as a consultant on a development team at the Maryland State Department of Education to create an integrated writing, language usage, and reading task for the Maryland School Performance Assessment Program (MSPAP) test.

#### Karen Brinkmann

Ms. Brinkmann is an experienced item and test developer who has spent many years reviewing items for alignment to standards. Most recently, she served as a content writer/editor for Brinkmann Education Consulting where she creates reading and language arts passages and items for large-scale assessment programs. Her experience includes developing items for the

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Smarter Balanced Assessment Consortium (SBAC) and the Partnership for Assessment of Readiness for College and Careers (PARCC). As a result of this experience, she is quite knowledgeable of college- and career-ready standards, including understanding the rigor of the standards. She is also knowledgeable in the development of English language arts assessments to measure career- and college-ready standards. Additionally, she has participated as an English language arts national expert for alignment studies based on Dr. Webb’s methodology in Alaska, Nebraska, and Wisconsin. Ms. Brinkmann is an accomplished facilitator, having worked with many educators throughout the country facilitating reviews of items, including alignment reviews. Ms. Brinkmann’s experience also includes teaching students in grades pre-K through grade 6.

Ms. Brinkmann received an MS degree in elementary education from the University of Illinois at Urbana-Champaign. Ms. Brinkmann was a member of Kappa Delta Pi Education Honor Society and served as a graduate teaching assistant. Ms. Brinkmann received a BS degree in speech communication from the University of Illinois at Urbana-Champaign. Ms. Brinkmann currently holds a Texas teaching certificate with special endorsements in speech communication and social studies.

### **Science Third-Party Independent Reviewers**

For the ACT and PreACT Science alignment study, six of the eighteen independent alignment experts were engaged in the study of ACT Science and PreACT Science test forms. Additional information concerning the Alabama reviewers and the national reviewers can be found in the sections below.

#### **Alabama Science Third-Party Independent Reviewers**

The Science educators from Alabama who served as reviewers have extensive experience in Science education instruction and/or curriculum. They represented a variety of occupations in the field of education. The reviewers were from both urban and rural areas of Alabama. The Alabama third-party independent Science reviewers’ information is summarized in Table 5 below.

**Table 5: Alabama Science Third-Party Independent Reviewers**

<b>Reviewer</b>	<b>Current Position</b>	<b>Years in Teaching</b>	<b>Years as Curriculum Specialist or Other</b>	<b>Urban or Rural</b>
Charles Holloway	Physical Science Educational Specialist	20	1	Urban
Amy Murphy	Science Curriculum Specialist	21	11	Rural & Urban
Amanda Rylant	Life Science Education Specialist, AMSTI-ASIM	10	10	Urban

## National Science Reviewers

### Timothy Butcher (Group Facilitator)

Mr. Butcher is a science assessment coordinator at the West Virginia Department of Education in Charleston, West Virginia. His responsibilities include managing item development for statewide science assessments in grades 3–11, analyzing test and item data for the development of test forms, and developing state science standards to ensure testable objectives and appropriate depth-of-knowledge (DOK) levels. Mr. Butcher has extensive experience in science education that includes teaching Science 9, Advanced Chemistry, Environmental Science, and Advanced Placement (AP) Environmental Science for the Putnam County Board of Education and teaching courses in Earth, Life, and Physical sciences; Environmental Science; Biology; Biology II; Human Anatomy; and AP Biology for the Wood County Board of Education. He is the owner, author, and illustrator of Amoeba Books and a freelance author for a biology textbook at McGraw-Hill. He has also worked as a supervisor of publisher sales and marketing for science material kits at Science Kit and Boreal Laboratories/VWR Scientific in Tonawanda, New York. Mr. Butcher is the inventor of Groundwater Flowmeister, which simulates the flow of groundwater. The product was manufactured and marketed by Science Kit.

Mr. Butcher has participated in alignment studies in California, Iowa, Nebraska, Oklahoma, Pennsylvania, and South Dakota. He has also served on the Wood County Schools curriculum and science textbook committees. In addition, he has developed and edited the *WESTEST 2 Test Coordinator's Manual*, *WESTEST 2 Examiner's Manual*, *West Virginia Geological Survey Activity Book*, and *Marietta College Environmental Alliance Activity Book*.

Mr. Butcher completed a BS in biology, general science, and secondary education from the State University of New York at Buffalo. He received an MBA in educational administration from West Virginia University. He has also completed forty-five additional graduate hours in science and education courses.

### Dave Durette

For over seventeen years, Mr. David Durette has worked on a variety of assessment programs, providing his expertise and leadership in the content area of science. He has coordinated and managed item development teams, overseeing the development of science items for several regular and modified large-scale testing programs.

Mr. Durette has developed items, created and revised guiding documents, and drafted test blueprints for the Science portion of California's Standardized Testing and Reporting program. For many years, he facilitated a variety of meetings of the Science Assessment Review Panel (ARP), including science content reviews, bias/fairness/sensitivity reviews, standard setting, and rangefinding for the STAR program. Mr. Durette consistently delivered the required quality of items and assessment materials to the California Department of Education. He also managed the development of science items aligned to Next Generation Science Standards for several large-scale testing programs.



Prior to his work in the K–12 testing industry, Mr. Durette worked in the education department at the Shedd Aquarium in Chicago where he developed teacher study guides that aligned marine science content to new state standards. He also co-chaired the annual National Marine Educators Conference.

Mr. Durette holds a BS in Biology from Northland College in Ashland, Wisconsin, and an MS in Teaching and Learning through DePaul University in Chicago, Illinois.

### J. Svalberg

Ms. Svalberg has over twelve years of science teaching experience at the middle school and high school levels, which included the development of curriculum and labs for Biology I, Biology II, Chemistry, Astronomy, and Physical Sciences. She has conducted numerous item-writer workshops and participated in state committee meetings to review assessment items and item data, in addition to developing formative and interim science assessments.

In addition to her teaching experience, Ms. Svalberg has over twenty years of experience in science test development activities. She has constructed science assessment items based on state-specific standards and worked to align author-submitted items to state standards. Ms. Svalberg has constructed passages and science-based scenarios designed to support multiple assessment items and prepared paper and online science test versions for implementation in the field. In her work, Ms. Svalberg has led science test development for a number of projects, including Project Lead the Way, Graduate Records Examination, and state projects, including those in Pennsylvania, Maryland, California, Virginia, Massachusetts, Georgia, Oklahoma and Mississippi.

She maintains her Texas teaching certification in biology, chemistry, and life/Earth sciences, in addition to an active membership in the National Science Teacher Association for twenty-three years. Ms. Svalberg earned a BS degree in biomedical sciences from Texas A&M University in College Station, Texas. She has also completed graduate work in chemical oceanography from Texas A&M.

## Alignment Study: Approach and Process

As stated earlier in this report, the ACT and PreACT to Alabama Courses of Study alignment study was based on the work of Dr. Norman Webb, Wisconsin Center for Educational Research, University of Wisconsin–Madison. In his work, Webb states that the alignment of the standards or objectives for student learning with tests for measuring students’ attainment of these expectations is an essential component for an effective standards-based education system. The alignment study was designed to model Webb’s procedures, including the use of depth-of-knowledge levels and Webb’s definition of alignment (Webb, 2005, 2007). The definition is as follows:

Alignment is defined as the degree to which expectations and assessments are in agreement and serve in conjunction with one another to guide the system toward students learning what they are expected to know and do. As such, alignment is a quality of the relationship between expectations and assessments and not a specific attribute of either of these two system components. Alignment describes the match between expectations and assessment that can be legitimately improved by changing either student expectations or assessments. Seen as a relationship between two or more system components, alignment can be determined by using the multiple criteria described in detail in a National Institute of Science Education (NISE) research monograph, *Criteria for Alignment of Expectations and Assessments* (Webb, 1997).

### Webb’s Alignment Model

Webb’s alignment model is based upon four criteria: depth-of-knowledge consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation. Reviewers used these four criteria to assess the content agreement between the Alabama Courses of Study and ACT and PreACT assessment items/tests. For each alignment criterion, an acceptable level was defined by what would be required to ensure that a student had met the standards.

A brief description of the alignment criteria is provided below. Additional information can be found in the chapter of this report labeled Alignment Criteria.

*Depth-of-knowledge consistency*—an indication of whether the cognitive demands required of the students by the assessment are consistent with what students are expected to know and do as stated in the Alabama Courses of Study.

*Categorical concurrence*—a general indication of how well the test includes items that measure content from the Alabama Courses of Study.

*Range-of-knowledge correspondence*—an indication of whether the extent of knowledge expected of students by an Alabama Course of Study Standard or set of standards is the same as the extent of knowledge required of students to answer the test items correctly.

*Balance of representation*—an indication of the degree to which one Alabama Course of Study Standard or group of standards is given more emphasis on the test than another Alabama Standard or group of standards. An index (Webb, 2002) is used to judge the distribution of the test items.

The Webb model has been used extensively in many alignment studies throughout the country and has been recommended for use by the Council of Chief State School Officers (CCSSO). The alignment criteria in the Webb model also adhere to the guidelines specified in the United States Department of Education’s Standards and Assessments peer review documents, including the State’s Guide to the U.S. Department of Education’s Assessment Peer Review Process, provided on September 24, 2018. Additional information regarding the Webb model criteria can be found in the chapter labeled Alignment Criteria of this report.

### **Alignment Study Materials**

This study examined alignment of several ACT and PreACT test forms administered to Alabama students with Alabama’s related high school course standards in English Language Arts, Mathematics, and Science.

#### Test Forms

ACT’s curriculum-based test, which assesses student mastery in both college and career readiness and some state learning standards, was examined for alignment. At the request of ALSDE, three forms of the Reading test typically administered in the 11<sup>th</sup> grade, three English language tests administered in the 11<sup>th</sup> grade, and three Writing (essay) tests administered in the 11<sup>th</sup> grade were included.

Also examined for alignment were three forms of the PreACT test in Reading and three forms of the PreACT test in English language, both typically administered to 10<sup>th</sup> grade students. The PreACT is designed to predict how the student will score on the corresponding ACT test in 12 to 18 months, assuming that typical learning continues. The Writing (essay) test is not offered as a part of the PreACT.

In Science, three forms of the ACT Science test typically administered in the 11<sup>th</sup> grade were examined. Three forms of the PreACT test in Science that are typically administered in the 10<sup>th</sup> grade were also included in the study.

In Mathematics, two forms of the ACT Mathematics test typically administered to 11<sup>th</sup> grade students and two forms of the PreACT Mathematics test were examined for their degree of alignment.

It is important to note and keep in mind as results are reviewed that the test forms studied were not custom-designed for assessing the specific learning standards of the state of Alabama.

## Alabama State Standards

Alabama's learning standards used in this study included the 11<sup>th</sup> and 10<sup>th</sup> grade English Language Arts course standards. In the general content area of Mathematics, course standards for Algebra I, Geometry, and Algebra II were used as appropriate. Algebra II was used only for Mathematics ACT alignment, and not PreACT alignment, because the PreACT would generally be administered in the 10<sup>th</sup> grade, while Algebra II would more likely be taken in the 11<sup>th</sup> or 12<sup>th</sup> grade. Within Science, the study used Alabama's course standards for Biology, Chemistry, Physics, and Earth and Space Science.

## **Alignment Study Procedure**

The panelists met in Montgomery for a period of three (Mathematics and Science) or four (English Language Arts) days during the fourth week of July 2019 to participate in the alignment study. Norman Webb's (1999, 2005) definition and model of alignment were followed in design of the data collection for the study.

At the beginning of the data collection meeting, all panelists were provided with an orientation presentation that lasted approximately 90 minutes. At the request of ACT, the orientation began with a 30-minute presentation on the ACT and PreACT tests. Three employee representatives from ACT, each with a different area of ACT content expertise, delivered the presentation which covered the assessment designs for the Mathematics and Science tests and the three tests of the ELA component. The presentation included information on test characteristics, item types, scoring, and reporting. It is available in Appendix F of this report.

The second presentation, which lasted approximately one hour, was delivered by the independent investigator/trainer and covered Webb's definition of alignment and his conceptualization of alignment criteria, including a detailed discussion of depth-of-knowledge (DOK) levels and alignment criteria. The alignment process and spreadsheets all panelists would use were also introduced. Further detailed instruction was provided to the panels as they progressed through the five steps of the process. Individual panelists were given instruction on aspects of specific steps when this was requested or judged necessary by the trainer and a support person/auditor representing the state's testing contractor as an independent observer. The three group facilitators also assisted with instruction and guidance. Characteristics of the ACT assessments used in Alabama required some special instructions during the data collection phase of the study.

Task 1 focused on reaching consensus on the DOK level of each content standard after individual panelists had made initial independent DOK assignments. All panelists participated in the discussions so that the judgments of both Alabama educators and the national content experts could be considered in reaching consensus on the DOK level of each standard. The panel facilitator made sure that there was adequate discussion whenever needed before designating the consensus DOKs. The trainer and observer both noted that discussions were thoughtful and balanced, and no one panelist dominated the discussions in each content area.

Detailed instruction was provided by the trainer and facilitator at the beginning of each

subsequent task, 2 through 5. Panelists worked independently at tasks 2 through 5 which focused on making a series of judgments regarding alignment at the individual test item and test form levels. Panelists worked at a pace comfortable to them, and all panelists had sufficient time to thoroughly examine the alignment of all test forms assigned to their group. The ACT representatives who delivered the orientation to the tests also distributed and collected all ACT and PreACT test forms and maintained security of all test forms examined by the panelists during the data collection meeting.

A high-level overview of the steps in the process is provided on the next page. The Alabama Course of Study Standards, along with the DOK consensus values, can be found in Appendix B of this report. The alignment study process also involved the electronic capture of data. Information about the electronic data capture tool and its use in the process is provided below.

### Analyses

Judgments of the panelists were statistically analyzed according to Webb's model of alignment. All of the model's statistical alignment criteria were applied, and the results were reviewed along with the panelists' written responses to a debriefing questionnaire (task 5) completed for each set of test forms, in preparation for this report. It is important for the readers of this report to keep in mind that the study results speak specifically to the alignment of the ACT and PreACT test forms examined with Alabama's course standards for the appropriate grade or course(s). This report does not address the development of the ACT assessments as measures of college and career readiness designed to broadly measure general knowledge and skills in the five content areas of reading, English, writing, mathematics, and science.

### **The Electronic Data Capture Tool**

The electronic data capture tool was used in the third-party alignment study. The tool was designed specifically to facilitate the gathering of independent reviewers' judgments. For the ACT and PreACT Alabama third-party alignment study, the application automated the process of aligning the Alabama Standard for a given content area and the test items found on the given ACT or PreACT assessment. The tool and its reports made it possible to gauge in a timely manner the alignment, based on Webb's alignment model, between the Alabama Courses of Study and the items on the assessments. In addition, the tool also provided opportunities for reviewers to provide additional information regarding items, including providing comments related to source of challenge. The item-by-objective or standard codings by reviewers were then aggregated and analyzed.

As stated, the national alignment expert, Dr. James Augustin, provided training on the overall alignment process and DOK levels and also served as the lead facilitator. Dr. Augustin has extensive experience training third-party independent review committee members in the use of electronic data capture software for alignment studies. The training provided information on understanding not only the DOK levels but also proper use of the electronic data capture tool when assigning a DOK level to each Alabama Standard and item. A high-level overview of the process is provided on the next page.

## Alignment Study Process

### **Step 1: Determining the depth-of-knowledge (DOK) level**

Reviewers individually determined the DOK level for each Alabama Course of Study Standard. They discussed their DOK ratings in order to reach a group consensus.

### **Step 2: Taking the test**

Reviewers took the test and recorded their answers and comments about the test items.

### **Step 3: Determining what each test item measured and the DOK level for each test item**

#### *Step 3.1*

Using the first three test items, reviewers independently determined what each item measured by assigning it to a primary standard (and a secondary standard, if applicable). A group discussion took place; however, reaching consensus on what each item measured was not required.

#### *Step 3.2*

Reviewers independently determined the DOK levels of the first three items. Reviewers were instructed to code only one DOK level (1, 2, or 3) for each of the three items. Reviewers also independently noted any source of challenge for the first three items. A group discussion took place; however, reaching consensus on the DOK levels of the first three items was not required.

#### *Step 3.3*

Reviewers continued to independently determine the primary standard and the secondary standard, if applicable, for the remainder of the test items.

#### *Step 3.4*

Reviewers independently determined the DOK levels for the remainder of the test items. Again, the reviewers were instructed to code only one DOK level for each of the remaining test items.

Throughout the alignment process, reviewers independently noted any source of challenge for each test item and provided written comments as necessary.

### **Step 4: Summarizing alignment criteria of test items**

Once reviewers determined the primary and/or secondary standard for each test item and the DOK level for each test item, they analyzed the entire test for DOK consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation.

### **Step 5: Debriefing Questionnaire**

Reviewers independently shared feedback about the process, the test items, and the standards.

## Alignment Criteria

Reviewers assessed specific criteria related to the content alignment between the Alabama Courses of Study and the ACT and PreACT test items. The four criteria receiving major attention were depth-of-knowledge consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation. For each alignment criterion, an acceptable level was defined by what would be required to ensure that a student had met the standards.

*Depth-of-knowledge consistency*—an indication of whether the cognitive demands required of the students on the assessment are consistent with what students are expected to know and do as stated in the Alabama Courses of Study. According to Webb’s alignment model, depth-of-knowledge consistency between the assessment items and the Alabama Courses of Study indicates alignment if what is elicited from students on the assessment is as demanding cognitively as what students are expected to know and be able to do as stated in the standards. Therefore, for consistency to exist between the assessment items and the Alabama Courses of Study, each item should be coded at the same depth-of-knowledge level as the standard or one level above the depth-of-knowledge level of the standard. According to Webb’s alignment model, as a measure of consistency, at least 50% of the items corresponding to an Alabama Standard must be at or above the depth-of-knowledge level of the content standard. For depth-of-knowledge consistency, this criterion was judged by first allowing reviewers to align the items to the Alabama Courses of Study (see Appendix B of this report).

The Webb definitions for the depth-of-knowledge levels were used for this alignment study. The levels are as follows: Level 1 (Recall and Reproduction), Level 2 (Skills and Concepts), and Level 3 (Strategic and Extended Thinking). Additional information concerning the levels can be found in Appendix A of this report.

*Categorical concurrence*—a general indication of how well the assessment includes items that measure content from each standard. According to Webb (2002), an important aspect of alignment between each Alabama Course of Study and the assessment is whether both address the same content categories. The categorical concurrence criterion provides a very general indication of alignment if the Alabama Courses of Study and the set of operational assessment items incorporate the same content. Webb’s alignment model recommends that at least six items be aligned to a given domain. For this alignment study, this criterion was judged by first allowing reviewers to make a determination as to whether the test as a whole included items measuring content from each of the Alabama Courses of Study standards or groups of standards (domain). The reviewers used their professional opinions and the Webb guiding principle to determine that having at least six items measuring content from each domain is a good indicator of categorical concurrence between the standards and the test (Webb, 2002).

Using Webb’s model, the number of items used to determine categorical concurrence (six for this study) is based on estimating the number of items that could produce a reasonably reliable subscale for estimating students’ mastery of content on that subscale. Of course, many factors have to be considered in determining a reasonable number, including the reliability of the subscale, the mean score, and the cutoff score for determining mastery. Using a procedure developed by Subkoviak (1988) and assuming that the cutoff score is the mean and that the

reliability of one item is 0.1, it was estimated that six items would produce an agreement coefficient of at least 0.63. This indicates that about 63% of the group would be consistently classified as either masters or non-masters if two equivalent test administrations were employed. The agreement coefficient would increase if the cutoff score was increased to one standard deviation from the mean to 0.77 and, with a cutoff score of 1.5 standard deviations from the mean, to 0.88.

Again, for this alignment study, the criterion was judged by first allowing reviewers to align the items to the Alabama Courses of Study. Six items were assumed as a minimum number of items for a test measuring content knowledge related to a domain and as a basis for making some decisions about students' knowledge of those standards. If the mean for six items is three, and one standard deviation is one item, then a cutoff score set at four would produce an agreement coefficient of 0.77. Any fewer items with a mean of one-half of the items would require a cutoff that would allow a student to miss only one item. This would be a very stringent requirement considering a reasonable standard error of measurement on the subscale. (See Appendix C of this report.)

*Range-of-knowledge correspondence*—an indication of whether the extent of knowledge expected of students by an Alabama Course of Study is the same as the extent of knowledge required of students to answer the assessment items correctly. According to Webb's alignment model, for standards and the items on a given assessment to be aligned, the breadth of knowledge required by both should be comparable. This is called the range-of-knowledge correspondence. The range-of-knowledge correspondence criterion is used to judge whether a comparable span of knowledge expected of students by the Alabama Courses of Study is the same as, or corresponds to, the span of knowledge that students need in order to correctly answer the items on the assessment. According to Webb's alignment model, to attain an acceptable range-of-knowledge correspondence, at least 50% of the Alabama Course of Study Standards must have at least one item aligned to them. The range-of-knowledge correspondence criterion was judged by first allowing reviewers to align the items to the Alabama Courses of Study. (See Appendix C of this report.)

*Balance of representation*—an indication of the degree to which one Alabama Course of Study Standard is given more emphasis on the assessment than another standard. An index is used to judge the distribution of the test items. This index only considers the standard that has at least one related assessment item. The index in this study was computed by considering the difference in the proportion of standards and the proportion of hits (corresponding items) assigned to the standards. An index value of one signifies perfect balance and is obtained if the hits are equally distributed among the standards. Index values that approach zero signify that a large proportion of the hits are on only one or two of all the standards. Depending on the number of standards and the number of hits, a unimodal distribution has an index value of less than 0.5. A bimodal distribution has an index value of around 0.55 or 0.6. Index values of 0.7 or higher indicate that items are distributed among all the standards within a domain, at least to some degree. Index values between 0.6 and 0.7 indicate that the balance-of-representation criterion has only been "moderately" met. The balance of representation criterion was judged by first allowing reviewers to align the items to the Alabama Courses of Study. (See Appendix C of this report.)



A summary of Webb’s alignment criteria can be found in Table 6.

**Table 6: Alignment Levels for the Four Criteria**

<b>Alignment Level</b>	<b>Depth-of-Knowledge Consistency</b>	<b>Categorical Concurrence</b>	<b>Range-of-Knowledge Correspondence</b>	<b>Balance of Representation</b>
Yes	≥50%	mean is 6 or more	≥50%	≥0.70
Weak	40%–49%	mean is 5 to 5.9	40%–49%	0.60–0.69
No	less than 40%	mean is less than 5	less than 40%	less than 0.60

The results for each of the four criteria discussed in this section were calculated using Webb’s methodology, reviewers’ averaged ratings, and reviewers’ comments. The results for depth-of-knowledge consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation are included in Appendix C of this report.

### **Source of Challenge**

The purpose of an alignment study is to determine the degree of alignment between the Alabama Courses of Study and the test items found on the given ACT and PreACT test forms. In addition, the electronic data capture tool provides opportunities for reviewers to offer comments and/or feedback on how the test items are written. Reviewers are also encouraged to note whether a source-of-challenge issue exists with a particular test item or items. A source-of-challenge issue might include a reviewer’s opinion that a particular item contained misleading information or that a particular item might require prior knowledge. All comments about the items and/or source-of-challenge issues are provided to the Alabama State Department of Education for review and subsequent action, if required.

The source-of-challenge comments are not provided in this report. The final results of this alignment study reflect only the agreement between the Alabama Courses of Study and the given ACT and PreACT test forms. In other words, the purpose of the alignment study is not to provide an opinion or to verify the general quality of the Alabama Courses of Study or the ACT or PreACT test forms.

## Depth-of-Knowledge Alignment Analysis of the Alabama Courses of Study and ACT and PreACT Assessments: English, Reading, and Writing

The first major step in the alignment process involved reviewers' determination of the depth-of-knowledge (DOK) levels of the Alabama Courses of Study as shown in Tables 7 and 8 below. Additional information regarding the various DOK levels can be found in Appendix A of this report.

**Table 7: Summary of DOK Consensus Results for English Language Arts Grade 10**

Alabama English Language Arts Grade 10 Course of Study Standards	No. of Standards Assessed	DOK Level	Standards by DOK Level		Overall DOK Average of AL Standards
			No. of Standards	Percentage	
Reading Standards for Literature	9	1	0	0%	2.44
		2	5	56%	
		3	4	44%	
Reading Standards for Informational Text	11	1	0	0%	2.45
		2	6	55%	
		3	5	45%	
Language Standards	6	1	2	33%	1.67
		2	4	67%	
		3	0	0%	
Writing Standards	10	1	0	0%	2.80
		2	2	20%	
		3	8	80%	
<b>TOTAL</b>	<b>36</b>	<b>1</b>	<b>2</b>	<b>6%</b>	<b>2.42</b>
		<b>2</b>	<b>17</b>	<b>47%</b>	
		<b>3</b>	<b>17</b>	<b>47%</b>	

**Table 8: Summary of DOK Consensus Results for English Language Arts Grade 11**

Alabama English Language Arts Course of Study Standards Grade 11	No. of Standards Assessed	DOK Level	Standards by DOK Level		Overall DOK Average of AL Standards
			No. of Standards	Percentage	
Reading Standards for Literature	9	1	0	0%	2.56
		2	4	44%	
		3	5	56%	
Reading Standards for Informational Text	9	1	0	0%	2.56
		2	4	44%	
		3	5	56%	
Language Standards	6	1	2	33%	1.67
		2	4	67%	
		3	0	0%	
Writing Standards	10	1	0	0%	2.80
		2	2	20%	
		3	8	80%	
<b>TOTAL</b>	<b>34</b>	<b>1</b>	<b>2</b>	<b>6%</b>	<b>2.47</b>
		<b>2</b>	<b>14</b>	<b>41%</b>	
		<b>3</b>	<b>18</b>	<b>53%</b>	

**Alignment Results**

Using the electronic data capture tool, reviewers independently determined what each item measured. They also entered the DOK level for each item. The calculation software provided the statistical analysis to determine whether each ACT or PreACT assessment as a whole included items measuring content from each of the Alabama Course of Study Standards’ domains. The tool also provided the statistical analysis to determine depth-of-knowledge consistency, range-of-knowledge correspondence, and balance of representation.

A high-level summary alignment analysis for depth-of-knowledge consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation is provided in Tables 9–23. The results indicate that the alignment relationship between the Alabama Courses of Study for English Language Arts and the given ACT or PreACT is generally acceptable, as noted in the Interpretation of Alignment Results section of this report. Additional detailed information is provided in Appendix C and Appendix D of this report.

**Table 9: English ACT Form 1 Alignment Summary**

<b>English ACT Form 1 - General Summary</b>				
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Writing Standards</b>	Yes	Yes	No	Yes
<b>Language Standards</b>	Yes	Yes	Yes	Yes

**Table 10: English ACT Form 2 Alignment Summary**

<b>English ACT Form 2 - General Summary</b>				
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Writing Standards</b>	Yes	Yes	No	Yes
<b>Language Standards</b>	Yes	Yes	Yes	Weak

**Table 11: English ACT Form 3 Alignment Summary**

<b>English ACT Form 3 - General Summary</b>				
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Writing Standards</b>	Yes	Yes	No	Yes
<b>Language Standards</b>	Yes	Yes	Yes	Yes

**Table 12: English PreACT Form 1 Alignment Summary**

<b>English PreACT Form 1 - General Summary</b>				
<b>Alabama English Language Arts Grade 10 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Writing Standards</b>	Yes	Yes	No	Yes
<b>Language Standards</b>	Yes	Yes	Yes	Weak

**Table 13: English PreACT Form 2 Alignment Summary**

English PreACT Form 2 - General Summary				
Alabama English Language Arts Grade 10 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Writing Standards	Yes	Yes	No	Yes
Language Standards	Yes	Yes	Yes	Yes

**Table 14: English PreACT Form 3 Alignment Summary**

English PreACT Form 3 - General Summary				
Alabama English Language Arts Grade 10 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Writing Standards	Yes	Yes	No	Yes
Language Standards	Yes	Yes	Yes	Yes

### Interpretation of Alignment Results

Although small differences were found in the alignment of the forms within each set of three ACT or PreACT forms examined, there were easily discernible patterns and trends in their alignment criteria results. This general finding concerning the alignment dimensions was somewhat expected because each set of forms reviewed was presented by ACT as a set of parallel forms. The most apparent and notable trends in the four alignment criteria or alignment dimensions for each set of test forms are discussed here.

#### ACT English Test Forms

The ELA panel of reviewer experts examined the alignment of the three ACT English tests with two categories of English standards for the grade 11 ELA course of study: writing standards and English language standards. All three forms of the ACT English test met the criterion of Categorical Concurrence for both the writing and the language standards for grade 11. DOK Consistency also was attained for the ACT English test items measuring Alabama’s writing standards and the state’s English language standards. The items on each ACT form were judged to measure at least half the standards within the language standards category, meeting the Range-of-Knowledge Correspondence criterion. Range-of-Knowledge Correspondence was not attained for Alabama’s category of English writing standards. The Balance of Representation criterion was achieved for both categories (writing and language) of Alabama’s grade 11 English standards, indicating a reasonable distribution of the ACT English test items measuring the standards within each category.

In their debriefing comments, two of the six panelists described the alignment of the ACT English test forms as “acceptable.” One panelist described the three forms as “in need of slight

improvement,” and the remaining three panelists judged the alignment to be “in need of more improvement.” Among the panelists’ principal expressed concerns were insufficient coverage of the standards in the areas of argumentative writing, research skills, analyzing voice and style, and mastery of grammar, usage, mechanics and vocabulary.

PreACT English Test Forms

Analyzing the panel’s judgments of items on the three PreACT English test forms yielded the same pattern of alignment with grade 10 ELA standards as was found between the ACT English tests and Alabama’s standards for the grade 11 ELA course of study. Categorical Concurrence and DOK Consistency were attained for both the Writing and Language categories of Alabama’s grade 10 English Language Arts standards. Balance of Representation was also attained for both categories of standards; however, Balance of Representation was weak for the Language standards for one of the three PreACT forms. Range-of-Knowledge Correspondence was attained for the Language category of standards for all three forms examined. Range-of-Knowledge Correspondence alignment was not attained for the category of Writing standards for all three PreACT English test forms, indicating a failure to have at least one test item measuring each of at least half of the standards in the Writing category.

In their written responses to the debriefing questions, the panel was evenly split between describing the PreACT English forms as acceptable or in need of improvement (major or slight). Panelists who described the three forms as in need of some degree of improvement cited the need to measure standards on narrative and argumentative writing, research skills and evaluating sources, and avoiding plagiarism. Also noted was the need to better assess mastery of language usage and mechanics.

**Table 15: Reading ACT Form 1 Alignment Summary**

<b>Reading ACT Form 1 – General Summary</b>				
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Reading Standards for Literature</b>	Yes	Yes	Yes	Yes
<b>Reading Standards for Informational Text</b>	Yes	Yes	Yes	Yes
<b>Key Ideas and Details (Literature &amp; Informational Text)</b>	Yes	Yes	Yes	Weak
<b>Craft and Structure (Literature &amp; Informational Text)</b>	Yes	Yes	Yes	Yes
<b>Integration of Knowledge and Ideas (Literature &amp; Informational Text)</b>	No	Yes	No	Yes

**Table 16: Reading ACT Form 2 Alignment Summary**

Reading ACT Form 2 - General Summary				
Alabama English Language Arts Grade 11 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Reading Standards for Literature	Yes	Yes	Yes	Yes
Reading Standards for Informational Text	Yes	Weak	Yes	Yes
Key Ideas and Details (Literature & Informational Text)	Yes	Weak	Yes	Weak
Craft and Structure (Literature & Informational Text)	Yes	Yes	Yes	Yes
Integration of Knowledge and Ideas (Literature & Informational Text)	No	Yes	No	Yes

**Table 17: Reading ACT Form 3 Alignment Summary**

Reading ACT Form 3 – General Summary				
Alabama English Language Arts Grade 11 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Reading Standards for Literature	Yes	Weak	Weak	Yes
Reading Standards for Informational Text	Yes	Yes	Yes	Yes
Key Ideas and Details (Literature & Informational Text)	Yes	Weak	Yes	Weak
Craft and Structure (Literature & Informational Text)	Yes	Yes	Yes	Yes
Integration of Knowledge and Ideas (Literature & Informational Text)	No	Yes	No	Yes

**Table 18: Reading PreACT Form 1 Alignment Summary**

Reading PreACT Form 1 - General Summary				
Alabama English Language Arts Grade 10 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Reading Standards for Literature	Yes	Yes	Weak	Yes
Reading Standards for Informational Text	Yes	Yes	Weak	Yes
Key Ideas and Details (Literature & Informational Text)	Yes	Yes	Yes	Weak
Craft and Structure (Literature & Informational Text)	Yes	Yes	Yes	Yes
Integration of Knowledge and Ideas (Literature & Informational Text)	No	Yes	No	Yes

**Table 19: Reading PreACT Form 2 Alignment Summary**

Reading PreACT Form 2 - General Summary				
Alabama English Language Arts Grade 10 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Reading Standards for Literature	Yes	Yes	Weak	Yes
Reading Standards for Informational Text	Yes	Yes	Weak	Yes
Key Ideas and Details (Literature & Informational Text)	Yes	Yes	Yes	Yes
Craft and Structure (Literature & Informational Text)	Yes	Yes	Yes	Yes
Integration of Knowledge and Ideas (Literature & Informational Text)	No	Yes	No	Yes

**Table 20: Reading PreACT Form 3 Alignment Summary**

Reading PreACT Form 3 - General Summary				
Alabama English Language Arts Grade 10 Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Reading Standards for Literature	Yes	Yes	Yes	Yes
Reading Standards for Informational Text	Yes	Yes	Yes	Yes
Key Ideas and Details (Literature & Informational Text)	Yes	Yes	Yes	Yes
Craft and Structure (Literature & Informational Text)	Yes	Yes	Yes	Yes
Integration of Knowledge and Ideas (Literature & Informational Text)	No	Yes	No	Yes

### **Interpretation of Alignment Results**

Although small differences were found in the alignment of the forms within each set of three ACT or PreACT forms examined, there were easily discernible patterns and trends in their alignment criteria results. This general finding concerning the alignment dimensions was somewhat expected because each set of forms reviewed was presented by ACT as a set of parallel forms. The most apparent and notable trends in the four alignment criteria or alignment dimensions for each set of test forms are discussed here.

#### ACT Reading Test Forms

Alignment of the ACT Reading test forms with Alabama’s Reading standards for the grade 11 English Language Arts course of study was generally acceptable according to the analysis of the ELA panel’s judgments about the test content. However the analysis did reveal a few weaknesses



in the forms and two noteworthy failures to attain alignment criteria. The two failures were associated with the category of standards falling under the title “Integration of Knowledge and Ideas (Literature and Informational Text).” First, an insufficient number (fewer than 5) of items on each of the ACT forms measured the items within this category, and second, those items covered fewer than half of the standards within the category, causing each of the three forms to fail to meet the criterion for Range-of-Knowledge Correspondence alignment. DOK Consistency and Balance of Representation were, however, attained for the items that measured the “Integration of Knowledge and Ideas” standards.

The Categorical Concurrence criterion was attained by all three ACT forms for the other four categories of Reading standards: Reading Standards for Literature; Reading Standards for Informational Text; Key Ideas and Details (Literature and Informational Text); and Craft and Structure (Literature and Informational Text). The most notable weakness (present across all three test forms) revealed by the analysis was the weak level of Balance of Representation alignment for the Key Ideas and Details standards. DOK Consistency was also weak for two forms for the items measuring the Key Ideas and Details standards.

In their qualitative judgments, made on the debriefing questionnaire, of overall test alignment for the three ACT Reading forms, three panelists described the alignment of the ACT Reading test forms with Alabama’s grade 11 Reading standards as “acceptable.” One panelist described the forms as “in need of slight improvement,” and the remaining two panelists said the forms were in need of more improvement.” The major reason provided by the panelists who stated a need for improvement in alignment of the ACT Reading forms was, insufficient coverage of the Alabama reading standards, both in quantity of standards and quality, especially the full rigor and breadth of the reading standards. It may be useful to note here that 32 (94%) of the 34 ELA standards for grade 11 were assigned DOK levels of 2 and 3 during task 1 consensus discussions on the DOK levels of the standards.

### PreACT Reading Test Forms

Alignment of the PreACT Reading test forms with Alabama’s grade 10 reading standards was generally acceptable according to the analysis of panelists’ judgments concerning the content of all three reading forms examined. All three PreACT Reading test forms met all four alignment criteria for the standards categories of Reading Standards for Literature, Reading Standards for Informational Text, Key Ideas and Details, and Craft and Structure. Two failures to meet alignment criteria were revealed for the fifth category of standards – Integration of Knowledge and Ideas. Failures for both Categorical Concurrence and Range of Knowledge Correspondence were found in the alignment of test content with the Integration of Knowledge and Ideas standards for all three PreACT Reading test forms. This means that there was an insufficient number of items measuring this category of standards, and fewer than half of the standards in the category were represented by one or more items on each test form. Analysis also revealed weaknesses for Range of Knowledge Correspondence on two of the PreACT Reading test forms in the categories of Reading Standards for Literature and Reading Standards for Informational Text. DOK Consistency and Balance of Representation alignment criteria were achieved for the Integration of Knowledge and Ideas standards category.

In their comments on the debriefing questionnaire, four panelists described the overall alignment between the PreACT assessments and the Alabama grade 10 reading standards as “acceptable.” Two of those panelists made the observation that they thought the PreACT did a better job of covering those standards than the ACT test forms did covering the grade 11 reading standards. These comments seem reasonable when the tables presenting findings across the four alignment dimensions are examined, especially concerning the DOK consistency results where several weaknesses were identified across the three ACT Reading test forms.

Two panelists said the PreACT Reading assessments were “in need of more improvement.” They explained this qualitative judgment by citing the many Alabama reading standards that were not covered. These panelists also observed that the detailed parts of the standards often were only partially covered and that the PreACT assessments consistently addressed the less rigorous parts of those standards. One of these panelists also cited weaknesses in the literary passages that could be improved to strengthen the PreACT Reading alignment.

**Table 21: Writing ACT Form 1 Alignment Summary**

<b>Writing ACT Form 1 - General Summary</b>		
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>
<b>Writing Standards</b>	Yes	Yes
<b>Language Standards</b>	No	Yes

**Table 22: Writing ACT Form 2 Alignment Summary**

<b>Writing ACT Form 2 - General Summary</b>		
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>
<b>Writing Standards</b>	Yes	Yes
<b>Language Standards</b>	No	Yes

**Table 23: Writing ACT Form 3 Alignment Summary**

<b>Writing ACT Form 3 - General Summary</b>		
<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>
<b>Writing Standards</b>	Yes	Yes
<b>Language Standards</b>	No	Yes

### **Interpretation of Alignment Results**

Although small differences were found in the alignment of the forms within the set of three ACT forms examined, there were easily discernible patterns and trends in their alignment criteria

results. This general finding concerning the alignment dimensions was somewhat expected because each set of forms reviewed was presented by ACT as a set of parallel forms. The most apparent and notable trends in the four alignment criteria or alignment dimensions for each set of test forms are discussed here.

### Writing ACT Test Forms

Three ACT Writing test forms and the scoring rubric for the ACT Writing essays were examined for alignment by the ELA panel. Holistic judgments were made about each of the three Writing forms and the scoring rubric. All three forms were judged to have met the Categorical Concurrence criterion for the Writing standards within ELA, but failed to attain Categorical Concurrence alignment criteria for the Language standards. DOK Consistency was judged to have been met by the requirements of the writing tasks and the scoring rubric. Due to each ACT Writing test form consisting of one argumentative writing prompt and a 4-point rubric, it was not appropriate to apply the alignment criteria of Range-of-Knowledge Correspondence and Balance of Representation to the single task.

In their responses to the debriefing questionnaire for the three ACT Writing prompts, three panelists described the alignment between the prompts and associated scoring rubric and the Alabama standards related to the argumentative mode of writing as “perfect.” A fourth panelist described the alignment as “acceptable.” The two panelists noting a need for improvement stated that the improvement needed was additional writing assessment tasks that address the Alabama writing standards concerned with narrative and expository writing.

## Depth-of-Knowledge Alignment Analysis of the Alabama Courses of Study and ACT and PreACT Assessments: Mathematics

The first major step in the alignment process involved reviewers' determination of the depth-of-knowledge (DOK) levels of the Alabama Courses of Study as shown in Table 24 below. Additional information regarding the various DOK levels can be found in Appendix A of this report.

**Table 24: Summary of DOK Consensus Results for Mathematics**

Alabama Mathematics Course of Study Standards	No. of Standards Assessed	DOK Level	Standards by DOK Level		Overall DOK Average of AL Standards
			No. of Standards	Percentage	
Algebra I	47	1	20	43%	1.60
		2	26	55%	
		3	1	2%	
Geometry	43	1	16	37%	1.84
		2	18	42%	
		3	9	21%	
Algebra II	46	1	19	41%	1.61
		2	26	57%	
		3	1	2%	
<b>TOTAL</b>	<b>136</b>	<b>1</b>	<b>55</b>	<b>40%</b>	<b>1.68</b>
		<b>2</b>	<b>70</b>	<b>52%</b>	
		<b>3</b>	<b>11</b>	<b>8%</b>	

### Alignment Results

Using the electronic data capture tool, reviewers independently determined what each item measured. They also entered the DOK level for each item. The calculation software provided the statistical analysis to determine whether each ACT or PreACT assessment as a whole included items measuring content from each of the Alabama Course of Study Standards' domains. The tool also provided the statistical analysis to determine depth-of-knowledge consistency, range-of-knowledge correspondence, and balance of representation.

A high-level summary alignment analysis for depth-of-knowledge consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation is provided in Tables 25–28. The results indicate that the quality of the alignment relationship between the

Alabama Mathematics Courses of Study and the given ACT or PreACT is mixed, showing some acceptable alignments and some areas needing improvement. Additional detailed information is provided in Appendix C and Appendix D of this report.

**Table 25: Mathematics ACT Form 1 Alignment Summary by Conceptual Categories across Courses of Study**

<b>Mathematics ACT Form 1 – General Summary</b>				
<b>Alabama Mathematics Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Number and Quantity (Algebra I Standards, Algebra II Standards)</b>	Yes	Yes	Weak	Yes
<b>Algebra (Algebra I Standards, Algebra II Standards)</b>	Yes	Yes	No	Yes
<b>Functions (Algebra I Standards, Algebra II Standards)</b>	Yes	No	No	Yes
<b>Statistics (Algebra I Standards, Algebra II Standards, Geometry Standards)</b>	Yes	Yes	Weak	Yes
<b>Geometry (Geometry Standards)</b>	Yes	Weak	No	Yes

**Table 26: Mathematics ACT Form 2 Alignment Summary by Conceptual Categories across Courses of Study**

<b>Mathematics ACT Form 2 – General Summary</b>				
<b>Alabama Mathematics Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Number and Quantity (Algebra I Standards, Algebra II Standards)</b>	Yes	Yes	Weak	Yes
<b>Algebra (Algebra I Standards, Algebra II Standards)</b>	Yes	Yes	No	Yes
<b>Functions (Algebra I Standards, Algebra II Standards)</b>	Yes	Yes	No	Yes
<b>Statistics (Algebra I Standards, Algebra II Standards, Geometry Standards)</b>	Yes	Weak	No	Yes
<b>Geometry (Geometry Standards)</b>	Yes	Weak	No	Yes

**Table 27: Mathematics PreACT Form 1 Alignment Summary by Conceptual Categories across Courses of Study**

<b>Mathematics PreACT Form 1 – General Summary</b>				
<b>Alabama Mathematics Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Number and Quantity (Algebra I Standards)</b>	Weak	Yes	Weak	Yes
<b>Algebra (Algebra I Standards)</b>	Yes	Yes	No	Yes
<b>Functions (Algebra I Standards)</b>	No	Yes	No	Yes
<b>Statistics (Algebra I Standards, Geometry Standards)</b>	No	Yes	No	Yes
<b>Geometry (Geometry Standards)</b>	Yes	Weak	No	Yes

**Table 28: Mathematics PreACT Form 2 Alignment Summary by Conceptual Categories across Courses of Study**

<b>Mathematics PreACT Form 2 – General Summary</b>				
<b>Alabama Mathematics Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Number and Quantity (Algebra I Standards)</b>	Weak	Yes	Weak	Yes
<b>Algebra (Algebra I Standards)</b>	Yes	Yes	No	Yes
<b>Functions (Algebra I Standards)</b>	Weak	Yes	No	Yes
<b>Statistics (Algebra I Standards, Geometry Standards)</b>	No	Yes	No	Yes
<b>Geometry (Geometry Standards)</b>	Yes	Weak	No	Yes

### **Interpretation of Alignment Results**

Although small differences were found in the alignment of the forms within each set of two ACT or PreACT forms examined, there were easily discernible patterns and trends in their alignment criteria results. This general finding concerning the alignment dimensions was somewhat expected because each set of forms reviewed was presented by ACT as a set of parallel forms. The most apparent and notable trends in the four alignment criteria or alignment dimensions for

each set of test forms are discussed here.

### ACT Mathematics Forms

Analysis of panelists' item-level alignment judgments combined with their debriefing questionnaire comments provides a mixed picture of the degree of alignment between the two ACT Mathematics tests studied and the five categories of Alabama high school standards for Algebra and Geometry courses. This is probably due in part to the large number of mathematics course standards (136).

Categorical Concurrence was achieved for each of Alabama's five categories of standards: Number and Quantity, Algebra, Functions, Statistics, and Geometry. This means that six or more items on each test form were aligned with the content standards falling within each category. However, Range-of-Knowledge Correspondence was not attained on either ACT form for three categories of standards: Algebra, Functions, and Geometry. Range-of-Knowledge Correspondence was weak for both ACT forms for a fourth category of standards: Number and Quantity. For the fifth category, Range-of-Knowledge Correspondence alignment was not achieved on one form and weak on the other. These findings indicate that for each standards category, fewer than half the standards within the category are measured by one or more items on the assessments. This is at least in part why five of the six panelists stated in their debriefing comments that the ACT Mathematics test forms reviewed did not sufficiently cover the range of Alabama standards covered in the associated mathematics courses. Three panelists observed that many (as many as 25%) of the ACT test items could not be matched to any Alabama high school mathematics course standard and seemed to be measuring foundational standards taught in middle school.

Analysis of the panel's item-level judgments also revealed some problems with DOK consistency on the two ACT forms. DOK Consistency was weak for the Geometry standards category for both forms reviewed. DOK Consistency was not attained on one form for the Functions standards, and it was weak for the Statistics category on the other form. Five panelists did comment that the questions on the assessments generally were not as demanding cognitively as the Alabama standards they were measuring.

The deficiencies and weaknesses panelists observed with Range-of-Knowledge Correspondence (insufficient content coverage) and DOK Consistency (insufficient cognitive complexity of the test content) are, at least in part, what led all six panelists to state that the ACT Mathematics test forms reviewed are in need of improvement in order to serve as sound measures of the achievement or mastery of Alabama course standards in Algebra and Geometry. Four panelists said slight improvement was needed. The remaining two panelists said that in their opinion, more improvement was required, citing that as many as 25% of the test items seemed to measure earlier grade-level (middle school) standards rather than Alabama's mathematics standards for high school students.

## PreACT Mathematics Forms

Studying the results of the analysis of panelists' judgments regarding alignment between the two PreACT Mathematics test forms reviewed and the Alabama Course of Study Standards for Algebra I and Geometry, it appears that there are substantial deficiencies and weaknesses in alignment. Categorical Concurrence was not attained for either PreACT form for the Statistics category of Alabama standards.

Categorical Concurrence was weak for the Number and Quantity standards on both forms examined. For the Functions category of Alabama standards, alignment was weak on one form and was not attained on the other form reviewed. Range-of-Knowledge Correspondence was weak for the Number and Quantity category of standards, and was not attained for the other four categories of Alabama standards (Algebra, Functions, Statistics, and Geometry) indicating that fewer than half the standards in each category were represented by at least one item on the PreACT test forms. DOK Consistency was weak on both PreACT forms for the Geometry standards.

In their debriefing notes the panelists commented on the lack of coverage of the test-eligible Alabama high school course standards. Some panelists acknowledged that the deficiencies were in part due to the relatively small number of PreACT test items and testing time constraints (short amount of test administration time). However, three panelists mentioned finding large numbers of items on the PreACT forms that were not aligned to Algebra I and Geometry standards but instead focused on standards for mathematics learning at earlier (middle school) grade levels. In their overall evaluations of PreACT alignment with Alabama course standards, three panelists wrote that the test forms were "in need of major improvement," two panelists stated that the forms were "in need of slight improvement," and one panelist described the alignment as "acceptable." One person was not surprised by the identified PreACT concerns in alignment with Alabama mathematics standards because "the purpose of these assessments was to prepare students for the ACT."



## Depth-of-Knowledge Alignment Analysis of the Alabama Courses of Study and ACT and PreACT Assessments: Science

The first major step in the alignment process involved reviewers’ determination of the depth-of-knowledge (DOK) levels of the Alabama Courses of Study as shown in Table 29 below. Additional information regarding the various DOK levels can be found in Appendix A of this report.

**Table 29: Summary of DOK Consensus Results for Science**

Alabama Science Course of Study Standards	No. of Standards Assessed	DOK Level	Standards by DOK Level		Overall DOK Average of AL Standards
			No. of Standards	Percentage	
Biology	16	1	0	0%	2.38
		2	10	62.5%	
		3	6	37.5%	
Chemistry	11	1	0	0%	2.36
		2	7	64%	
		3	4	36%	
Physics	12	1	0	0%	2.17
		2	10	83%	
		3	2	17%	
Earth and Space Science	15	1	3	20%	1.80
		2	12	80%	
		3	0	0%	
<b>TOTAL</b>	<b>54</b>	<b>1</b>	<b>3</b>	<b>6%</b>	<b>2.17</b>
		<b>2</b>	<b>39</b>	<b>72%</b>	
		<b>3</b>	<b>12</b>	<b>22%</b>	

### Alignment Results

Using the electronic data capture tool, reviewers independently determined what each item measured. They also entered the DOK level for each item. The calculation software provided the statistical analysis to determine whether each ACT or PreACT assessment as a whole included items measuring content from each of the Alabama Course of Study Standards’ domains. The tool also provided the statistical analysis to determine depth-of-knowledge consistency, range-of-knowledge correspondence, and balance of representation.

A high-level summary alignment analysis for depth-of-knowledge consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation is provided in Tables 30–35. The results indicate that the alignment relationship between the Alabama Science Courses of Study and the given ACT or PreACT assessment is in need of improvement, as noted in the Interpretation of Alignment Results section of this report. Additional detailed information is provided in Appendix C and Appendix D of this report.

**Table 30: Science ACT Form 1 Alignment Summary**

<b>Science ACT Form 1 - General Summary</b>				
<b>Alabama Science Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Biology</b>	Yes	Yes	No	Yes
<b>Chemistry</b>	Yes	Yes	No	Yes
<b>Physics</b>	Yes	Yes	No	Yes
<b>Earth and Space Science</b>	No	Yes	No	Yes

**Table 31: Science ACT Form 2 Alignment Summary**

<b>Science ACT Form 2 - General Summary</b>				
<b>Alabama Science Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Biology</b>	Weak	Weak	No	Yes
<b>Chemistry</b>	Yes	Yes	No	Yes
<b>Physics</b>	No	Yes	No	Yes
<b>Earth and Space Science</b>	No	Yes	No	Yes

**Table 32: Science ACT Form 3 Alignment Summary**

<b>Science ACT Form 3 - General Summary</b>				
<b>Alabama Science Course of Study</b>	<b>Categorical Concurrence</b>	<b>DOK Consistency</b>	<b>Range of Knowledge</b>	<b>Balance of Representation</b>
<b>Biology</b>	Yes	Yes	No	Yes
<b>Chemistry</b>	Yes	Yes	No	Yes
<b>Physics</b>	No	Yes	No	Yes
<b>Earth and Space Science</b>	No	Yes	No	Yes

**Table 33: Science PreACT Form 1 Alignment Summary**

Science PreACT Form 1 - General Summary				
Alabama Science Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Biology	No	No	No	Yes
Chemistry	No	Yes	No	Yes
Physics	No	Yes	No	Yes
Earth and Space Science	No	Yes	No	Yes

**Table 34: Science PreACT Form 2 Alignment Summary**

Science PreACT Form 2 - General Summary				
Alabama Science Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Biology	No	No	No	Yes
Chemistry	No	Yes	No	Yes
Physics	No	Yes	No	Yes
Earth and Space Science	No	Yes	No	Yes

**Table 35: Science PreACT Form 3 Alignment Summary**

Science PreACT Form 3 - General Summary				
Alabama Science Course of Study	Categorical Concurrence	DOK Consistency	Range of Knowledge	Balance of Representation
Biology	Weak	Yes	No	Yes
Chemistry	No	Yes	No	Yes
Physics	No	Yes	No	Yes
Earth and Space Science	No	Yes	No	Yes

### Interpretation of Alignment Results

Although small differences were found in the alignment of the forms within each set of three ACT or PreACT forms examined, there were easily discernible patterns and trends in their alignment criteria results. This general finding concerning the alignment dimensions was somewhat expected because each set of forms reviewed was presented by ACT as a set of parallel forms. The most apparent and notable trends in the four alignment criteria or alignment dimensions for each set of test forms are discussed here.

### ACT Science Test Forms

Generally, there was sufficient coverage of the Biology and Chemistry standards across the three ACT Science forms examined to result in Categorical Concurrence alignment. There was not sufficient coverage of both the Physics and Earth and Space Science standards categories on two of the ACT Science forms, and insufficient coverage of Earth and Space Science standards on the third form studied. DOK Consistency was found to be sufficient for all four categories of science standards, with the exception of one form for the Biology standards category. Range-of-Knowledge Correspondence was not attained for any of the four categories of standards, but a reasonable Balance of Representation was attained for items measuring the standards that were addressed within each course category. So, fewer than half of the standards for each of the four science courses were assessed by the ACT forms, but the items on the test were reasonably spread across the course standards that were assessed.

In their debriefing questionnaire comments, all six panelists wrote that the ACT Science test forms covered only a limited, narrow collection of Alabama's science course content standards rather than the full range of standards. While it was observed that there were science test passages for all four courses, two panelists noted less emphasis on Earth and Space Science than the other three courses. Five panelists specifically commented on the large volume of reading required, and that many questions could be correctly answered by simply reading tables, charts, and graphs. They noted a lack of Alabama's science concepts and knowledge assessed within the test items. Their substantial concerns about science content shortcomings led all six panelists to conclude that alignment between the Alabama science course standards and the ACT science assessments is "in need of major improvement."

### PreACT Science Test Forms

For all three forms of the PreACT assessments examined, there was insufficient coverage of the course standards for all four science courses, resulting in a failure to attain Categorical Concurrence for each of the four science courses of study. However, DOK Consistency generally was achieved for PreACT items measuring the Chemistry, Physics, and Earth and Space Science standards. DOK Consistency alignment was not achieved for the Biology items on two of the three PreACT test forms. With fewer than half of the course standards measured for each science course, Range-of-Knowledge Correspondence was not attained for any of the four courses. However, there was a reasonable spread of PreACT items across the course standards that actually were measured, resulting in attainment of the Balance of Representation alignment criterion for all four science course categories.

Panelists' observations and comments concerning the PreACT Science test forms were similar to those made for the ACT Science test forms. Five of the six panelists said that the alignment between the Alabama science course standards and the PreACT Science assessments is "in need of major improvement." The sixth panelist said the PreACT Science assessments were "not aligned in any way."

All panelists commented on the limited coverage of the Alabama standards, citing gaps in content coverage and a test item emphasis on Biology. Four panelists again expressed concern about the volume of reading comprehension required, including reading data associated with charts and graphs, to find the correct answers to questions with vague or loose connections to the Alabama science standards. One panelist further explained that there were plenty of Biology passages, but the questions did not address Biology content standards.

Some members of the science panel acknowledged in their written comments that the ACT and PreACT Science assessments could be useful in judging how well Alabama students will do in college-level science courses. However, they also recognized that these tests were not accurate, valid measures of the science concepts (expressed in the Alabama science standards) that are learned in the classroom by Alabama high school students.

## Reliability among Reviewers

The intra-class correlation is based on the mean squares from the analysis of variance of a two-way random effects model, reviewers crossed with items (Shroud & Fleiss, 1979), as described in Appendix E. The overall intra-class correlation among the reviewers' assignment of depth-of-knowledge levels to items was reasonably high. If there is a low variance among the reviewers' coding in assigning depth-of-knowledge levels to items, the intra-class correlation has greater error. Table 36 provides a summary of the intra-class correlation.

**Table 36: Summary of Reliability among Reviewers**

Test Form	Intra-Class Correlation
<b>Reading ACT Form 1</b>	0.81
<b>Reading ACT Form 2</b>	0.83
<b>Reading ACT Form 3</b>	0.83
<b>Reading PreACT Form 1</b>	0.79
<b>Reading PreACT Form 2</b>	0.74
<b>Reading PreACT Form 3</b>	0.73
<b>English ACT Form 1</b>	0.91
<b>English ACT Form 2</b>	0.91
<b>English ACT Form 3</b>	0.94
<b>English PreACT Form 1</b>	0.95
<b>English PreACT Form 2</b>	0.97
<b>English PreACT Form 3</b>	0.95
<b>Writing ACT Form 1</b>	0.69
<b>Writing ACT Form 2</b>	0.69
<b>Writing ACT Form 3</b>	0.77
<b>Mathematics ACT Form 1</b>	0.64
<b>Mathematics ACT Form 2</b>	0.72
<b>Mathematics PreACT Form 1</b>	0.72
<b>Mathematics PreACT Form 2</b>	0.76
<b>Science ACT Form 1</b>	0.66
<b>Science ACT Form 2</b>	0.73
<b>Science ACT Form 3</b>	0.72
<b>Science PreACT Form 1</b>	0.51
<b>Science PreACT Form 2</b>	0.84
<b>Science PreACT Form 3</b>	0.68

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# **Appendix A**

## **Depth-of-Knowledge Levels**



## Reading DOK Definitions

### DOK 1

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DOK 1 involves reading text orally and with basic comprehension, decoding words, blending phonemes, receiving and reciting facts, demonstrating letter and word knowledge, and recognizing text features and common spelling patterns. DOK 1 also includes receiving or reciting facts acquired by processing text as well as reading orally without the analysis of text. Very basic comprehension of a text gained from knowledge of vocabulary and explicit structure of the text is at this category. Tasks require only a shallow understanding of the text presented and often consist of verbatim recall from text, slight paraphrasing of specific details from the text, or simple understanding of a single word or phrase. Younger students who answer direct questions about features stated explicitly in the text are performing at this category. Applying phonics and word analysis skills in decoding words are also DOK 1 tasks. Some examples that represent, but do not constitute all of, DOK 1 performance are:

- Support ideas with reference to verbatim (or only slightly paraphrased) details from the text.
- Use a dictionary to find the meanings of words.
- Recognize figurative language in a reading passage

## DOK 2

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DOK 2 involves drawing meaning from text by using organizational structure, evidence, and context; summarizing main ideas, character traits, plots, themes, and figurative use of words; following cause-effect sequences and multiple ideas through a text; distinguishing among hypotheses and givens as well as fact from opinion; and explaining differences among genres (poetry, expository materials, fiction, etc.). DOK 2 requires the engagement of some mental processing beyond recalling or reproducing a response; it requires both comprehension and subsequent processing of text or portions of text. Inter-sentence analysis or inference is required. DOK 2 tasks may require use of specific information from the text to explain given events and ideas. At this level, reading concepts (e.g. making inferences or predictions) are generally applied for purposeful reading. Multiple features of the text are processed to gain a deeper understanding of the text such as organizing in a time sequence, outlining, comparing fact from opinion, and using graphic aides. Deciphering main ideas supported by key details or drawing on details to describe a feature in a story are stressed. Younger students conveying important points from a story fit under this category. DOK 2 ideas, in general, apply the skills and concepts that constitute DOK 1. However, DOK 2 activities involve closer understanding of text, possibly through paraphrasing, such as putting in one's own words both the question and response to an assessment item. Some examples that represent, but do not constitute all of, DOK 2 performance include:

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- Use context cues to identify the meaning of unfamiliar words, phrases, and expressions that could otherwise have multiple meanings.
  - Predict a logical outcome based on information in a reading selection.
  - Identify and summarize the major events in a narrative.

### DOK 3

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DOK 3 involves conducting analyses of the text to make inferences on author's purpose and use of textual features (e.g. literary devices to support and convey the main message); engaging in critical reading to attest to the credibility of the message, the internal logic, and implied values, attitudes, and biases; and going beyond the text by comparing features and meaning with other texts, considering the impact of the time period and other conditions when the text was written, and raising valid alternative hypotheses and conclusions to those presented in the text. At DOK 3 deep knowledge becomes a greater focus. Students are encouraged to go beyond the text; however, they are still required to show understanding of the ideas in the text. Students may be encouraged to explain, generalize, or connect ideas while applying reasoning and planning. Students must be able to support their thinking. Younger students who provide some valid evidence for their breakdown of a story into meaningful parts are performing at this category. Tasks at a Category 3 may involve abstract theme identification, inference across an entire passage with multiple paragraphs, or students' application of prior knowledge. Activities may also involve identifying more abstract connections between texts. Some examples that represent, but do not constitute all of, DOK 3 performance include:

- Explain or recognize how the author's purpose affects the interpretation of a reading selection.
- Summarize information from multiple sources to address a specific topic.
- Analyze and describe the characteristics of various types of literature.

#### **General Guidelines for Assigning DOK:**

- The DOK definitions can be applied to reading standards, tasks, or activities.
- Consider the complexity of the reading demands, not the difficulty for students.
- Consider the experience (prior knowledge) and grade-level expectations of a typical student.
- Do not rely on verbs (describe, explain, evaluate, etc.). Instead, consider the content complexity required for an adequate response.
- For multiple-choice assessment items, consider the item as a whole—including distractors—to judge complexity.
- An expectation or item that is confusing due to error or wording does not reflect increased content complexity—it simply means the statement needs revisions.
- The reading DOK levels were originally based on Valencia and Wixson (2000, pp. 909-935).

## Writing DOK Levels

*Writing Level 1.* Level 1 requires the student to write or recite simple facts. The focus of this writing or recitation is not on complex synthesis or analysis, but on basic ideas. The students are asked to list ideas or words, as in a brainstorming activity, prior to written composition; are engaged in a simple spelling or vocabulary assessment; or are asked to write simple sentences. Students are expected to write, speak, and edit using the conventions of Standard English. This includes using appropriate grammar, punctuation, capitalization, and spelling. Students demonstrate a basic understanding and appropriate use of such reference materials as a dictionary, thesaurus, or Web site. Some examples that represent, but do not constitute all of, Level 1 performance are:

- Use punctuation marks correctly.
- Identify Standard English grammatical structures, including the correct use of verb tenses.

*Writing Level 2.* Level 2 requires some mental processing. At this level, students are engaged in first-draft writing or brief extemporaneous speaking for a limited number of purposes and audiences. Students are expected to begin connecting ideas, using a simple organizational structure. For example, students may be engaged in note-taking, outlining, or simple summaries. Text may be limited to one paragraph. Some examples that represent, but do not constitute all of, Level 2 performance are:

- Construct or edit compound or complex sentences, with attention to correct use of phrases and clauses.
- Use simple organizational strategies to structure written work.
- Write summaries that contain the main idea of the reading selection and pertinent details.

*Writing Level 3.* Level 3 requires some higher-level mental processing. Students are engaged in developing compositions that include multiple paragraphs. These compositions may include complex sentence structure and may demonstrate some synthesis and analysis. Students show awareness of their audience and purpose through focus, organization, and the use of appropriate compositional elements. The use of appropriate compositional elements includes such things as addressing chronological order in a narrative, or including supporting facts and details in an informational report. At this stage, students are engaged in editing and revising to improve the quality of the composition. Some examples that represent, but do not constitute all of, Level 3 performance are:

- Support ideas with details and examples.
- Use voice appropriate to the purpose and audience.
- Edit writing to produce a logical progression of ideas.

## Mathematics DOK Definitions

### DOK 1 (Recall)

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DOK 1 is defined by the rote recall of information or performance of a simple, routine procedure. For example, repeating a memorized fact, definition, or term, performing a simple algorithm, rounding a number, or applying a formula are DOK 1 performances. Performing a one-step computation or operation, executing a well-defined multi-step procedure or a direct computational algorithm are also included in this category. Examples of well-defined multi-step procedures include finding the mean or median or performing long division. Reading information directly from a graph, plugging data into an electronic device to derive an answer, or simple paraphrasing are all tasks that are considered a level of complexity comparable to recall. A student answering a Level 1 item either knows the answer or does not: that is, the item does not need to be “figured out” or “solved.”

At a DOK 1, problems in context are straightforward and the solution path is obvious. For example, the problem may contain a keyword that indicates the operation needed. Other DOK 1 examples include plotting points on a coordinate system, using coordinates with the distance formula, or drawing lines of symmetry of geometric figures.

At more advanced levels of mathematics, symbol manipulation and solving a quadratic equation or a system of two linear equations with two unknowns are considered comparable to recall assuming students are expected or likely to use well-known procedures (e.g. factoring, completing the square, substitution, or elimination) to derive a solution. Operating on polynomials or radicals, using the laws of exponents, or simplifying rational expressions are considered rote procedures.

Verbs should not be classified as any category without considering what the verb is acting upon or the verb’s direct object. “*Identify* attributes of a polygon” is recall, but “*identify* the rate of change for an exponential function” requires a more complex analysis. To *describe* by listing the steps used to solve a problem is recall (i.e., *Show your work*) whereas to *describe* by providing a mathematical argument or rationale for a solution is more complex.



## **DOK 2 (Skill/Concept)**

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DOK 2 involves engaging in some mental processing beyond a habitual response as well as decision-making about how to approach the problem or activity. This category can require conceptual understanding and/or demonstrating conceptual knowledge by explaining thinking in terms of concepts.

DOK 2 tasks includes distinguishing among mathematical ideas, processing information about the underlying structure, drawing relationships among ideas, deciding among and performing appropriate skills, applying properties or conventions within a relevant and necessary context, transforming among different representations, interpreting and solving problems and/or graphs. When given a problem statement, formulating an equation or inequality, deriving a solution, and reporting the solution in the context of the problem fit within DOK 2. Processes such as classifying, organizing, and estimating that involve attending to multiple attributes, features, or properties also fall into this category.

Verifying that the number of objects in one set is larger or fewer than the number of objects in a second set by matching pairs or forming equivalent groups is a DOK 2 activity for a kindergartener. A first grader modeling a joining or separating situation pictorially or physically also is in this category.

Skills and concepts include constructing a graph and interpreting the meaning of critical features of a function, beyond just identifying or finding such features as well as describing the effects of parameter changes. Note, however, that using a well-defined procedure to find features of a standard function, such as the slope of a linear function with one variable or a quadratic, is a DOK 1. Graphing higher order or irregular functions is a DOK 2. Basic computation, as well as converting between different units of measurement, are generally a Category 1, but illustrating a computation by different representations (e.g. equations and a base-ten model) to explain the results is a DOK 2. Computing measures of central tendency (applying set procedures) is a DOK 1, but interpreting such measures for a data set within its context or using measures to compare multiple data sets is a DOK 2. Performing original formal proofs is beyond DOK 2, but explaining in one's own words the reasons for an action or application of a property is comparable to a DOK 2. Activities at a DOK 2 are not limited only to number skills, but may involve visualization skills (e.g. mentally rotating a 3D figure or transforming a figure) and probability skills requiring more than simple counting (e.g. determining a sample space or probability of a compound event). Other activities at this category include detecting or describing non-trivial patterns, explaining the purpose and use of experimental procedures, and carrying out experimental procedures.

### **DOK 3 (Strategic Thinking)**

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DOK 3 requires reasoning and analyzing using mathematical principles, ideas, structure, and practices. DOK 3 includes solving involved problems; conjecturing; creating novel solutions and forms of representation; devising original proofs, mathematical arguments, and critiques of arguments; constructing mathematical models; and forming robust inferences and predictions. Although DOK 2 also involves some problem solving, DOK 3 includes situations that are non-routine, more demanding, more abstract, and more complex than DOK 2. Such activities are characterized by producing sound and valid mathematical arguments when solving problems, verifying answers, developing a proof, or drawing inferences. Note that the sophistication of a mathematical argument that would be considered DOK 3 depends on the prior knowledge and experiences of the person. For example, primary school student arguments for number problems can be a DOK 3 activity (e.g. counting number of combinations, finding shortest route from home to school, computing with large numbers) as can abstract reasoning in developing a logical argument by students in higher grades. DOK 3 problems are those for which it is not evident from the first reading what is needed to derive a solution and so require demanding reasoning to work through. Such problems usually can be solved in different ways and may even have more than one correct solution based on different stated assumptions. Paraphrasing in one's own words or reproducing a proof that was previously demonstrated is a DOK 2. Applying properties and producing arguments in proving a theorem or identity not previously seen is a DOK 3. Also in the DOK 3 category is making sense of the mathematics in a situation, creating a mathematical model of a situation considering contextual constraints, deriving a new formula, designing and conducting an experiment, and interpreting findings.

#### **General Guidelines for Assigning DOK:**

- The DOK definitions can be applied to mathematics standards, tasks, or activities.
- Consider the complexity of the mathematical demands, not the difficulty for students.
- Consider the mathematical experience (prior knowledge) and grade-level expectations of a typical student.
- Do not rely on verbs (describe, explain, evaluate, etc.). Instead, consider the content complexity required for an adequate response.
- For multiple-choice assessment items, consider the item as a whole—including distractors—to judge complexity.
- An expectation or item that is confusing due to error or wording does not reflect increased content complexity—it simply means the statement needs revisions.



# WebbAlign

## Science DOK Definitions

### **DOK 1 (Recall and Reproduction)**

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DOK 1 is defined by the recall of information, such as a fact, definition, or term, as well as performance of a simple grade-level-appropriate science process or procedure. DOK 1 only requires students to demonstrate a rote response, use a well-known formula, follow a set procedure (like a recipe), or perform a clearly defined series of steps. Simple word problems that can be directly translated into and solved by a formula are considered DOK 1.

A student answering a DOK 1 item either knows the answer or does not; that is, the item does not need to be “figured out” or “solved.” In other words, if the knowledge necessary to answer an item automatically provides the answer to it, then the item is at DOK 1. Some examples that represent, but do not constitute all of, DOK 1 performance are:

- Recall or recognize a fact, term, structure, or property.
- Represent in words or diagrams a scientific concept or relationship.
- Provide or recognize a standard scientific representation for simple phenomenon.
- Perform a grade level-appropriate routine procedure, such as measuring length or completing a basic Punnet square.

Verbs such as “identify,” “recall,” “recognize,” “use,” “calculate,” and “measure” generally represent cognitive work at the recall and reproduction level. Verbs such as “describe” and “explain” could be classified at different DOK levels, depending on the complexity of what is to be described and explained. Note, however, that verbs should not be the basis of DOK classification without considering what the verb is acting upon or the verb’s direct object.

## **DOK 2 (Skills and Concepts)**

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DOK 2 includes the engagement of some mental processing beyond recalling or reproducing a response. The content knowledge or process involved is more complex than in DOK 1. Items require students to make some decisions about how to approach the question or problem. Classifying and comparing are activities that are typically a DOK 2 as well as organizing and displaying data in tables, graphs, and charts. These actions imply more than one step. For example, to compare data requires first identifying characteristics of the objects or phenomena and then grouping or ordering the objects. Some action verbs, such as “explain,” “describe,” or “interpret,” could be classified at different DOK levels, depending on the complexity of the action. For example, interpreting information from a simple graph, requiring reading information from the graph, is a DOK 2. An item that requires interpretation from a complex graph, such as making decisions regarding features of the graph that need to be considered and how information from the graph can be aggregated, is at DOK 3. Some examples that represent, but do not constitute all of, DOK 2 performance, are:

- Specify and explain the relationship between facts, terms, properties, or variables.
- Describe and explain examples and non-examples of science concepts.
- Select a procedure according to specified criteria and perform it.
- Formulate a routine problem, given data and conditions.
- Organize, represent, and interpret data.
- Interpret or explain phenomena in terms of science concepts.
- Make basic predictions for cause-and-effect relationships.

## **DOK 3 (Strategic Thinking)**

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DOK 3 requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. The cognitive demands at DOK 3 are complex and abstract. The complexity does not result only from the fact that there could be multiple answers, a possibility for both DOK 1 and 2, but because the multi-step task requires more demanding reasoning. In most instances, requiring students to provide a rationale for their thinking is at DOK 3 (although a task requiring a very simple explanation or a word or two should be at DOK 2). An activity that has more than one possible answer and requires students to justify the response they give would most likely be a DOK 3. Experimental designs at DOK 3 may involve more than one dependent variable. Some examples that represent, but do not constitute all of DOK 3 performance, are:

- Identify research questions and design investigations for a scientific problem.
- Use concepts to solve non-routine problems.
- Draw robust conclusions from observations.
- Cite evidence and develop a logical argument.
- Develop a scientific model for a complex situation.
- Form conclusions from experimental data.

### **General Guidelines for Assigning DOK:**

- In the context of science education, “knowledge” can refer both to content knowledge and knowledge of scientific processes. This meaning of knowledge is consistent with the *Next Generation Science Standards* (NGSS) recognition of three dimensions of science: Practices, Crosscutting Concepts, and Disciplinary Core Ideas.
- The DOK definitions can be applied to science standards, tasks, or activities.
- Consider the content complexity, not the difficulty for students.
- Consider the scientific experience (prior knowledge) and grade-level expectations of a typical student
- Do not rely on verbs (describe, explain, evaluate, etc.). Instead, consider the content complexity required for an adequate response.
- For multiple-choice assessment items, consider the item as a whole—including distractors—to judge complexity.
- An expectation or item that is confusing due to error or wording does not reflect increased content complexity—it simply means the statement needs revisions.

# **Appendix B**

## **Depth-of-Knowledge Consensus Values**

# English Language Arts Grade 10 DOK Consensus

	Consensus
<b>Reading Standards for Literature</b>	
<b>Key Ideas and Details</b>	
RL.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. [RL.9-10.1]	2
RL.2 Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. [RL.9-10.2]	3
RL.3 Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme. [RL.9-10.3]	2
<b>Craft and Structure</b>	
RL.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone). [RL.9-10.4]	2
RL.5 Analyze how an author’s choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise. [RL.9-10.5]	3
RL.6 Analyze a particular point of view or cultural experience reflected in a work of early American literature to 1900, drawing on a wide reading of American literature. [RL.9-10.6]	2
<b>Integration of Knowledge and Ideas</b>	
RL.7 Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden’s “Musée des Beaux Arts” and Breughel’s Landscape with the Fall of Icarus). [RL.9-10.7]	3
RL.8 Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how early American authors draw upon the Bible for religious themes and issues). [RL.9-10.9]	3
<b>Range of Reading and Level of Text Complexity</b>	
RL.9 By the end of Grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the Grades 9-10 text complexity band independently and proficiently. [RL.9-10.10]	2
<b>Reading Standards for Informational Text</b>	
<b>Key Ideas and Details</b>	
RI.10 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. [RI.9-10.1]	2
RI.11 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. [RI.9-10.2]	2
RI.12 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them. [RI.9-10.3]	2

<b>Craft and Structure</b>	
RI.13 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper). [RI.9-10.4]	2
RI.14 Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter). [RI.9-10.5]	3
RI.15 Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose. [RI.9-10.6]	3
<b>Integration of Knowledge and Ideas</b>	
RI.16 Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account. [RI.9-10.7]	2
RI.17 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning. [RI.9-10.8]	3
RI.18 Analyze seminal United States documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address), including how they address related themes and concepts. [RI.9-10.9]	3
RI.19 Analyze seventeenth-, eighteenth-, and nineteenth-century foundational United States documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln’s Second Inaugural Address) for their themes, purposes, and rhetorical features. [RI.11-12.9]	3
<b>Range of Reading and Level of Text Complexity</b>	
RI.20 By the end of Grade 10, read and comprehend literary nonfiction at the high end of the Grades 9-10 text complexity band independently and proficiently. [RI.9-10.10]	2
<b>Language Standards</b>	
<b>Conventions of Standard English</b>	
L.37 Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking. [L.9-10.1] a. Use parallel structure.* [L.9-10.1a] b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations. [L.9-10.1b] c. Apply rules of subject-verb agreement when the subject is compound in form but singular in meaning and when the subject is plural in form but singular in meaning.	1
L.38 Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing. [L.9-10.2] a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. [L.9-10.2a] b. Use a colon to introduce a list or quotation. [L.9-10.2b] c. Spell correctly. [L.9-10.2c]	1
<b>Knowledge of Language</b>	

<p>L.39 Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. [L.9-10.3]</p> <p>a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., Modern Language Association’s MLA Handbook for Writers of Research Papers, American Psychological Association’s Publication Manual of the American Psychological Association) appropriate for the discipline and writing type. [L.9-10.3a]</p>	2
<b>Vocabulary Acquisition Use</b>	
<p>L.40 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 10 reading and content, choosing flexibly from a range of strategies. [L.9-10.4]</p> <p>a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase. [L.9-10.4a]</p> <p>b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy). [L.9-10.4b]</p> <p>c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. [L.9-10.4c]</p> <p>d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary). [L.9-10.4d]</p>	2
<p>L.41 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. [L.9-10.5]</p> <p>a. Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text. [L.9-10.5a]</p> <p>b. Analyze nuances in the meaning of words with similar denotations. [L.9-10.5b]</p>	2
<p>L.42 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. [L.9-10.6]</p>	2
<b>Writing Standards</b>	
<b>Text Types and Purposes</b>	

<p>W.21 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. [W.9-10.1]</p> <p>a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence. [W.9-10.1a]</p> <p>b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level and concerns. [W.9-10.1b]</p> <p>c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. [W.9-10.1c]</p> <p>d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. [W.9-10.1d]</p> <p>e. Provide a concluding statement or section that follows from and supports the argument presented. [W.9-10.1e]</p>	<p><b>3</b></p>
<p>W.22 Write informative or explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. [W.9-10.2]</p> <p>a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. [W.9-10.2a]</p> <p>b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic. [W.9-10.2b]</p> <p>c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. [W.9-10.2c]</p> <p>d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. [W.9-10.2d]</p> <p>e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. [W.9-10.2e]</p> <p>f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic). [W.9-10.2f]</p>	<p><b>3</b></p>



<p>W.23 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. [W.9-10.3]</p> <p>a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator, characters, or both; create a smooth progression of experiences or events. [W.9-10.3a]</p> <p>10<sup>th</sup></p> <p>b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. [W.9-10.3b]</p> <p>c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole. [W.9-10.3c]</p> <p>d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. [W.9-10.3d]</p> <p>e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative. [W.9-10.3e]</p>	3
<b>Production and Distribution of Writing</b>	
<p>W.24 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 21-23 above.) [W.9-10.4]</p>	2
<p>W.25 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of the first three standards in the Language strand in Grades K-10.) [W.9-10.5]</p>	3
<p>W.26 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically. [W.9-10.6]</p>	2
<b>Research to Build and Present Knowledge</b>	
<p>W.27 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; and synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. [W.9-10.7]</p>	3
<p>W.28 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; and integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. [W.9-10.8]</p>	3
<p>W.29 Draw evidence from literary or informational texts to support analysis, reflection, and research. [W.9-10.9]</p> <p>a. Apply Grade 10 Reading standards to literature (e.g., “Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]”). [W.9-10.9a]</p> <p>b. Apply Grade 10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”). [W.9-10.9b]</p>	3
<b>Range of Writing</b>	

W.30 Write routinely over extended time frames, including time for research, reflection, and revision, and shorter time frames such as a single sitting or a day or two for a range of tasks, purposes, and audiences. [W.9-10.10]	<b>3</b>
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## English Language Arts Grade 11 DOK Consensus

	Consensus
<b>Reading Standards for Literature</b>	
<b>Key Ideas and Details</b>	
RL.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain. [RL.11-12.1]	2
RL.2 Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text. [RL.11-12.2]	3
RL.3 Analyze the impact of the author’s choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed). [RL.11-12.3]	3
<b>Craft and Structure</b>	
RL.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.) [RL.11-12.4]	2
RL.5 Analyze how an author’s choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact. [RL.11-12.5]	3
RL.6 Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement). [RL.11-12.6]	2
<b>Integration of Knowledge and Ideas</b>	
RL.7 Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.) [RL.11-12.7]	3
RL.8 Demonstrate knowledge of twentieth- and twenty-first-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics. [RL.11-12.9]	3
<b>Range of Reading and Level of Text Complexity</b>	
RL.9 By the end of Grade 11, read and comprehend literature, including stories, dramas, and poems, in the Grades 11-College and Career Readiness (CCR) text complexity band proficiently, with scaffolding as needed at the high end of the range. [RL.11-12.10]	2
<b>Reading Standards for Informational Text</b>	
<b>Key Ideas and Details</b>	
RI.10 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain. [RI.11-12.1]	2

RI.11 Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text. [RI.11-12.2]	3
RI.12 Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text. [RI.11-12.3]	2
<b>Craft and Structure</b>	
RI.13 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in The Federalist No. 10). [RI.11-12.4]	2
RI.14 Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging. [RI.11-12.5]	3
RI.15 Determine an author’s point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text. [RI.11-12.6]	3
<b>Integration of Knowledge and Ideas</b>	
RI.16 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem. [RI.11-12.7]	3
RI.17 Analyze seminal United States documents of historical and literary significance (e.g., Roosevelt’s “Four Freedoms” speech, King’s “Letter from a Birmingham Jail”), including how they address related themes and concepts. [RI.9-10.9]	3
<b>Range of Reading and Level of Text Complexity</b>	
RI.18 By the end of Grade 11, read and comprehend literary nonfiction in the Grades 11-College and Career Readiness (CCR) text complexity band proficiently, with scaffolding as needed at the high end of the range. [RI.11-12.10]	2
<b>Language Standards</b>	
<b>Conventions of Standard English</b>	
L.35 Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking. [L.11-12.1] a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. [L.11-12.1a] b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster’s Dictionary of English Usage, Garner’s Modern American Usage) as needed. [L.11-12.1b]	1
L.36 Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing. [L.11-12.2] a. Observe hyphenation conventions. [L.11-12.2a] b. Spell correctly. [L.11-12.2b]	1
<b>Knowledge of Language</b>	

<p>L.37 Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. [L.11-12.3]</p> <p>a. Vary syntax for effect, consulting references (e.g., Tufte’s Artful Sentences: Syntax as Style) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading. [L.11-12.3a]</p>	<p>2</p>
<p><b>Vocabulary Acquisition and Use</b></p>	
<p>L.38 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 11 reading and content, choosing flexibly from a range of strategies. [L.11-12.4]</p> <p>a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase. [L.11-12.4a]</p> <p>b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). [L.11-12.4b]</p> <p>c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. [L.11-12.4c]</p> <p>d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary). [L.11-12.4d]</p>	<p>2</p>
<p>L.39 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. [L.11-12.5]</p> <p>a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. [L.11-12.5a]</p> <p>b. Analyze nuances in the meaning of words with similar denotations. [L.11-12.5b]</p>	<p>2</p>
<p>L.40 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. [L.11-12.6]</p>	<p>2</p>
<p><b>Writing Standards</b></p>	
<p><b>Text Types and Purposes</b></p>	

<p>W.19 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. [W.11-12.1]</p> <p>a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence. [W.11-12.1a]</p> <p>b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level, concerns, values, and possible biases. [W.11-12.1b]</p> <p>c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. [W.11-12.1c]</p> <p>d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. [W.11-12.1d]</p> <p>e. Provide a concluding statement or section that follows from and supports the argument presented. [W.11-12.1e]</p>	<p><b>3</b></p>
<p>W.20 Write informative or explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. [W.11-12.2]</p> <p>a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. [W.11-12.2a]</p> <p>b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic. [W.11-12.2b]</p> <p>c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. [W.11-12.2c]</p> <p>d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. [W.11-12.2d]</p> <p>e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. [W.11-12.2e]</p> <p>f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic). [W.11-12.2f]</p>	<p><b>3</b></p>

<p>W.21 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. [W.11-12.3]</p> <p>a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. [W.11-12.3a]</p> <p>b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. [W.11-12.3b]</p> <p>c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). [W.11-12.3c]</p> <p>d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. [W.11-12.3d]</p> <p>e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative. [W.11-12.3e]</p>	3
<b>Production and Distribution of Writing</b>	
<p>W.22 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 19-21 above.) [W.11-12.4]</p>	2
<p>W.23 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of the first three standards in the Language strand in Grades K-11.) [W.11-12.5]</p>	3
<p>W.24 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. [W.11-12.6]</p>	2
<b>Research to Build and Present Knowledge</b>	
<p>W.25 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. [W.11-12.7]</p>	3
<p>W.26 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. [W.11-12.8]</p>	3

<p>W.27 Draw evidence from literary or informational texts to support analysis, reflection, and research. [W.11-12.9]</p> <p>a. Apply Grade 11 Reading standards to literature (e.g., “Demonstrate knowledge of twentieth- and twenty-first-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”). [W.11-12.9a]</p> <p>b. Apply Grade 11 Reading standards to literary nonfiction (e.g., Analyze seminal United States documents of historical and literary significance [e.g., Roosevelt’s “Four Freedoms” speech, King’s “Letter from a Birmingham Jail”]), including how they address related themes and concepts. [W.11-12.9b]</p>	<p><b>3</b></p>
<p><b>Range of Writing</b></p>	
<p>W.28 Write routinely over extended time frames, including time for research, reflection, and revision, and shorter time frames such as a single sitting or a day or two for a range of tasks, purposes, and audiences. [W.11-12.10]</p>	<p><b>3</b></p>



<b>Mathematics DOK Consensus</b>	
	<b>Consensus</b>
<b>Algebra I</b>	
<b>Number and Quantity</b>	
<b>The Real Number System</b>	
<b>Extend the properties of exponents to rational exponents.</b>	
ALG1.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. [N-RN1] Example: We define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.	<b>2</b>
ALG1.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents. [N-RN2]	<b>1</b>
<b>Use properties of rational and irrational numbers.</b>	
ALG1.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. [N-RN3]	<b>2</b>
<b>Quantities*</b>	
<b>Reason quantitatively and use units to solve problems. (Foundation for work with expressions, equations, and functions.)</b>	
ALG1.4 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. [N-Q1]	<b>2</b>
ALG1.5 Define appropriate quantities for the purpose of descriptive modeling. [N-Q2]	<b>1</b>
ALG1.6 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. [N-Q3]	<b>2</b>
<b>Algebra</b>	
<b>Seeing Structure in Expressions</b>	
<b>Interpret the structure of expressions. (For standard 7 linear, exponential, quadratic; for standard 8 linear, exponential, quadratic, rational.)</b>	
ALG1.7 Interpret expressions that represent a quantity in terms of its context.* [A-SSE1] a. Interpret parts of an expression such as terms, factors, and coefficients. [A-SSE1a] b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [A-SSE1b] Example: Interpret $P(1+r)^n$ as the product of $P$ and a factor not depending on $P$ .	<b>2</b>
ALG1.8 Use the structure of an expression to identify ways to rewrite it. [A-SSE2] Example: See $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$ , thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$ .	<b>1</b>
<b>Write expressions in equivalent forms to solve problems. (Quadratic and exponential.)</b>	

<p>ALG1.9 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* [A-SSE3]</p> <p>a. Factor a quadratic expression to reveal the zeros of the function it defines. [A-SSE3a]</p> <p>b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. [A-SSE3b]</p> <p>c. Determine a quadratic equation when given its graph or roots.</p> <p>d. Use the properties of exponents to transform expressions for exponential functions. [A-SSE3c]</p> <p>Example: The expression <math>1.15^t</math> can be rewritten as <math>(1.15^{1/12})^{12t} \approx 1.012^{12t}</math> to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</p>	<b>1</b>
<b>Arithmetic With Polynomials and Rational Expressions</b>	
<b>Perform arithmetic operations on polynomials. (<i>Linear and quadratic.</i>)</b>	
<p>ALG1.10 Understand that polynomials form a system analogous to the integers; namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. [A-APR1]</p>	<b>1</b>
<b>Rewrite rational expressions. (<i>Linear and quadratic denominators.</i>)</b>	
<p>ALG1.11 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. [A-APR7]</p>	<b>1</b>
<b>Creating Equations*</b>	
<b>Create equations that describe numbers or relationships. (<i>Linear, quadratic, and exponential (integer inputs only); for Standard 14, linear only.</i>)</b>	
<p>ALG1.12 Create equations and inequalities in one variable, and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i> [A-CED1]</p>	<b>2</b>
<p>ALG1.13 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. [A-CED2]</p>	<b>2</b>
<p>ALG1.14 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities and interpret solutions as viable or non-viable options in a modeling context. [A-CED3]</p> <p>Example: Represent inequalities describing nutritional and cost constraints on combinations of different foods.</p>	<b>2</b>
<p>ALG1.15 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. [A-CED4]</p> <p>Example: Rearrange Ohm’s law <math>V = IR</math> to highlight resistance <math>R</math>.</p>	<b>1</b>
<b>Reasoning With Equations and Inequalities</b>	
<b>Understand solving equations as a process of reasoning and explain the reasoning. (<i>Master linear; learn as general principle.</i>)</b>	
<p>ALG1.16 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. [A-REI1]</p>	<b>2</b>
<b>Solve equations and inequalities in one variable. (<i>Linear inequalities; literal that are linear in the variables being solved for; quadratics with real solutions.</i>)</b>	

ALG1.17 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. [A-REI3]	1
ALG1.18 Solve quadratic equations in one variable. [A-REI4] a. Use the method of completing the square to transform any quadratic equation in $x$ into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. [A-REI4a] b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$ ), taking square roots, completing the square and the quadratic formula, and factoring as appropriate to the initial form of the equation.[A-REI4b]	1
<b>Reasoning With Equations and Inequalities</b>	
<b>Solve systems of equations. (<i>Linear-linear and linear-quadratic.</i>)</b>	
ALG1.19 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. [A-REI5]	1
ALG1.20 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. [A-REI6]	1
ALG1.21 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. [A-REI7] Example: Find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$ .	1
<b>Represent and solve equations and inequalities graphically. (<i>Linear and exponential; learn as general principle.</i>)</b>	
ALG1.22 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). [A-REI10]	1
ALG1.23 Explain why the $x$ -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.* [A-REI11]	2
ALG1.24 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. [A-REI12]	2
<b>Functions</b>	
<b>Interpreting Functions</b>	
<b>Understand the concept of a function and use function notation. (<i>Learn as general principle; focus on linear and exponential and on arithmetic and geometric sequences.</i>)</b>	
ALG1.25 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If $f$ is a function and $x$ is an element of its domain, then $f(x)$ denotes the output of $f$ corresponding to the input $x$ . The graph of $f$ is the graph of the equation $y = f(x)$ . [F-IF1]	1

ALG1.26 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. [F-IF2]	2
ALG1.27 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. [F-IF3] Example: The Fibonacci sequence is defined recursively by $f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1)$ for $n \geq 1$ .	1
<b>Interpret functions that arise in applications in terms of the context. (Linear, exponential, and quadratic.)</b>	
ALG1.28 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> * [F-IF4]	2
ALG1.29 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.* [F-IF5] Example: If the function $h(n)$ gives the number of person-hours it takes to assemble $n$ engines in a factory, then the positive integers would be an appropriate domain for the function.	2
ALG1.30 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.* [F-IF6]	2
<b>Analyze functions using different representations. (Linear, exponential, quadratic, absolute value, step, and an awareness of piecewise-defined.)</b>	
ALG1.31 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* [F-IF7] a. Graph linear and quadratic functions, and show intercepts, maxima, and minima. [F-IF7a] b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. [F-IF7b]	1
ALG1.32 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. [F-IF8] a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. [F-IF8a] b. Use the properties of exponents to interpret expressions for exponential functions. [F-IF8b] Example: Identify percent rate of change in functions such as $y = (1.02)^t$ , $y = (0.97)^t$ , $y = (1.01)^{12t}$ , and $y = (1.2)^{t/10}$ , and classify them as representing exponential growth and decay.	2
ALG1.33 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). [F-IF9] Example: Given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	2
<b>Building Functions</b>	
<b>Build a function that models a relationship between two quantities. (For standards 34 and 35, linear, exponential, and quadratic.)</b>	

ALG1.34 Write a function that describes a relationship between two quantities.* [F-BF1] a. Determine an explicit expression, a recursive process, or steps for calculation from a context. [F-BF1a] b. Combine standard function types using arithmetic operations. [F-BF1b] Example: Build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	2
ALG1.35 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.* [F-BF2]	2
<b>Build new functions from existing functions. (<i>Linear, exponential, quadratic, and absolute value.</i>)</b>	
ALG1.36 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$ , $k f(x)$ , $f(kx)$ , and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them. [F-BF3]	2
<b>Linear, Quadratic, and Exponential Models*</b>	
<b>Construct and compare linear, quadratic, and exponential models and solve problems.</b>	
ALG1.37 Distinguish between situations that can be modeled with linear functions and with exponential functions. [F-LE1] a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. [F-LE1a] b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. [F-LE1b] c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. [F-LE1c]	2
ALG1.38 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). [F-LE2]	1
ALG1.39 Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. [F-LE3]	1
<b>Interpret expressions for functions in terms of the situation they model. (<i>Linear and exponential of form <math>f(x) = bx + k</math>.</i>)</b>	
ALG1.40 Interpret the parameters in a linear or exponential function in terms of a context. [F-LE5]	2
<b>Statistics and Probability</b>	
<b>Interpreting Categorical and Quantitative Data</b>	
<b>Summarize, represent, and interpret data on a single count or measurement variable.</b>	
ALG1.41 Represent data with plots on the real number line (dot plots, histograms, and box plots). [S-ID1]	1
ALG1.42 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. [S-ID2]	2

ALG1.43 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). [S-ID3]	2
<b>Summarize, represent, and interpret data on two categorical and quantitative variables. (<i>Linear focus, discuss general principle.</i>)</b>	
ALG1.44 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. [S-ID5]	2
ALG1.45 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. [S-ID6] a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.</i> [S-ID6a] b. Informally assess the fit of a function by plotting and analyzing residuals. [S-ID6b] c. Fit a linear function for a scatter plot that suggests a linear association. [S-ID6c]	3
<b>Interpret linear models.</b>	
ALG1.46 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. [S-ID7]	2
<b>Conditional Probability and the Rules of Probability</b>	
<b>Understand independence and conditional probability and use them to interpret data. (Link to data from simulations or experiments.)</b>	
ALG1.47 Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent. [S-CP2]	1
<b>Geometry</b>	
<b>Geometry</b>	
<b>Congruence</b>	
<b>Experiment with transformations in the plane.</b>	
GEO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment based on the undefined notions of point, line, distance along a line, and distance around a circular arc. [G-CO1]	1
GEO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). [G-CO2]	2
GEO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. [G-CO3]	2
GEO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. [G-CO4]	2
GEO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. [G-CO5]	2

<b>Understand congruence in terms of rigid motions. (<i>Build on rigid motions as a familiar starting point for development of concept of geometric proof.</i>)</b>	
GEO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. [G-CO6]	2
GEO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. [G-CO7]	1
GEO.8 Explain how the criteria for triangle congruence, angle-side-angle (ASA), side-angle-side (SAS), and side-side-side (SSS), follow from the definition of congruence in terms of rigid motions. [G-CO8]	1
<b>Prove geometric theorems. (<i>Focus on validity of underlying reasoning while using variety of ways of writing proofs.</i>)</b>	
GEO.9 Prove theorems about lines and angles. <i>Theorems include vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; and points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.</i> [G-CO9]	3
GEO.10 Prove theorems about triangles. <i>Theorems include measures of interior angles of a triangle sum to 180°, base angles of isosceles triangles are congruent, the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length, and the medians of a triangle meet at a point.</i> [G-CO10]	3
GEO.11 Prove theorems about parallelograms. <i>Theorems include opposite sides are congruent, opposite angles are congruent; the diagonals of a parallelogram bisect each other; and conversely, rectangles are parallelograms with congruent diagonals.</i> [G-CO11]	3
<b>Make geometric constructions. (<i>Formalize and explain processes.</i>)</b>	
GEO.12 Make formal geometric constructions with a variety of tools and methods such as compass and straightedge, string, reflective devices, paper folding, and dynamic geometric software. <i>Constructions include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i> [G-CO12]	1
GEO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. [G-CO13]	1
<b>Similarity, Right Triangles, and Trigonometry</b>	
<b>Understand similarity in terms of similarity transformations.</b>	
GEO.14 Verify experimentally the properties of dilations given by a center and a scale factor. [G-SRT1] a. A dilation takes a line not passing through the center of the dilation to a parallel line and leaves a line passing through the center unchanged. [G-SRT1a] b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor. [G-SRT1b]	1

GEO.15 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. [G-SRT2]	2
GEO.16 Use the properties of similarity transformations to establish the angle-angle (AA) criterion for two triangles to be similar. [G-SRT3]	1
<b>Prove theorems involving similarity.</b>	
GEO.17 Prove theorems about triangles. <i>Theorems include a line parallel to one side of a triangle divides the other two proportionally, and conversely; and the Pythagorean Theorem proved using triangle similarity.</i> [G-SRT4]	3
GEO.18 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. [G-SRT5]	3
<b>Define trigonometric ratios and solve problems involving right triangles.</b>	
GEO.19 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle leading to definitions of trigonometric ratios for acute angles. [G-SRT6]	1
GEO.20 Explain and use the relationship between the sine and cosine of complementary angles. [G-SRT7]	2
GEO.21 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.* [G-SRT8]	2
<b>Apply trigonometry to general triangles.</b>	
GEO.22 (+) Prove the Law of Sines and the Law of Cosines and use them to solve problems. [G-SRT10]	3
GEO.23 (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces). [G-SRT11]	2
<b>Circles</b>	
<b>Understand and apply theorems about circles.</b>	
GEO.24 Prove that all circles are similar.	2
GEO.25 Identify and describe <i>relationships</i> among inscribed angles, radii, and chords. <i>Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.</i> [G-C2]	1
GEO.26 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. [G-C3]	2
GEO.27 (+) Construct a tangent line from a point outside a given circle to the circle. [G-C4]	1
<b>Find arc lengths and areas of sectors of circles. (Radian introduced only as unit of measure.)</b>	
GEO.28 Derive, using similarity, the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. [G-C5]	2
<b>Expressing Geometric Properties With Equations</b>	
<b>Translate between the geometric description and the equation for a conic section.</b>	



GEO.29 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation. [G-GPE1]	1
<b>Use coordinates to prove simple geometric theorems algebraically. (Include distance formula; relate to Pythagorean Theorem.)</b>	
GEO.30 Use coordinates to prove simple geometric theorems algebraically. [G-GPE4] Example: Prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$ .	3
GEO.31 Prove the slope criteria for parallel and perpendicular lines, and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point). [G-GPE5]	2
GEO.32 Find the point on a directed line segment between two given points that partitions the segment in a given ratio. [G-GPE6]	2
GEO.33 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.* [G-GPE7]	1
<b>Use coordinates to prove simple geometric theorems algebraically.</b>	
GEO.34 Determine areas and perimeters of regular polygons, including inscribed or circumscribed polygons, given the coordinates of vertices or other characteristics.	2
<b>Geometric Measurement and Dimension</b>	
<b>Explain volume formulas and use them to solve problems.</b>	
GEO.35 Give an informal argument for the formulas for the circumference of a circle; area of a circle; and volume of a cylinder, pyramid, and cone. <i>Use dissection arguments, Cavalieri's principle, and informal limit arguments.</i> [G-GMD1]	2
GEO.36 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* [G-GMD3]	1
GEO.37 Determine the relationship between surface areas of similar figures and volumes of similar figures.	1
<b>Visualize relationships between two-dimensional and three-dimensional objects.</b>	
Geo.38 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	2
<b>Modeling With Geometry</b>	
<b>Apply geometric concepts in modeling situations.</b>	
GEO.39 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* [G-MG1]	1
GEO.40 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, British Thermal Units (BTUs) per cubic foot).* [G-MG2]	2
GEO.41 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost, working with typographic grid systems based on ratios).* [G-MG3]	3
<b>Statistics and Probability</b>	
<b>Using Probability to Make Decisions</b>	

<b>Use probability to evaluate outcomes of decisions. (Introductory; apply counting rules.)</b>	
GEO.42 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator). [S-MD6]	1
GEO.43 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). [S-MD7]	3
<b>Algebra II</b>	
<b>Number and Quantity</b>	
<b>The Complex Number System</b>	
<b>Perform arithmetic operations with complex numbers.</b>	
ALG2.1 Know there is a complex number $i$ such that $i^2 = -1$ , and every complex number has the form $a + bi$ with $a$ and $b$ real. [N-CN1]	1
ALG2.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers. [N-CN2]	1
ALG2.3 (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers. [N-CN3]	1
<b>Use complex numbers in polynomial identities and equations. (Polynomials with real coefficients.)</b>	
ALG2.4 Solve quadratic equations with real coefficients that have complex solutions. [N-CN7]	1
ALG2.5 (+) Extend polynomial identities to the complex numbers. [N-CN8] Example: Rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$ .	1
ALG2.6 (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials. [N-CN9]	2
<b>Vector and Matrix Quantities</b>	
<b>Perform operations on matrices and use matrices in applications.</b>	
ALG2.7 (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network. (Use technology to approximate roots.) [N-VM6]	2
ALG2.8 (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled. [N-VM7]	1
ALG2.9 (+) Add, subtract, and multiply matrices of appropriate dimensions. [N-VM8]	1
ALG2.10 (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties. [N-VM9]	1
ALG2.11 (+) Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse. [N-VM10]	1
<b>Algebra</b>	
<b>Seeing Structure in Expressions</b>	
<b>Interpret the structure of expressions. (Polynomial and rational.)</b>	

ALG2.12 Interpret expressions that represent a quantity in terms of its context.* [A-SSE1] a. Interpret parts of an expression such as terms, factors, and coefficients. [A-SSE1a] b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [A-SSE1b] Example: Interpret $P(1+r)^n$ as the product of $P$ and a factor not depending on $P$ .	2
ALG2.13 Use the structure of an expression to identify ways to rewrite it. [A-SSE2] Example: See $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$ , thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$ .	1
<b>Write expressions in equivalent forms to solve problems.</b>	
ALG2.14 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.* [A-SSE4] Example: Calculate mortgage payments.	2
<b>Arithmetic With Polynomials and Rational Expressions</b>	
<b>Perform arithmetic operations on polynomials. (<i>Beyond quadratic.</i>)</b>	
ALG2.15 Understand that polynomials form a system analogous to the integers; namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. [A-APR1]	1
<b>Understand the relationship between zeros and factors of polynomials.</b>	
ALG2.16 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number $a$ , the remainder on division by $x - a$ is $p(a)$ , so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$ . [A-APR2]	1
ALG2.17 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. [A-APR3]	2
<b>Use polynomial identities to solve problems.</b>	
ALG2.18 Prove polynomial identities and use them to describe numerical relationships. [A-APR4] Example: The polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	2
<b>Rewrite rational expressions. (<i>Linear and quadratic denominators.</i>)</b>	
ALG2.19 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$ , where $a(x)$ , $b(x)$ , $q(x)$ , and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$ , using inspection, long division, or for the more complicated examples, a computer algebra system. [A-APR6]	1
<b>Creating Equations*</b>	
<b>Create equations that describe numbers or relationships. (<i>Equations using all available types of expressions, including simple root functions.</i>)</b>	
ALG2.20 Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i> [A-CED1]	2

ALG2.21 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. [A-CED2]	2
ALG2.22 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. [A-CED3] Example: Represent inequalities describing nutritional and cost constraints on combinations of different foods.	2
ALG2.23 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. [A-CED4] Example: Rearrange Ohm’s law $V = IR$ to highlight resistance $R$ .	1
<b>Reasoning With Equations and Inequalities</b>	
<b>Understand solving equations as a process of reasoning and explain the reasoning. (Simple rational and radical.)</b>	
ALG2.24 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. [A-REI2]	2
<b>Solve equations and inequalities in one variable.</b>	
ALG2.25 Recognize when the quadratic formula gives complex solutions, and write them as $a \pm bi$ for real numbers $a$ and $b$ . [A-REI4b]	1
<b>Solve systems of equations.</b>	
ALG2.26 (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension $3 \times 3$ or greater). [A-REI9]	2
<b>Represent and solve equations and inequalities graphically. (Combine polynomial, rational, radical, absolute value, and exponential functions.)</b>	
ALG2.27 Explain why the $x$ -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.* [A-REI11]	2
<b>Conic Sections</b>	
<b>Understand the graphs and equations of conic sections. (Emphasize understanding graphs and equations of circles and parabolas.)</b>	
ALG2.28 Create graphs of conic sections, including parabolas, hyperbolas, ellipses, circles, and degenerate conics, from second-degree equations. Example: Graph $x^2 - 6x + y^2 - 12y + 41 = 0$ or $y^2 - 4x + 2y + 5 = 0$ . a. Formulate equations of conic sections from their determining characteristics. Example: Write the equation of an ellipse with center $(5, -3)$ , a horizontal major axis of length 10, and a minor axis of length 4.	2
<b>Functions</b>	
<b>Interpreting Functions</b>	
<b>Interpret functions that arise in applications in terms of the context. (Emphasize selection of appropriate models.)</b>	

<p>ALG2.29 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.* [F-IF5]  Example: If the function <math>h(n)</math> gives the number of person-hours it takes to assemble <math>n</math> engines in a factory, then the positive integers would be an appropriate domain for the function.</p>	2
<p><b>Analyze functions using different representations. (Focus on using key features to guide selection of appropriate type of model function.)</b></p>	
<p>ALG2.30 Graph functions expressed symbolically, and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* [F-IF7]  a. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. [F-IF7b]  b. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. [F-IF7c]  c. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. [F-IF7e]</p>	2
<p>ALG2.31 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. [F-IF8]  a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. [F-IF8a]  Example: <math>f(x) = x^2 + 6x + 5</math>. Locate the vertex, axis of symmetry, show the zeros and extreme values.  b. Use the properties of exponents to interpret expressions for exponential functions. [F-IF8b]  Example: Identify percent rate of change in functions such as <math>y = (1.02)^t</math>, <math>y = (0.97)^t</math>, <math>y = (1.01)^{12t}</math>, and <math>y = (1.2)^{t/10}</math>, and classify them as representing exponential growth and decay.</p>	2
<p>ALG2.32 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). [F-IF9]  Example: Given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.</p>	2
<p><b>Building Functions</b></p>	
<p><b>Build a function that models a relationship between two quantities. (Include all types of functions studied.)</b></p>	
<p>ALG2.33 Write a function that describes a relationship between two quantities.* [F-BF1]  a. Combine standard function types using arithmetic operations. [F-BF1b]  Example: Build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.</p>	2
<p><b>Build new functions from existing functions. (Include simple radical, rational, and exponential functions; emphasize common effect of each transformation across function types.)</b></p>	

ALG2.34 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$ , $kf(x)$ , $f(kx)$ , and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them. [F-BF3]	2
ALG2.35 Find inverse functions. [F-BF4] a. Solve an equation of the form $f(x) = c$ for a simple function $f$ that has an inverse, and write an expression for the inverse. [F-BF4a] Example: $f(x) = 2x + 3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$ .	1
<b>Linear, Quadratic, and Exponential Models*</b>	
<b>Construct and compare linear, quadratic, and exponential models and solve problems. (<i>Logarithms as solutions for exponentials.</i>)</b>	
ALG2.36 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where $a$ , $c$ , and $d$ are numbers, and the base $b$ is 2, 10, or $e$ ; evaluate the logarithm using technology. [F-LE4]	1
<b>Statistics and Probability</b>	
<b>Using Probability to Make Decisions</b>	
<b>Use probability to evaluate outcomes of decisions. (<i>Include more complex situations.</i>)</b>	
ALG2.37 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator). [S-MD6]	1
ALG2.38 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). [S-MD7]	3
<b>Conditional Probability and the Rules of Probability</b>	
<b>Understand independence and conditional probability and use them to interpret data. (<i>Link to data from simulations or experiments.</i>)</b>	
ALG2.39 Describe events as subsets of a sample space (the set of outcomes), using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”). [S-CP1]	1
ALG2.40 Understand the conditional probability of $A$ given $B$ as $P(A \text{ and } B)/P(B)$ , and interpret independence of $A$ and $B$ as saying that the conditional probability of $A$ given $B$ is the same as the probability of $A$ , and the conditional probability of $B$ given $A$ is the same as the probability of $B$ . [S-CP3]	2
ALG2.41 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. [S-CP4] Example: Collect data from a random sample of students in your school on their favorite subject among mathematics, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.	2

ALG2.42 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. [S-CP5] Example: Compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.	2
<b>Use the rules of probability to compute probabilities of compound events in a uniform probability model.</b>	
ALG2.43 Find the conditional probability of $A$ given $B$ as the fraction of $B$ 's outcomes that also belong to $A$ , and interpret the answer in terms of the model. [S-CP6]	2
ALG2.44 Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ , and interpret the answer in terms of the model. [S-CP7]	2
ALG2.45 (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$ , and interpret the answer in terms of the model. [S-CP8]	2
ALG2.46 (+) Use permutations and combinations to compute probabilities of compound events and solve problems. [S-CP9]	2

<b>Science DOK Consensus</b>	
	<b>Consensus</b>
<b>Biology</b>	
<b>From Molecules to Organisms: Structures and Processes</b>	
BIO.1 Use models to compare and contrast how the structural characteristics of carbohydrates, nucleic acids, proteins, and lipids define their function in organisms.	<b>2</b>
BIO.2 Obtain, evaluate, and communicate information to describe the function and diversity of organelles and structures in various types of cells (e.g., muscle cells having a large amount of mitochondria, plasmids in bacteria, chloroplasts in plant cells).	<b>2</b>
BIO.3 Formulate an evidence-based explanation regarding how the composition of deoxyribonucleic acid (DNA) determines the structural organization of proteins. a. Obtain and evaluate experiments of major scientists and communicate their contributions to the development of the structure of DNA and to the development of the central dogma of molecular biology. b. Obtain, evaluate, and communicate information that explains how advancements in genetic technology (e.g., Human Genome Project, Encyclopedia of DNA Elements [ENCODE] project, 1000 Genomes Project) have contributed to the understanding as to how a genetic change at the DNA level may affect proteins and, in turn, influence the appearance of traits. c. Obtain information to identify errors that occur during DNA replication (e.g., deletion, insertion, translocation, substitution, inversion, frame-shift, point mutations).	<b>2</b>
BIO.4 Develop and use models to explain the role of the cell cycle during growth and maintenance in multicellular organisms (e.g., normal growth and/or uncontrolled growth resulting in tumors).	<b>3</b>
BIO.5 Plan and carry out investigations to explain feedback mechanisms (e.g., sweating and shivering) and cellular processes (e.g., active and passive transport) that maintain homeostasis. a. Plan and carry out investigations to explain how the unique properties of water (e.g., polarity, cohesion, adhesion) are vital to maintaining homeostasis in organisms.	<b>3</b>
BIO.6 Analyze and interpret data from investigations to explain the role of products and reactants of photosynthesis and cellular respiration in the cycling of matter and the flow of energy. a. Plan and carry out investigations to explain the interactions among pigments, absorption of light, and reflection of light.	<b>3</b>
<b>Ecosystems: Interactions, Energy, and Dynamics</b>	
BIO.7 Develop and use models to illustrate examples of ecological hierarchy levels, including biosphere, biome, ecosystem, community, population, and organism.	<b>2</b>
BIO.8 Develop and use models to describe the cycling of matter (e.g., carbon, nitrogen, water) and flow of energy (e.g., food chains, food webs, biomass pyramids, ten percent law) between abiotic and biotic factors in ecosystems.	<b>3</b>



BIO.9 Use mathematical comparisons and visual representations to support or refute explanations of factors that affect population growth (e.g., exponential, linear, logistic).	2
BIO.10 Construct an explanation and design a real-world solution to address changing conditions and ecological succession caused by density-dependent and/or density-independent factors.*	3
<b>Heredity: Inheritance and Variation of Traits</b>	
BIO.11 Analyze and interpret data collected from probability calculations to explain the variation of expressed traits within a population. a. Use mathematics and computation to predict phenotypic and genotypic ratios and percentages by constructing Punnett squares, including using both homozygous and heterozygous allele pairs. b. Develop and use models to demonstrate codominance, incomplete dominance, and Mendel's laws of segregation and independent assortment. c. Analyze and interpret data (e.g., pedigree charts, family and population studies) regarding Mendelian and complex genetic disorders (e.g., sickle-cell anemia, cystic fibrosis, type 2 diabetes) to determine patterns of genetic inheritance and disease risks from both genetic and environmental factors.	2
BIO.12 Develop and use a model to analyze the structure of chromosomes and how new genetic combinations occur through the process of meiosis. a. Analyze data to draw conclusions about genetic disorders caused by errors in meiosis (e.g., Down syndrome, Turner syndrome).	2
<b>Unity and Diversity</b>	
BIO.13 Obtain, evaluate, and communicate information to explain how organisms are classified by physical characteristics, organized into levels of taxonomy, and identified by binomial nomenclature (e.g., taxonomic classification, dichotomous keys). a. Engage in argument to justify the grouping of viruses in a category separate from living things.	2
BIO.14 Analyze and interpret data to evaluate adaptations resulting from natural and artificial selection that may cause changes in populations over time (e.g., antibiotic-resistant bacteria, beak types, peppered moths, pest-resistant crops).	2
BIO.15 Engage in argument from evidence (e.g., mathematical models such as distribution graphs) to explain how the diversity of organisms is affected by overpopulation of species, variation due to genetic mutations, and competition for limited resources.	3
BIO.16 Analyze scientific evidence (e.g., DNA, fossil records, cladograms, biogeography) to support hypotheses of common ancestry and biological evolution.	2
<b>Chemistry</b>	
<b>Matter and Its Interactions</b>	

<p>CHEM.1 Obtain and communicate information from historical experiments (e.g., work by Mendeleev and Moseley, Rutherford's gold foil experiment, Thomson's cathode ray experiment, Millikan's oil drop experiment, Bohr's interpretation of bright line spectra) to determine the structure and function of an atom and to analyze the patterns represented in the periodic table.</p>	2
<p>CHEM.2 Develop and use models of atomic nuclei to explain why the abundance-weighted average of isotopes of an element yields the published atomic mass.</p>	2
<p>CHEM.3 Use the periodic table as a systematic representation to predict properties of elements based on their valence electron arrangement.</p> <p>a. Analyze data such as physical properties to explain periodic trends of the elements, including metal/nonmetal/metalloid behavior, electrical/heat conductivity, electronegativity and electron affinity, ionization energy, and atomic-covalent/ionic radii, and how they relate to position in the periodic table.</p> <p>b. Develop and use models (e.g., Lewis dot, 3-D ball-and-stick, space-filling, valence-shell electron-pair repulsion [VSEPR]) to predict the type of bonding and shape of simple compounds.</p> <p>c. Use the periodic table as a model to derive formulas and names of ionic and covalent compounds.</p>	2
<p>CHEM.4 Plan and conduct an investigation to classify properties of matter as intensive (e.g., density, viscosity, specific heat, melting point, boiling point) or extensive (e.g., mass, volume, heat) and demonstrate how intensive properties can be used to identify a compound.</p>	2
<p>CHEM.5 Plan and conduct investigations to demonstrate different types of simple chemical reactions based on valence electron arrangements of the reactants and determine the quantity of products and reactants.</p> <p>a. Use mathematics and computational thinking to represent the ratio of reactants and products in terms of masses, molecules, and moles.</p> <p>b. Use mathematics and computational thinking to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.</p>	2
<p>CHEM.6 Use mathematics and computational thinking to express the concentrations of solutions quantitatively using molarity.</p> <p>a. Develop and use models to explain how solutes are dissolved in solvents.</p> <p>b. Analyze and interpret data to explain effects of temperature on the solubility of solid, liquid, and gaseous solutes in a solvent and the effects of pressure on the solubility of gaseous solutes.</p> <p>c. Design and conduct experiments to test the conductivity of common ionic and covalent substances in a solution.</p> <p>d. Use the concept of pH as a model to predict the relative properties of strong, weak, concentrated, and dilute acids and bases (e.g., Arrhenius and Brønsted-Lowry acids and bases).</p>	3

<p>CHEM.7 Plan and carry out investigations to explain the behavior of ideal gases in terms of pressure, volume, temperature, and number of particles.</p> <p>a. Use mathematics to describe the relationships among pressure, temperature, and volume of an enclosed gas when only the amount of gas is constant.</p> <p>b. Use mathematical and computational thinking based on the ideal gas law to determine molar quantities.</p>	2
<p>CHEM.8 Refine the design of a given chemical system to illustrate how LeChâtelier's principle affects a dynamic chemical equilibrium when subjected to an outside stress (e.g., heating and cooling a saturated sugar-water solution).*</p>	3
<b>Motion and Stability: Forces and Interactions</b>	
<p>CHEM.9 Analyze and interpret data (e.g., melting point, boiling point, solubility, phase-change diagrams) to compare the strength of intermolecular forces and how these forces affect physical properties and changes.</p>	2
<b>Energy</b>	
<p>CHEM.10 Plan and conduct experiments that demonstrate how changes in a system (e.g., phase changes, pressure of a gas) validate the kinetic molecular theory.</p> <p>a. Develop a model to explain the relationship between the average kinetic energy of the particles in a substance and the temperature of the substance (e.g., no kinetic energy equaling absolute zero [0K or -273.15°C]).</p>	3
<p>CHEM.11 Construct an explanation that describes how the release or absorption of energy from a system depends upon changes in the components of the system.</p> <p>a. Develop a model to illustrate how the changes in total bond energy determine whether a chemical reaction is endothermic or exothermic.</p> <p>b. Plan and conduct an investigation that demonstrates the transfer of thermal energy in a closed system (e.g., using heat capacities of two components of differing temperatures).</p>	3
<b>Physics</b>	
<b>Motion and Stability: Forces and Interactions</b>	
<p>PHY.1 Investigate and analyze, based on evidence obtained through observation or experimental design, the motion of an object using both graphical and mathematical models (e.g., creating or interpreting graphs of position, velocity, and acceleration versus time graphs for one- and two-dimensional motion; solving problems using kinematic equations for the case of constant acceleration) that may include descriptors such as position, distance traveled, displacement, speed, velocity, and acceleration.</p>	2
<p>PHY.2 Identify external forces in a system and apply Newton's laws graphically by using models such as free-body diagrams to explain how the motion of an object is affected, ranging from simple to complex, and including circular motion.</p> <p>a. Use mathematical computations to derive simple equations of motion for various systems using Newton's second law.</p> <p>b. Use mathematical computations to explain the nature of forces (e.g., tension, friction, normal) related to Newton's second and third laws.</p>	2

PHY.3 Evaluate qualitatively and quantitatively the relationship between the force acting on an object, the time of interaction, and the change in momentum using the impulse-momentum theorem.	2
PHY.4 Identify and analyze forces responsible for changes in rotational motion and develop an understanding of the effect of rotational inertia on the motion of a rotating object (e.g., merry-go-round, spinning toy, spinning figure skater, stellar collapse [supernova], rapidly spinning pulsar).	2
<b>Energy</b>	
PHY.5 Construct models that illustrate how energy is related to work performed on or by an object and explain how different forms of energy are transformed from one form to another (e.g., distinguishing between kinetic, potential, and other forms of energy such as thermal and sound; applying both the work-energy theorem and the law of conservation of energy to systems such as roller coasters, falling objects, and spring-mass systems; discussing the effect of frictional forces on energy conservation and how it affects the motion of an object).	2
PHY.6 Investigate collisions, both elastic and inelastic, to evaluate the effects on momentum and energy conservation.	2
PHY.7 Plan and carry out investigations to provide evidence that the first and second laws of thermodynamics relate work and heat transfers to the change in internal energy of a system with limits on the ability to do useful work (e.g., heat engine transforming heat at high temperature into mechanical energy and low-temperature waste heat, refrigerator absorbing heat from the cold reservoir and giving off heat to the hot reservoir with work being done).a. Develop models to illustrate methods of heat transfer by conduction (e.g., an ice cube in water), convection (e.g., currents that transfer heat from the interior up to the surface), and radiation (e.g., an object in sunlight).b. Engage in argument from evidence regarding how the second law of thermodynamics applies to the entropy of open and closed systems.	3
<b>Waves and Their Applications in Technologies for Information Transfer</b>	
PHY.8 Investigate the nature of wave behavior to illustrate the concept of the superposition principle responsible for wave patterns, constructive and destructive interference, and standing waves (e.g., organ pipes, tuned exhaust systems). a. Predict and explore how wave behavior is applied to scientific phenomena such as the Doppler effect and <b>Sound Navigation and Ranging (SONAR)</b> .	2
PHY.9 Obtain and evaluate information regarding technical devices to describe wave propagation of electromagnetic radiation and compare it to sound propagation. (e.g., wireless telephones, magnetic resonance imaging [MRI], microwave systems, <b>Radio Detection and Ranging [RADAR]</b> , SONAR, ultrasound).	2
PHY.10 Plan and carry out investigations that evaluate the mathematical explanations of light as related to optical systems (e.g., reflection, refraction, diffraction, intensity, polarization, Snell's law, the inverse square law).	2

PHY.11 Develop and use models to illustrate electric and magnetic fields, including how each is created (e.g., charging by either conduction or induction and polarizing; sketching field lines for situations such as point charges, a charged straight wire, or a current carrying wires such as solenoids; calculating the forces due to Coulomb's laws), and predict the motion of charged particles in each field and the energy required to move a charge between two points in each field.	3
PHY.12 Use the principles of Ohm's and Kirchoff's laws to design, construct, and analyze combination circuits using typical components (e.g., resistors, capacitors, diodes, sources of power).	2
<b>Earth and Space Science</b>	
<b>Earth's Place in the Universe</b>	
ESS.1 Develop and use models to illustrate the lifespan of the sun, including energy released during nuclear fusion that eventually reaches Earth through radiation.	2
ESS.2 Engage in argument from evidence to compare various theories for the formation and changing nature of the universe and our solar system (e.g., Big Bang Theory, Hubble's law, steady state theory, light spectra, motion of distant galaxies, composition of matter in the universe).	2
ESS.3 Evaluate and communicate scientific information (e.g., Hertzsprung-Russell diagram) in reference to the life cycle of stars using data of both atomic emission and absorption spectra of stars to make inferences about the presence of certain elements.	2
ESS.4 Apply mathematics and computational thinking in reference to Kepler's laws, Newton's laws of motion, and Newton's gravitational laws to predict the orbital motion of natural and man-made objects in the solar system.	2
ESS.5 Use mathematics to explain the relationship of the seasons to the tilt of Earth's axis (e.g., zenith angle, solar angle, surface area) and its revolution about the sun, addressing intensity and distribution of sunlight on Earth's surface.	2
ESS.6 Obtain and evaluate information about Copernicus, Galileo, Kepler, Newton, and Einstein to communicate how their findings challenged conventional thinking and allowed for academic advancements and space exploration.	1
<b>Earth's Systems</b>	
ESS.7 Analyze and interpret evidence regarding the theory of plate tectonics, including geologic activity along plate boundaries and magnetic patterns in undersea rocks, to explain the ages and movements of continental and oceanic crusts.	2
ESS.8 Develop a time scale model of Earth's biological and geological history to establish relative and absolute age of major events in Earth's history (e.g., radiometric dating, models of geologic cross sections, sedimentary layering, fossilization, early life forms, folding, faulting, igneous intrusions).	2
ESS.9 Obtain, evaluate, and communicate information to explain how constructive and destructive processes (e.g., weathering, erosion, volcanism, orogeny, plate tectonics, tectonic uplift) shape Earth's land features (e.g., mountains, valleys, plateaus) and sea features (e.g., trenches, ridges, seamounts).	2

ESS.10 Construct an explanation from evidence for the processes that generate the transformation of rocks in Earth’s crust, including chemical composition of minerals and characteristics of sedimentary, igneous, and metamorphic rocks.	2
ESS.11 Obtain and communicate information about significant geologic characteristics (e.g., types of rocks and geologic ages, earthquake zones, sinkholes, caves, abundant fossil fauna, mineral and energy resources) that impact life in Alabama and the southeastern United States.	1
ESS.12 Develop a model of Earth’s layers using available evidence to explain the role of thermal convection in the movement of Earth’s materials (e.g., seismic waves, movement of tectonic plates).	1
ESS.13 Analyze and interpret data of interactions between the hydrologic and rock cycles to explain the mechanical impacts (e.g., stream transportation and deposition, erosion, frost-wedging) and chemical impacts (e.g., oxidation, hydrolysis, carbonation) of Earth materials by water’s properties.	2
ESS.14 Construct explanations from evidence to describe how changes in the flow of energy through Earth’s systems (e.g., volcanic eruptions, solar output, ocean circulation, surface temperatures, precipitation patterns, glacial ice volumes, sea levels, Coriolis effect) impact the climate.	2
ESS.15 Obtain, evaluate, and communicate information to verify that weather (e.g., temperature, relative humidity, air pressure, dew point, adiabatic cooling, condensation, precipitation, winds, ocean currents, barometric pressure, wind velocity) is influenced by energy transfer within and among the atmosphere, lithosphere, biosphere, and hydrosphere.a. Analyze patterns in weather data to predict various systems, including fronts and severe storms.b. Use maps and other visualizations to analyze large data sets that illustrate the frequency, magnitude, and resulting damage from severe weather events in order to predict the likelihood and severity of future events.	2

# **Appendix C**

## **Summary Tables**

**English ACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	26.63	24.91	17%	0.18	57%	0.14	26%	0.21	Yes
<b>Language Standards</b>	6	40.38	26.07	0%	0.01	10%	0.11	89%	0.11	Yes
<b>Total</b>	16	33.50	0.82	8%	0.09	34%	34%	58%	0.16	

**English ACT Form 1: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 11 Course of Study	Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	26.63	24.91	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	40.38	26.07	Yes
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	33.50	0.82	
		2	6	38%			
		3	8	50%			



**English ACT Form 1: Summary of Range-of-Knowledge Correspondence**

Range of Knowledge Correspondence								
Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Writing Standards	10	26.63	24.91	2.50	0.84	25%	0.08	No
Language Standards	6	40.38	26.07	3.83	1.17	64%	0.19	Yes
<b>Total</b>	16	33.50	0.82	3.17	1.00	44%	0.14	

**English ACT Form 1: Summary of Balance of Representation**

Balance of Representation						
Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Writing Standards	10	39.74%	24.91	0.81	0.15	Yes
Language Standards	6	60.26%	26.07	0.76	0.05	Yes
<b>Total</b>	16	50.00%	25.49	0.78	0.10	

**English ACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	23.25	21.83	14%	0.21	61%	0.28	25%	0.22	Yes
<b>Language Standards</b>	6	41.25	26.92	0%	0.01	7%	0.09	93%	0.09	Yes
<b>Total</b>	16	32.25	3.60	7%	0.11	34%	34%	59%	0.15	

**English ACT Form 2: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	23.25	21.83	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	41.25	26.92	Yes
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	32.25	3.60	
		2	6	38%			
		3	8	50%			

**English ACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Writing Standards	10	23.25	21.83	2.50	0.84	25%	0.08	No
Language Standards	6	41.25	26.92	4.33	1.21	72%	0.20	Yes
<b>Total</b>	16	32.25	3.60	3.42	1.02	49%	0.14	

**English ACT Form 2: Summary of Balance of Representation**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Writing Standards	10	36.05%	21.83	0.81	0.15	Yes
Language Standards	6	63.95%	26.92	0.67	0.13	Weak
<b>Total</b>	16	50.00%	24.37	0.74	0.14	

**English ACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	25.88	20.10	11%	0.14	65%	0.21	24%	0.23	Yes
<b>Language Standards</b>	6	42.38	29.57	1%	0.02	10%	0.13	89%	0.15	Yes
<b>Total</b>	16	34.13	6.70	6%	0.08	38%	38%	56%	0.19	

**English ACT Form 3: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	25.88	20.10	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	42.38	29.57	Yes
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	34.13	6.70	
		2	6	38%			
		3	8	50%			

**English ACT Form 3: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Writing Standards	10	25.88	20.10	3.33	1.51	33%	0.15	No
Language Standards	6	42.38	29.57	4.17	1.60	69%	0.27	Yes
<b>Total</b>	16	34.13	6.70	3.75	1.55	51%	0.21	

**English ACT Form 3: Summary of Balance of Representation**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Writing Standards	10	37.91%	20.10	0.74	0.18	Yes
Language Standards	6	62.09%	29.57	0.72	0.12	Yes
<b>Total</b>	16	50.00%	24.83	0.73	0.15	

**English PreACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	16.38	12.11	12%	0.14	75%	0.15	12%	0.13	Yes
<b>Language Standards</b>	6	25.63	16.12	1%	0.03	7%	0.04	91%	0.05	Yes
<b>Total</b>	16	21.00	2.83	7%	0.08	41%	41%	52%	0.09	

**English PreACT Form 1: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	16.38	12.11	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	25.63	16.12	Yes
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	21.00	2.83	
		2	6	38%			
		3	8	50%			

**English PreACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Writing Standards</b>	10	16.38	12.11	2.50	0.84	25%	0.08	No
<b>Language Standards</b>	6	25.63	16.12	4.33	1.03	72%	0.17	Yes
<b>Total</b>	16	21.00	2.83	3.42	0.93	49%	0.13	

**English PreACT Form 1: Summary of Balance of Representation**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Writing Standards</b>	10	38.99%	12.11	0.79	0.15	Yes
<b>Language Standards</b>	6	61.01%	16.12	0.70	0.14	Weak
<b>Total</b>	16	50.00%	14.11	0.74	0.15	

**English PreACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	17.13	11.91	8%	0.13	68%	0.19	24%	0.16	Yes
<b>Language Standards</b>	6	24.38	16.41	1%	0.02	10%	0.07	89%	0.08	Yes
<b>Total</b>	16	20.75	3.18	5%	0.07	39%	39%	57%	0.12	

**English PreACT Form 2: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	17.13	11.91	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	24.38	16.41	Yes
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	20.75	3.18	
		2	6	38%			
		3	8	50%			



**English PreACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Writing Standards</b>	10	17.13	11.91	2.50	0.55	25%	0.05	No
<b>Language Standards</b>	6	24.38	16.41	4.33	1.03	72%	0.17	Yes
<b>Total</b>	16	20.75	3.18	3.42	0.79	49%	0.11	

**English PreACT Form 2: Summary of Balance of Representation**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Writing Standards</b>	10	41.27%	11.91	0.82	0.08	Yes
<b>Language Standards</b>	6	58.73%	16.41	0.79	0.11	Yes
<b>Total</b>	16	50.00%	14.16	0.81	0.10	

**English PreACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	13.88	10.12	8%	0.07	66%	0.17	26%	0.16	Yes
<b>Language Standards</b>	6	27.50	17.95	0%	0.00	8%	0.06	92%	0.06	Yes
<b>Total</b>	16	20.69	5.54	4%	0.04	37%	37%	59%	0.11	

**English PreACT Form 3: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	13.88	10.12	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	27.50	17.95	Yes
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	20.69	5.54	
		2	6	38%			
		3	8	50%			

**English PreACT Form 3: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Writing Standards</b>	10	13.88	10.12	3.00	0.63	30%	0.06	No
<b>Language Standards</b>	6	27.50	17.95	3.83	0.98	64%	0.16	Yes
<b>Total</b>	16	20.69	5.54	3.42	0.81	47%	0.11	

**English PreACT Form 3: Summary of Balance of Representation**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Writing Standards</b>	10	33.53%	10.12	0.77	0.14	Yes
<b>Language Standards</b>	6	66.47%	17.95	0.82	0.15	Yes
<b>Total</b>	16	50.00%	14.04	0.80	0.15	

**Reading ACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	8.00	5.24	29%	0.26	61%	0.26	10%	0.09	Yes
<b>Reading Informational<sup>2</sup></b>	9	22.63	14.14	45%	0.13	51%	0.14	4%	0.04	Yes
<b>Key Ideas and Details<sup>3</sup></b>	6	17.50	10.93	48%	0.17	46%	0.20	6%	0.05	Yes
<b>Craft and Structure<sup>4</sup></b>	6	12.25	8.01	31%	0.11	64%	0.11	6%	0.07	Yes
<b>Integration<sup>5</sup></b>	4	0.75	1.49	25%	0.35	75%	0.35	0%	0.00	Yes
<b>Total</b>	34	12.23	4.91	35%	0.21	59%	59%	5%	0.05	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading ACT Form 1: Summary of Categorical Concurrence**

<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Code Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Reading Literature<sup>1</sup></b>	9	1	0	0%	8.00	5.24	Yes
		2	4	44%			
		3	5	56%			
<b>Reading Informational<sup>2</sup></b>	9	1	0	0%	22.63	14.14	Yes
		2	4	44%			
		3	5	56%			
<b>Key Ideas and Details<sup>3</sup></b>	6	1	0	0%	17.50	10.93	Yes
		2	3	50%			
		3	3	50%			
<b>Craft and Structure<sup>4</sup></b>	6	1	0	0%	12.25	8.01	Yes
		2	3	50%			
		3	4	67%			
<b>Integration<sup>5</sup></b>	4	1	0	0%	0.75	1.49	No
		2	0	0%			
		3	4	100%			
<b>Total</b>	34	1	0	0%	12.23	4.91	
		2	14	41%			
		3	21	62%			

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading ACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Reading Literature <sup>1</sup>	9	8.00	5.24	5.33	1.03	59%	0.11	Yes
Reading Informational <sup>2</sup>	9	22.63	14.14	5.83	0.75	65%	0.08	Yes
Key Ideas and Details <sup>3</sup>	6	17.50	10.93	5.83	0.41	97%	0.07	Yes
Craft and Structure <sup>4</sup>	6	12.25	8.01	4.83	1.17	81%	0.19	Yes
Integration <sup>5</sup>	4	0.75	1.49	0.33	0.52	8%	0.13	No
<b>Total</b>	34	12.23	4.91	4.43	0.78	62%	0.12	

**Reading ACT Form 1: Summary of Balance of Representation**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Reading Literature <sup>1</sup>	9	12.67%	5.24	0.78	0.07	Yes
Reading Informational <sup>2</sup>	9	35.84%	14.14	0.75	0.04	Yes
Key Ideas and Details <sup>3</sup>	6	27.72%	10.93	0.65	0.07	Weak
Craft and Structure <sup>4</sup>	6	19.41%	8.01	0.78	0.07	Yes
Integration <sup>5</sup>	4	1.19%	1.49	1.00	0.00	Yes
<b>Total</b>	34	19.37%	7.96	0.79	0.05	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading ACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	8.00	5.58	27%	0.10	60%	0.12	13%	0.15	Yes
<b>Reading Informational<sup>2</sup></b>	9	23.38	14.86	51%	0.13	46%	0.12	3%	0.05	Weak
<b>Key Ideas and Details<sup>3</sup></b>	6	18.50	11.83	52%	0.12	43%	0.10	5%	0.05	Weak
<b>Craft and Structure<sup>4</sup></b>	6	12.00	7.93	34%	0.16	58%	0.17	7%	0.11	Yes
<b>Integration<sup>5</sup></b>	4	0.50	1.07	50%	0.71	50%	0.71	0%	0.00	Yes
<b>Total</b>	34	12.48	5.37	43%	0.24	51%	51%	6%	0.07	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading ACT Form 2: Summary of Categorical Concurrence**

<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Reading Literature<sup>1</sup></b>	9	1	0	0%	8.00	5.58	Yes
		2	4	44%			
		3	5	56%			
<b>Reading Informational<sup>2</sup></b>	9	1	0	0%	23.38	14.86	Yes
		2	4	44%			
		3	5	56%			
<b>Key Ideas and Details<sup>3</sup></b>	6	1	0	0%	18.50	11.83	Yes
		2	3	50%			
		3	3	50%			
<b>Craft and Structure<sup>4</sup></b>	6	1	0	0%	12.00	7.93	Yes
		2	3	50%			
		3	4	67%			
<b>Integration<sup>5</sup></b>	4	1	0	0%	0.50	1.07	No
		2	0	0%			
		3	4	100%			
<b>Total</b>	34	1	0	0%	12.48	5.37	
		2	14	41%			
		3	21	62%			

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)



**Reading ACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Reading Literature <sup>1</sup>	9	8.00	5.58	5.33	0.82	59%	0.09	Yes
Reading Informational <sup>2</sup>	9	23.38	14.86	5.50	1.05	61%	0.12	Yes
Key Ideas and Details <sup>3</sup>	6	18.50	11.83	5.33	0.52	89%	0.09	Yes
Craft and Structure <sup>4</sup>	6	12.00	7.93	5.00	0.63	83%	0.11	Yes
Integration <sup>5</sup>	4	0.50	1.07	0.33	0.52	8%	0.13	No
<b>Total</b>	34	12.48	5.37	4.30	0.71	60%	0.11	

**Reading ACT Form 2: Summary of Balance of Representation**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Reading Literature <sup>1</sup>	9	12.50%	5.58	0.80	0.08	Yes
Reading Informational <sup>2</sup>	9	36.52%	14.86	0.72	0.09	Yes
Key Ideas and Details <sup>3</sup>	6	28.91%	11.83	0.62	0.10	Weak
Craft and Structure <sup>4</sup>	6	18.75%	7.93	0.75	0.02	Yes
Integration <sup>5</sup>	4	0.78%	1.07	1.00	0.00	Yes
<b>Total</b>	34	19.49%	8.25	0.78	0.06	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading ACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	6.50	5.42	54%	0.15	33%	0.04	13%	0.16	Weak
<b>Reading Informational<sup>2</sup></b>	9	24.75	15.61	44%	0.13	45%	0.15	11%	0.08	Yes
<b>Key Ideas and Details<sup>3</sup></b>	6	18.38	11.77	55%	0.08	31%	0.10	14%	0.08	Weak
<b>Craft and Structure<sup>4</sup></b>	6	12.38	9.12	35%	0.22	57%	0.20	7%	0.09	Yes
<b>Integration<sup>5</sup></b>	4	0.50	1.41	0%	NA*	100%	NA*	0%	NA*	Yes
<b>Total</b>	34	12.50	5.50	38%	0.15	53%	53%	9%	0.11	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

\*Reviewers did not align enough items to these standards for this to apply.

**Reading ACT Form 3: Summary of Categorical Concurrence**

<b>Alabama English Language Arts Grade 11 Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Reading Literature<sup>1</sup></b>	9	1	0	0%	6.50	5.42	Yes
		2	4	44%			
		3	5	56%			
<b>Reading Informational<sup>2</sup></b>	9	1	0	0%	24.75	15.61	Yes
		2	4	44%			
		3	5	56%			
<b>Key Ideas and Details<sup>3</sup></b>	6	1	0	0%	18.38	11.77	Yes
		2	3	50%			
		3	3	50%			
<b>Craft and Structure<sup>4</sup></b>	6	1	0	0%	12.38	9.12	Yes
		2	3	50%			
		3	4	67%			
<b>Integration<sup>5</sup></b>	4	1	0	0%	0.50	1.41	No
		2	0	0%			
		3	4	100%			
<b>Total</b>	34	1	0	0%	12.50	5.50	
		2	14	41%			
		3	21	62%			

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading ACT Form 3: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Reading Literature <sup>1</sup>	9	6.50	5.42	4.33	2.16	48%	0.24	Weak
Reading Informational <sup>2</sup>	9	24.75	15.61	5.83	0.41	65%	0.05	Yes
Key Ideas and Details <sup>3</sup>	6	18.38	11.77	5.17	1.60	86%	0.27	Yes
Craft and Structure <sup>4</sup>	6	12.38	9.12	4.83	1.17	81%	0.19	Yes
Integration <sup>5</sup>	4	0.50	1.41	0.17	0.41	4%	0.10	No
<b>Total</b>	34	12.50	5.50	4.07	1.15	57%	0.17	

**Reading ACT Form 3: Summary of Balance of Representation**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Reading Literature <sup>1</sup>	9	10.10%	5.42	0.80	0.12	Yes
Reading Informational <sup>2</sup>	9	38.45%	15.61	0.76	0.08	Yes
Key Ideas and Details <sup>3</sup>	6	28.54%	11.77	0.68	0.09	Weak
Craft and Structure <sup>4</sup>	6	19.22%	9.12	0.75	0.05	Yes
Integration <sup>5</sup>	4	0.78%	1.41	1.00	0.00	Yes
<b>Total</b>	34	19.42%	8.67	0.80	0.07	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	8.00	4.43	41%	0.32	44%	0.37	15%	0.11	Yes
<b>Reading Informational<sup>2</sup></b>	11	20.17	3.71	33%	0.17	53%	0.21	15%	0.06	Yes
<b>Key Ideas and Details<sup>3</sup></b>	6	17.33	2.07	38%	0.15	45%	0.19	17%	0.07	Yes
<b>Craft and Structure<sup>4</sup></b>	6	9.00	2.90	28%	0.28	59%	0.35	13%	0.13	Yes
<b>Integration<sup>5</sup></b>	6	0.67	1.21	0%	0.00	100%	0.00	0%	0.00	Yes
<b>Total</b>	38	11.03	1.28	28%	0.18	60%	60%	12%	0.07	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 1: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	DO K Level	No. of Standards	Percentage of Standards	Code Mean	Standard Deviation	Categorical Concurrence
<b>Reading Literature<sup>1</sup></b>	9	1	0	0%	8.00	4.43	Yes
		2	5	56%			
		3	4	44%			
<b>Reading Informational<sup>2</sup></b>	11	1	0	0%	20.17	3.71	Yes
		2	6	55%			
		3	5	45%			
<b>Key Ideas and Details<sup>3</sup></b>	6	1	0	0%	17.33	2.07	Yes
		2	5	83%			
		3	1	17%			
<b>Craft and Structure<sup>4</sup></b>	6	1	0	0%	9.00	2.90	Yes
		2	3	50%			
		3	3	50%			
<b>Integration<sup>5</sup></b>	6	1	0	0%	0.67	1.21	No
		2	1	17%			
		3	3	50%			
<b>Total</b>	38	1	0	0%	11.03	1.28	
		2	20	53%			
		3	16	42%			

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	8.00	4.43	3.83	2.14	43%	0.24	Weak
<b>Reading Informational<sup>2</sup></b>	11	20.17	3.71	5.33	1.37	48%	0.12	Weak
<b>Key Ideas and Details<sup>3</sup></b>	6	17.33	2.07	4.33	1.37	72%	0.23	Yes
<b>Craft and Structure<sup>4</sup></b>	6	9.00	2.90	4.17	1.17	69%	0.19	Yes
<b>Integration<sup>5</sup></b>	6	0.67	1.21	0.33	0.52	6%	0.09	No
<b>Total</b>	38	11.03	1.28	3.60	1.31	48%	0.17	

**Reading PreACT Form 1: Summary of Balance of Representation**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	14.37%	4.43	0.81	0.10	Yes
<b>Reading Informational<sup>2</sup></b>	11	36.23%	3.71	0.71	0.12	Yes
<b>Key Ideas and Details<sup>3</sup></b>	6	31.14%	2.07	0.69	0.10	Weak
<b>Craft and Structure<sup>4</sup></b>	6	16.17%	2.90	0.83	0.05	Yes
<b>Integration<sup>5</sup></b>	6	1.20%	1.21	1.00	0.01	Yes
<b>Total</b>	38	19.82%	2.86	0.81	0.08	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	7.83	3.87	31%	0.26	67%	0.23	2%	0.04	Yes
<b>Reading Informational<sup>2</sup></b>	11	19.50	3.39	30%	0.13	63%	0.12	7%	0.04	Yes
<b>Key Ideas and Details<sup>3</sup></b>	6	16.33	2.16	41%	0.22	54%	0.20	6%	0.05	Yes
<b>Craft and Structure<sup>4</sup></b>	6	10.50	2.07	19%	0.09	78%	0.09	3%	0.04	Yes
<b>Integration<sup>5</sup></b>	6	0.50	0.84	0%	0.00	100%	0.00	0%	0.00	Yes
<b>Total</b>	38	10.93	1.20	24%	0.14	72%	72%	3%	0.04	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup> Craft and Structure (Literature & Informational Text)

<sup>5</sup> Integration of Knowledge and Ideas (Literature & Informational Text)



**Reading PreACT Form 2: Summary of Categorical Concurrence**

<b>Alabama English Language Arts Grade 10 Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Reading Literature<sup>1</sup></b>	9	1	0	0%	7.83	3.87	Yes
		2	5	56%			
		3	4	44%			
<b>Reading Informational<sup>2</sup></b>	11	1	0	0%	19.50	3.39	Yes
		2	6	55%			
		3	5	45%			
<b>Key Ideas and Details<sup>3</sup></b>	6	1	0	0%	16.33	2.16	Yes
		2	5	83%			
		3	1	17%			
<b>Craft and Structure<sup>4</sup></b>	6	1	0	0%	10.50	2.07	Yes
		2	3	50%			
		3	3	50%			
<b>Integration<sup>5</sup></b>	6	1	0	0%	0.50	0.84	No
		2	1	17%			
		3	3	50%			
<b>Total</b>	38	1	0	0%	10.93	1.20	
		2	20	53%			
		3	16	42%			

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Reading Literature <sup>1</sup>	9	7.83	3.87	3.67	1.86	41%	0.21	Weak
Reading Informational <sup>2</sup>	11	19.50	3.39	5.17	0.75	47%	0.07	Weak
Key Ideas and Details <sup>3</sup>	6	16.33	2.16	4.50	1.87	75%	0.31	Yes
Craft and Structure <sup>4</sup>	6	10.50	2.07	4.00	1.26	67%	0.21	Yes
Integration <sup>5</sup>	6	0.50	0.84	0.33	0.52	6%	0.09	No
<b>Total</b>	38	10.93	1.20	3.53	1.25	47%	0.18	

**Reading PreACT Form 2: Summary of Balance of Representation**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Reading Literature <sup>1</sup>	9	13.86%	3.87	0.81	0.11	Yes
Reading Informational <sup>2</sup>	11	34.51%	3.39	0.77	0.08	Yes
Key Ideas and Details <sup>3</sup>	6	28.91%	2.16	0.79	0.12	Yes
Craft and Structure <sup>4</sup>	6	18.58%	2.07	0.87	0.05	Yes
Integration <sup>5</sup>	6	0.88%	0.84	0.99	0.03	Yes
<b>Total</b>	38	19.35%	2.47	0.84	0.08	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Reading Literature<sup>1</sup></b>	9	9.83	1.60	23%	0.13	72%	0.09	5%	0.08	Yes
<b>Reading Informational<sup>2</sup></b>	11	18.83	2.99	27%	0.20	61%	0.21	12%	0.08	Yes
<b>Key Ideas and Details<sup>3</sup></b>	6	17.83	3.54	24%	0.19	63%	0.22	13%	0.09	Yes
<b>Craft and Structure<sup>4</sup></b>	6	10.17	1.94	28%	0.19	70%	0.18	1%	0.03	Yes
<b>Integration<sup>5</sup></b>	6	0.67	1.21	0%	0.00	50%	0.71	50%	0.71	Yes
<b>Total</b>	38	11.47	0.98	20%	0.14	63%	63%	16%	0.20	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 3: Summary of Categorical Concurrence**

<b>Alabama English Language Arts Grade 10 Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Reading Literature<sup>1</sup></b>	9	1	0	0%	9.83	1.60	Yes
		2	5	56%			
		3	4	44%			
<b>Reading Informational<sup>2</sup></b>	11	1	0	0%	18.83	2.99	Yes
		2	6	55%			
		3	5	45%			
<b>Key Ideas and Details<sup>3</sup></b>	6	1	0	0%	17.83	3.54	Yes
		2	5	83%			
		3	1	17%			
<b>Craft and Structure<sup>4</sup></b>	6	1	0	0%	10.17	1.94	Yes
		2	3	50%			
		3	3	50%			
<b>Integration<sup>5</sup></b>	6	1	0	0%	0.67	1.21	No
		2	1	17%			
		3	3	50%			
<b>Total</b>	38	1	0	0%	11.47	0.98	
		2	20	53%			
		3	16	42%			

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Reading PreACT Form 3: Summary of Range-of-Knowledge Correspondence**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
Reading Literature <sup>1</sup>	9	9.83	1.60	4.50	1.05	50%	0.12	Yes
Reading Informational <sup>2</sup>	11	18.83	2.99	5.83	0.75	53%	0.07	Yes
Key Ideas and Details <sup>3</sup>	6	17.83	3.54	5.17	0.98	86%	0.16	Yes
Craft and Structure <sup>4</sup>	6	10.17	1.94	4.83	0.98	81%	0.16	Yes
Integration <sup>5</sup>	6	0.67	1.21	0.33	0.52	6%	0.09	No
<b>Total</b>	38	11.47	0.98	4.13	0.86	55%	0.12	

**Reading PreACT Form 3: Summary of Balance of Representation**

Alabama English Language Arts Grade 10 Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Reading Literature <sup>1</sup>	9	16.71%	1.60	0.79	0.06	Yes
Reading Informational <sup>2</sup>	11	32.01%	2.99	0.73	0.05	Yes
Key Ideas and Details <sup>3</sup>	6	30.31%	3.54	0.72	0.06	Yes
Craft and Structure <sup>4</sup>	6	17.28%	1.94	0.84	0.06	Yes
Integration <sup>5</sup>	6	1.13%	1.21	0.99	0.02	Yes
<b>Total</b>	38	19.49%	2.26	0.81	0.05	

<sup>1</sup>Reading Standards for Literature

<sup>2</sup>Reading Standards for Informational Text

<sup>3</sup>Key Ideas and Details (Literature & Informational Text)

<sup>4</sup>Craft and Structure (Literature & Informational Text)

<sup>5</sup>Integration of Knowledge and Ideas (Literature & Informational Text)

**Writing ACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	6.83	0.75	8%	0.12	58%	0.08	34%	0.12	Yes
<b>Language Standards</b>	6	1.17	0.75	0%	0.00	0%	0.00	100%	0.00	Yes
<b>Total</b>	16	4.00	0.00	4%	0.06	29%	29%	67%	0.06	

**Writing ACT Form 1: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	6.83	0.75	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	1.17	0.75	No
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	4.00	0.00	
		2	6	38%			
		3	8	50%			

**Writing ACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	6.83	0.75	8%	0.12	56%	0.08	37%	0.14	Yes
<b>Language Standards</b>	6	1.17	0.75	0%	0.00	0%	0.00	100%	0.00	Yes
<b>Total</b>	16	4.00	0.00	4%	0.06	28%	28%	68%	0.07	

**Writing ACT Form 2: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	6.83	0.75	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	1.17	0.75	No
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	4.00	0.00	
		2	6	38%			
		3	8	50%			

**Writing ACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Writing Standards</b>	10	6.83	0.75	8%	0.12	56%	0.08	37%	0.14	Yes
<b>Language Standards</b>	6	1.17	0.75	0%	0.00	0%	0.00	100%	0.00	Yes
<b>Total</b>	16	4.00	0.00	4%	0.06	28%	28%	68%	0.07	

**Writing ACT Form 3: Summary of Categorical Concurrence**

Alabama English Language Arts Grade 11 Course of Study	No. of Standards	DOK Level	No. of Standards	Percentage of Standards	Coded Mean	Standard Deviation	Categorical Concurrence
<b>Writing Standards</b>	10	1	0	0%	6.83	0.75	Yes
		2	2	20%			
		3	8	80%			
<b>Language Standards</b>	6	1	2	33%	1.17	0.75	No
		2	4	67%			
		3	0	0%			
<b>Total</b>	16	1	2	13%	4.00	0.00	
		2	6	38%			
		3	8	50%			



**Mathematics ACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama Mathematics Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Number and Quantity</b> <sup>1</sup>	17	9.50	1.05	19%	0.12	0.58	0.16	0.23	0.08	Yes
<b>Algebra</b> <sup>2</sup>	35	16.50	9.35	23%	0.14	0.65	0.14	0.12	0.10	Yes
<b>Functions</b> <sup>3</sup>	24	9.00	1.41	62%	0.16	0.33	0.17	0.05	0.08	No
<b>Statistics</b> <sup>4</sup>	19	12.17	7.14	45%	0.16	0.37	0.12	0.18	0.12	Yes
<b>Geometry</b> <sup>5</sup>	41	13.67	1.75	55%	0.15	0.38	0.10	0.06	0.05	Weak
<b>Total</b>	136	12.17	4.14	0.41	0.14	0.46	0.14	0.13	0.09	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics ACT Form 1: Summary of Categorical Concurrence**

<b>Alabama Mathematics Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Number and Quantity<sup>1</sup></b>	17	1	11	65%	9.50	1.05	Yes
		2	6	35%			
		3	0	0%			
<b>Algebra<sup>2</sup></b>	35	1	17	49%	16.50	9.35	Yes
		2	18	51%			
		3	0	0%			
<b>Functions<sup>3</sup></b>	24	1	7	29%	9.00	1.41	Yes
		2	17	71%			
		3	0	0%			
<b>Statistics<sup>4</sup></b>	19	1	5	26%	12.17	7.14	Yes
		2	11	58%			
		3	3	16%			
<b>Geometry<sup>5</sup></b>	41	1	15	37%	13.67	1.75	Yes
		2	18	44%			
		3	8	20%			
<b>Total</b>	136	1	55	40%	12.17	4.14	
		2	70	51%			
		3	11	8%			

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics ACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama Mathematics Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Number and Quantity</b> <sup>1</sup>	17	9.50	1.05	7.67	1.03	0.45	0.06	Weak
<b>Algebra</b> <sup>2</sup>	35	16.50	9.35	10.00	4.86	0.29	0.14	No
<b>Functions</b> <sup>3</sup>	24	9.00	1.41	6.17	1.83	0.26	0.08	No
<b>Statistics</b> <sup>4</sup>	19	12.17	7.14	8.83	3.19	0.46	0.17	Weak
<b>Geometry</b> <sup>5</sup>	41	13.67	1.75	10.00	2.10	0.24	0.05	No
<b>Total</b>	136	12.17	4.14	8.53	2.60	0.34	0.10	

**Mathematics ACT Form 1: Summary of Balance of Representation**

Alabama Mathematics Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
	17	12.36%	1.05	0.85	0.05	Yes
<b>Number and Quantity</b> <sup>1</sup>	35	21.48%	9.35	0.77	0.07	Yes
<b>Algebra</b> <sup>2</sup>	24	11.71%	1.41	0.81	0.06	Yes
<b>Functions</b> <sup>3</sup>	19	23.10%	7.14	0.88	0.10	Yes
<b>Statistics</b> <sup>4</sup>	41	25.95%	1.75	0.79	0.06	Yes
<b>Total</b>	136	18.92%	4.14	0.82	0.07	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics ACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama Mathematics Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Number and Quantity</b> <sup>1</sup>	17	9.33	3.44	20%	0.21	62%	0.13	18%	0.16	Yes
<b>Algebra</b> <sup>2</sup>	35	19.33	9.11	13%	0.12	66%	0.20	21%	0.12	Yes
<b>Functions</b> <sup>3</sup>	24	7.50	2.26	45%	0.08	45%	0.12	10%	0.09	Yes
<b>Statistics</b> <sup>4</sup>	19	9.83	7.36	54%	0.25	29%	0.17	17%	0.11	Weak
<b>Geometry</b> <sup>5</sup>	41	14.33	3.98	57%	0.11	35%	0.06	8%	0.07	Weak
<b>Total</b>	136	12.07	2.88	38%	0.16	47%	0.14	15%	0.11	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics ACT Form 2: Summary of Categorical Concurrence**

<b>Alabama Mathematics Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Number and Quantity<sup>1</sup></b>	17	1	11	65%	9.33	3.44	Yes
		2	6	35%			
		3	0	0%			
<b>Algebra<sup>2</sup></b>	35	1	17	49%	19.33	9.11	Yes
		2	18	51%			
		3	0	0%			
<b>Functions<sup>3</sup></b>	24	1	7	29%	7.50	2.26	Yes
		2	17	71%			
		3	0	0%			
<b>Statistics<sup>4</sup></b>	19	1	5	26%	9.83	7.36	Yes
		2	11	58%			
		3	3	16%			
<b>Geometry<sup>5</sup></b>	41	1	15	37%	14.33	3.98	Yes
		2	18	44%			
		3	8	20%			
<b>Total</b>	136	1	55	46%	12.07	2.88	
		2	70	54%			
		3	11	0%			

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics ACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama Mathematics Course of Study	No. of Standards	Hits		Range of Performance Definitions				Range of Knowledge
		Mean	Standard Deviation	No. of Performance Definitions Hit		% of Total		
				Mean Standards Hit	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Number and Quantity<sup>1</sup></b>	17	9.33	3.44	7.00	2.00	0.41	0.12	Weak
<b>Algebra<sup>2</sup></b>	35	19.33	9.11	12.33	4.27	0.35	0.12	No
<b>Functions<sup>3</sup></b>	24	7.50	2.26	6.17	1.72	0.26	0.07	No
<b>Statistics<sup>4</sup></b>	19	9.83	7.36	6.50	3.51	0.34	0.18	No
<b>Geometry<sup>5</sup></b>	41	14.33	3.98	10.83	3.97	0.26	0.10	No
<b>Total</b>	136	12.07	2.88	8.57	3.09	0.33	0.12	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics ACT Form 2: Summary of Balance of Representation**

Alabama Mathematics Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Number and Quantity <sup>1</sup>	17	0.12	3.44	0.84	0.08	Yes
Algebra <sup>2</sup>	35	0.25	9.11	0.81	0.06	Yes
Functions <sup>3</sup>	24	0.10	2.26	0.89	0.10	Yes
Statistics <sup>4</sup>	19	0.20	7.36	0.87	0.11	Yes
Geometry <sup>5</sup>	41	0.28	3.98	0.82	0.05	Yes
<b>Total</b>	136	0.19	5.23	0.84	0.08	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama Mathematics Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Number and Quantity<sup>1</sup></b>	6	4.00	1.79	0.26	0.32	0.38	0.21	0.36	0.39	Yes
<b>Algebra<sup>2</sup></b>	18	10.83	5.64	0.24	0.16	0.49	0.29	0.26	0.39	Yes
<b>Functions<sup>3</sup></b>	16	3.00	1.41	0.34	0.42	0.43	0.50	0.22	0.40	Yes
<b>Statistics<sup>4</sup></b>	9	2.17	2.14	0.31	0.22	0.06	0.13	0.63	0.31	Yes
<b>Geometry<sup>5</sup></b>	41	13.67	4.93	0.59	0.07	0.30	0.11	0.11	0.10	Weak
<b>Total</b>	90	6.73	1.95	0.35	0.24	0.33	0.25	0.32	0.32	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)



**Mathematics PreACT Form 1: Summary of Categorical Concurrence**

<b>Alabama Mathematics Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Number and Quantity<sup>1</sup></b>	6	1	2	33%	4.00	1.79	Weak
		2	4	67%			
		3	0	0%			
<b>Algebra<sup>2</sup></b>	18	1	11	61%	10.83	5.64	Yes
		2	7	39%			
		3	0	0%			
<b>Functions<sup>3</sup></b>	16	1	5	31%	3.00	1.41	No
		2	11	69%			
		3	0	0%			
<b>Statistics<sup>4</sup></b>	9	1	3	33%	2.17	2.14	No
		2	4	44%			
		3	2	22%			
<b>Geometry<sup>5</sup></b>	41	1	15	37%	13.67	4.93	Yes
		2	18	44%			
		3	8	20%			
<b>Total</b>	90	1	36	40%	6.73	1.95	
		2	44	49%			
		3	10	11%			

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama Mathematics Course of Study	No. of Standards	Hits		Range of Performance Definitions				Range of Knowledge
				No. of Performance Definitions Hit		% of Total		
		Mean	Standard Deviation	Mean Standards Hit	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Number and Quantity<sup>1</sup></b>	6	4.00	1.79	2.67	1.37	44%	0.23	Weak
<b>Algebra<sup>2</sup></b>	18	10.83	5.64	6.00	2.61	33%	0.14	No
<b>Functions<sup>3</sup></b>	16	3.00	1.41	3.00	1.41	19%	0.09	No
<b>Statistics<sup>4</sup></b>	9	2.17	2.14	1.33	1.21	15%	0.13	No
<b>Geometry<sup>5</sup></b>	41	13.67	4.93	11.17	4.45	27%	0.11	No
<b>Total</b>	90	6.73	1.95	4.83	2.21	28%	0.14	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 1: Summary of Balance of Representation**

Alabama Mathematics Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Number and Quantity <sup>1</sup>	6	0.10	1.79	0.92	0.09	Yes
Algebra <sup>2</sup>	18	0.27	5.64	0.72	0.09	Yes
Functions <sup>3</sup>	16	0.07	1.41	1.00	0.00	Yes
Statistics <sup>4</sup>	9	0.07	2.14	0.93	0.08	Yes
Geometry <sup>5</sup>	41	0.41	4.93	0.85	0.10	Yes
<b>Total</b>	90	0.18	3.18	0.88	0.07	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama Mathematics Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Number and Quantity<sup>1</sup></b>	6	4.50	2.26	0.37	0.35	0.52	0.25	0.12	0.20	Yes
<b>Algebra<sup>2</sup></b>	18	7.33	4.23	0.26	0.26	0.50	0.31	0.24	0.38	Yes
<b>Functions<sup>3</sup></b>	16	5.67	2.88	0.41	0.34	0.35	0.28	0.24	0.39	Yes
<b>Statistics<sup>4</sup></b>	9	2.33	1.03	0.35	0.20	0.51	0.26	0.14	0.22	Yes
<b>Geometry<sup>5</sup></b>	41	8.50	3.73	0.57	0.22	0.22	0.23	0.21	0.03	Weak
<b>Total</b>	40	5.67	1.26	0.39	0.27	0.42	0.27	0.19	0.25	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 2: Summary of Categorical Concurrence**

<b>Alabama Mathematics Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Number and Quantity<sup>1</sup></b>	6	1	2	33%	4.50	2.26	Weak
		2	4	67%			
		3	0	0%			
<b>Algebra<sup>2</sup></b>	18	1	11	61%	7.33	4.23	Yes
		2	7	39%			
		3	0	0%			
<b>Functions<sup>3</sup></b>	16	1	5	31%	5.67	2.88	Weak
		2	11	69%			
		3	0	0%			
<b>Statistics<sup>4</sup></b>	9	1	3	33%	2.33	1.03	No
		2	4	44%			
		3	2	22%			
<b>Geometry<sup>5</sup></b>	41	1	15	37%	8.50	3.73	Yes
		2	18	44%			
		3	8	20%			
<b>Total</b>	90	1	36	40%	5.67	1.26	
		2	44	49%			
		3	10	11%			

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama Mathematics Course of Study	No. of Standards	Hits		Range of Performance Definitions				Range of Knowledge
				No. of Performance Definitions Hit		% of Total		
		Mean	Standard Deviation	Mean Standards Hit	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Number and Quantity<sup>1</sup></b>	6	4.50	2.26	2.67	1.37	0.44	0.23	Weak
<b>Algebra<sup>2</sup></b>	18	7.33	4.23	4.17	1.72	0.23	0.10	No
<b>Functions<sup>3</sup></b>	16	5.67	2.88	4.33	2.16	0.27	0.14	No
<b>Statistics<sup>4</sup></b>	9	2.33	1.03	1.83	0.98	0.20	0.11	No
<b>Geometry<sup>5</sup></b>	41	8.50	3.73	7.17	2.79	0.17	0.07	No
<b>Total</b>	90	5.67	1.26	4.03	1.80	0.27	0.13	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Mathematics PreACT Form 2: Summary of Balance of Representation**

Alabama Mathematics Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
Number and Quantity <sup>1</sup>	6	0.11	2.26	0.88	0.13	Yes
Algebra <sup>2</sup>	18	0.19	4.23	0.80	0.05	Yes
Functions <sup>3</sup>	16	0.14	2.88	0.88	0.09	Yes
Statistics <sup>4</sup>	9	0.10	1.03	0.97	0.07	Yes
Geometry <sup>5</sup>	41	0.36	3.73	0.91	0.11	Yes
<b>Total</b>	40	0.18	2.82	0.89	0.09	

<sup>1</sup>Number and Quantity (Algebra I and Algebra II Standards)

<sup>2</sup>Algebra (Algebra I and Algebra II Standards)

<sup>3</sup>Functions (Algebra I and Algebra II Standards)

<sup>4</sup>Statistics (Algebra I, Algebra II, and Geometry Standards)

<sup>5</sup>Geometry (Geometry Standards)

**Science ACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama Science Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Biology</b>	16	10.00	5.33	28%	0.24	51%	0.15	20%	0.25	Yes
<b>Chemistry</b>	11	7.38	7.15	37%	0.13	44%	0.15	19%	0.20	Yes
<b>Physics</b>	12	10.17	3.60	0%	0.00	0%	0.00	100%	0.00	Yes
<b>Earth and Space Science</b>	15	1.17	2.86	43%	NA*	57%	NA*	0%	NA*	Yes
<b>Total</b>	54	7.18	1.91	27%	0.12	38%	38%	35%	0.15	

\*Reviewers did not align enough items to these standards for this to apply.



**Science ACT Form 1: Summary of Categorical Concurrence**

<b>Alabama Science Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Biology</b>	16	1	0	0%	10.00	5.33	Yes
		2	10	63%			
		3	6	38%			
<b>Chemistry</b>	11	1	0	0%	7.38	7.15	Yes
		2	7	64%			
		3	4	36%			
<b>Physics</b>	12	1	0	0%	10.17	3.60	Yes
		2	10	83%			
		3	2	17%			
<b>Earth and Space Science</b>	15	1	3	20%	1.17	2.86	No
		2	12	80%			
		3	0	0%			
<b>Total</b>	54	1	3	6%	7.18	1.91	
		2	39	72%			
		3	12	22%			

**Science ACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama Science Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Biology</b>	16	10.00	5.33	2.33	1.51	15%	0.10	No
<b>Chemistry</b>	11	7.38	7.15	1.67	1.21	15%	0.12	No
<b>Physics</b>	12	10.17	3.60	1.83	0.41	15%	0.08	No
<b>Earth and Space Science</b>	15	1.17	2.86	0.17	0.41	1%	0.02	No
<b>Total</b>	54	7.18	1.91	1.50	0.88	12%	0.08	

**Science ACT Form 1: Summary of Balance of Representation**

Alabama Science Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
	16	32.09%	5.33	0.81	0.15	Yes
<b>Biology</b>	11	31.55%	7.15	0.95	0.13	Yes
<b>Chemistry</b>	12	32.62%	3.60	0.84	0.12	Yes
<b>Physics</b>	15	3.74%	2.86	1.00	0.00	Yes
<b>Total</b>	54	25.00%	4.73	0.90	0.10	

**Science ACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama Science Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Biology</b>	16	7.83	4.92	55%	0.37	30%	0.38	15%	0.18	Weak
<b>Chemistry</b>	11	14.17	5.67	47%	0.21	43%	0.19	10%	0.19	Yes
<b>Physics</b>	12	5.67	2.42	21%	0.17	64%	0.20	15%	0.08	Yes
<b>Earth and Space Science</b>	15	4.50	3.73	0%	0.00	38%	0.18	62%	0.18	Yes
<b>Total</b>	54	8.04	1.42	31%	0.19	44%	44%	26%	0.16	

**Science ACT Form 2: Summary of Categorical Concurrence**

<b>Alabama Science Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Biology</b>	16	1	0	0%	7.83	4.92	Yes
		2	10	63%			
		3	6	38%			
<b>Chemistry</b>	11	1	0	0%	14.17	5.67	Yes
		2	7	64%			
		3	4	36%			
<b>Physics</b>	12	1	0	0%	5.67	2.42	Weak
		2	10	83%			
		3	2	17%			
<b>Earth and Space Science</b>	15	1	3	20%	4.50	3.73	No
		2	12	80%			
		3	0	0%			
<b>Total</b>	54	1	3	6%	8.04	1.42	
		2	39	72%			
		3	12	22%			

**Science ACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama Science Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Biology</b>	16	7.83	4.92	1.50	0.84	9%	0.06	No
<b>Chemistry</b>	11	14.17	5.67	3.00	0.63	27%	0.14	No
<b>Physics</b>	12	5.67	2.42	1.50	0.84	13%	0.08	No
<b>Earth and Space Science</b>	15	4.50	3.73	0.83	0.75	6%	0.05	No
<b>Total</b>	54	8.04	1.42	1.71	0.76	14%	0.08	

**Science ACT Form 2: Summary of Balance of Representation**

Alabama Science Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Biology</b>	16	24.35%	4.92	0.95	0.10	Yes
<b>Chemistry</b>	11	44.04%	5.67	0.84	0.11	Yes
<b>Physics</b>	12	17.62%	2.42	0.89	0.17	Yes
<b>Earth and Space Science</b>	15	13.99%	3.73	0.95	0.11	Yes
<b>Total</b>	54	25.00%	4.18	0.91	0.12	

**Science ACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama Science Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Biology</b>	16	10.83	9.20	35%	0.28	47%	0.26	18%	0.15	Yes
<b>Chemistry</b>	11	9.33	6.06	35%	0.21	46%	0.16	19%	0.12	Yes
<b>Physics</b>	12	2.67	2.94	6%	0.10	61%	0.22	33%	0.31	Yes
<b>Earth and Space Science</b>	15	3.50	3.21	38%	0.38	51%	0.37	11%	0.17	Yes
<b>Total</b>	54	6.58	2.92	28%	0.24	51%	0.37	20%	0.19	

**Science ACT Form 3: Summary of Categorical Concurrence**

<b>Alabama Science Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Biology</b>	16	1	0	0%	10.83	9.20	Yes
		2	10	63%			
		3	6	38%			
<b>Chemistry</b>	11	1	0	0%	9.33	6.06	Yes
		2	7	64%			
		3	4	36%			
<b>Physics</b>	12	1	0	0%	2.67	2.94	No
		2	10	83%			
		3	2	17%			
<b>Earth and Space Science</b>	15	1	3	20%	3.50	3.21	No
		2	12	80%			
		3	0	0%			
<b>Total</b>	54	1	3	6%	6.58	2.92	
		2	39	72%			
		3	12	22%			

**Science ACT Form 3: Summary of Range-of-Knowledge Correspondence**

Alabama Science Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Biology</b>	16	10.83	9.20	2.00	1.10	13%	0.08	No
<b>Chemistry</b>	11	9.33	6.06	2.33	1.03	21%	0.13	No
<b>Physics</b>	12	2.67	2.94	0.50	0.55	4%	0.04	No
<b>Earth and Space Science</b>	15	3.50	3.21	0.83	0.41	6%	0.03	No
<b>Total</b>	54	6.58	2.92	1.42	0.77	11%	0.07	

**Science ACT Form 3: Summary of Balance of Representation**

Alabama Science Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Biology</b>	16	41.14%	9.20	0.93	0.15	Yes
<b>Chemistry</b>	11	35.44%	6.06	0.82	0.15	Yes
<b>Physics</b>	12	10.13%	2.94	1.00	0.00	Yes
<b>Earth and Space Science</b>	15	13.29%	3.21	1.00	0.00	Yes
<b>Total</b>	54	25.00%	5.35	0.94	0.08	



**Science PreACT Form 1: Summary of Depth-of-Knowledge Consistency**

Alabama Science Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Biology</b>	16	3.33	5.50	86%	0.202	14%	0.202	0%	0.000	No
<b>Chemistry</b>	11	3.33	2.58	10%	0.115	70%	0.258	20%	0.231	Yes
<b>Physics</b>	12	4.83	2.40	33%	0.333	55%	0.248	11%	0.176	Yes
<b>Earth and Space Science</b>	15	2.83	3.13	26%	0.310	58%	0.227	17%	0.289	Yes
<b>Total</b>	54	3.58	1.43	39%	0.240	49%	0.490	12%	0.174	

**Science PreACT Form 1: Summary of Categorical Concurrence**

<b>Alabama Science Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Biology</b>	16	1	0	0%	3.33	5.50	No
		2	10	63%			
		3	6	38%			
<b>Chemistry</b>	11	1	0	0%	3.33	2.58	No
		2	7	64%			
		3	4	36%			
<b>Physics</b>	12	1	0	0%	4.83	2.40	No
		2	10	83%			
		3	2	17%			
<b>Earth and Space Science</b>	15	1	3	20%	2.83	3.13	No
		2	12	80%			
		3	0	0%			
<b>Total</b>	54	1	3	6%	3.58	1.43	
		2	39	72%			
		3	12	22%			

**Science PreACT Form 1: Summary of Range-of-Knowledge Correspondence**

Alabama Science Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Biology</b>	16	3.33	5.50	0.500	0.837	3%	0.05	No
<b>Chemistry</b>	11	3.33	2.58	0.667	0.516	6%	0.05	No
<b>Physics</b>	12	4.83	2.40	0.833	0.408	7%	0.04	No
<b>Earth and Space Science</b>	15	2.83	3.13	0.500	0.548	3%	0.03	No
<b>Total</b>	54	3.58	1.43	0.625	0.577	5%	0.04	

**Science PreACT Form 1: Summary of Balance of Representation**

Alabama Science Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
	16	23.26%	5.50	0.99	0.02	Yes
<b>Biology</b>	11	23.26%	2.58	1.00	0.00	Yes
<b>Chemistry</b>	12	33.72%	2.40	1.00	0.00	Yes
<b>Physics</b>	15	19.77%	3.13	1.00	0.00	Yes
<b>Total</b>	54	25.00%	3.40	1.00	0.00	

**Science PreACT Form 2: Summary of Depth-of-Knowledge Consistency**

Alabama Science Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Biology</b>	16	4.17	4.36	89%	0.157	11%	0.157	0%	0.000	No
<b>Chemistry</b>	11	1.00	2.00	10%	0.141	80%	0.283	10%	0.141	Yes
<b>Physics</b>	12	4.67	3.61	0%	0.000	0%	0.000	100%	0.000	Yes
<b>Earth and Space Science</b>	15	5.33	7.00	2%	0.047	8%	0.112	90%	0.147	Yes
<b>Total</b>	54	3.79	2.09	25%	0.086	25%	25%	50%	0.072	

**Science PreACT Form 2: Summary of Categorical Concurrence**

<b>Alabama Science Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Biology</b>	16	1	0	0%	4.17	4.36	No
		2	10	63%			
		3	6	38%			
<b>Chemistry</b>	11	1	0	0%	1.00	2.00	No
		2	7	64%			
		3	4	36%			
<b>Physics</b>	12	1	0	0%	4.67	3.61	No
		2	10	83%			
		3	2	17%			
<b>Earth and Space Science</b>	15	1	3	20%	5.33	7.00	Weak
		2	12	80%			
		3	0	0%			
<b>Total</b>	54	1	3	6%	3.79	2.09	
		2	39	72%			
		3	12	22%			

**Science PreACT Form 2: Summary of Range-of-Knowledge Correspondence**

Alabama Science Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Biology</b>	16	4.17	4.36	0.833	0.753	5%	0.05	No
<b>Chemistry</b>	11	1.00	2.00	0.333	0.516	3%	0.04	No
<b>Physics</b>	12	4.67	3.61	0.833	0.753	7%	0.06	No
<b>Earth and Space Science</b>	15	5.33	7.00	1.167	0.983	8%	0.07	No
<b>Total</b>	54	3.79	2.09	0.792	0.751	6%	0.05	

**Science PreACT Form 2: Summary of Balance of Representation**

Alabama Science Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Biology</b>	16	27.47%	4.36	0.94	0.16	Yes
<b>Chemistry</b>	11	6.59%	2.00	1.00	0.00	Yes
<b>Physics</b>	12	30.77%	3.61	0.99	0.03	Yes
<b>Earth and Space Science</b>	15	35.16%	7.00	0.99	0.03	Yes
<b>Total</b>	54	25.00%	4.24	0.98	0.05	

**Science PreACT Form 3: Summary of Depth-of-Knowledge Consistency**

Alabama Science Course of Study	No. of Standards	Hits		Percent of Questions at DOK Level						DOK Consistency
		Mean	Standard Deviation	Under		At		Above		
				Mean Percent Below	Standard Deviation	Mean Percent At	Standard Deviation	Mean Percent Above	Standard Deviation	
<b>Biology</b>	16	7.33	3.27	30%	0.26	58%	0.33	12%	0.17	Yes
<b>Chemistry</b>	11	3.17	3.13	17%	0.24	63%	0.37	21%	0.25	Yes
<b>Physics</b>	12	3.33	2.25	0%	0.00	0%	0.00	100%	0.00	Yes
<b>Earth and Space Science</b>	15	4.67	1.86	13%	0.16	63%	0.25	24%	0.31	Yes
<b>Total</b>	54	4.63	0.68	15%	0.16	46%	46%	39%	0.18	

**Science PreACT Form 3: Summary of Categorical Concurrence**

<b>Alabama Science Course of Study</b>	<b>No. of Standards</b>	<b>DOK Level</b>	<b>No. of Standards</b>	<b>Percentage of Standards</b>	<b>Coded Mean</b>	<b>Standard Deviation</b>	<b>Categorical Concurrence</b>
<b>Biology</b>	16	1	0	0%	7.33	3.27	Yes
		2	10	63%			
		3	6	38%			
<b>Chemistry</b>	11	1	0	0%	3.17	3.13	No
		2	7	64%			
		3	4	36%			
<b>Physics</b>	12	1	0	0%	3.33	2.25	No
		2	10	83%			
		3	2	17%			
<b>Earth and Space Science</b>	15	1	3	20%	4.67	1.86	No
		2	12	80%			
		3	0	0%			
<b>Total</b>	54	1	3	6%	4.63	0.68	
		2	39	72%			
		3	12	22%			



**Science PreACT Form 3: Summary of Range-of-Knowledge Correspondence**

Alabama Science Course of Study	No. of Standards	Hits		Range of Standards				Range of Knowledge
		Mean	Standard Deviation	No. of Standards Hit		% of Total		
				Mean Standards Hits	Standard Deviation	Avg. Percent of Standards Hit	Standard Deviation	
<b>Biology</b>	16	7.33	3.27	1.33	0.52	8%	0.05	No
<b>Chemistry</b>	11	3.17	3.13	0.67	0.52	6%	0.05	No
<b>Physics</b>	12	3.33	2.25	0.83	0.41	7%	0.04	No
<b>Earth and Space Science</b>	15	4.67	1.86	1.00	0.00	7%	0.03	No
<b>Total</b>	54	4.63	0.68	0.96	0.36	7%	0.04	

**Science PreACT Form 3: Summary of Balance of Representation**

Alabama Science Course of Study	No. of Standards	Percent of Total Hits		Index		Balance of Representation
		Mean	Standard Deviation	Mean	Standard Deviation	
<b>Biology</b>	16	39.64%	3.27	0.93	0.15	Yes
<b>Chemistry</b>	11	17.12%	3.13	1.00	0.00	Yes
<b>Physics</b>	12	18.02%	2.25	1.00	0.00	Yes
<b>Earth and Space Science</b>	15	25.23%	1.86	1.00	0.00	Yes
<b>Total</b>	54	25.00%	2.63	0.98	0.04	



**Appendix D**  
**Depth-of-Knowledge Levels and Alignments by Item and Reviewers**



**English ACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	3	3	3	3	3	3
2	1	1	1	1	1	1
3	1	2	3	1	1	2
4	2	2	3	1	1	1
5	2	2	3	1	2	2
6	1	1	1	1	1	2
7	1	2	3	1	2	2
8	2	2	2	1	2	1
9	2	3	3	2	2	3
10	1	1	1	1	1	1
11	1	2	2	1	1	1
12	3	3	3	2	3	3
13	2	2	3	1	2	1
14	1	2	1	2	1	2
15	3	3	3	3	3	3
16	3	3	3	2	3	3
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	2	3	3	1	1	2
20	2	1	3	1	3	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	2	1	3	2	2	1
24	2	2	3	1	3	1
25	1	1	1	1	1	1
26	1	2	1	1	2	1
27	1	1	1	1	1	1
28	1	1	1	2	1	1
29	3	3	3	3	3	3
30	3	3	3	3	3	3
31	2	3	1	1	1	1
32	1	2	3	1	2	1
33	1	2	1	1	1	1
34	2	3	3	1	3	1
35	1	2	1	1	1	1
36	1	3	2	1	2	1
37	1	3	1	1	2	2
38	2	3	2	1	3	2
39	3	2	3	2	2	3
40	2	2	1	1	1	2

**English ACT Form 1: DOK Levels by Item and Reviewers continued**

41	2	3	3	2	3	3
42	2	3	3	1	1	2
43	1	3	2	1	2	1
44	1	2	2	1	2	1
45	3	3	3	3	3	3
46	3	3	3	3	3	3
47	3	3	3	3	3	3
48	1	2	2	1	2	1
49	3	3	3	3	3	3
50	1	2	1	1	1	1
51	1	1	1	1	1	1
52	1	3	1	1	3	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	2	1	1	2	2
56	2	3	2	1	2	1
57	1	2	1	1	1	1
58	1	2	1	1	1	1
59	3	3	3	3	3	3
60	3	3	3	3	3	3
61	1	2	1	1	1	1
62	1	2	1	1	1	1
63	1	2	1	1	1	1
64	3	3	3	3	3	2
65	1	1	1	1	1	1
66	3	3	3	3	2	3
67	3	3	3	3	3	3
68	1	1	1	1	1	1
69	1	3	2	1	2	2
70	2	2	2	1	3	2
71	1	3	1	1	2	1
72	3	3	3	3	3	3
73	1	1	1	1	1	1
74	1	3	3	1	1	2
75	3	2	3	2	3	2

**English ACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	2	1	1	1	1	1
2	2	2	3	2	3	2
3	2	2	3	1	2	1
4	2	2	3	1	2	1
5	1	1	1	1	1	1
6	2	2	3	2	2	2
7	2	1	3	1	3	2
8	1	2	1	1	2	1
9	1	2	1	1	2	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	3	3	3	3	2	3
13	2	2	3	2	3	3
14	3	2	3	3	3	3
15	3	3	3	3	3	3
16	1	1	1	1	1	1
17	1	1	1	1	2	1
18	1	2	3	2	3	1
19	1	1	1	1	1	1
20	1	2	1	1	2	2
21	2	3	3	1	3	2
22	2	2	1	1	3	1
23	2	3	3	2	2	1
24	2	3	3	2	2	2
25	1	2	1	1	1	1
26	1	2	1	1	2	1
27	2	2	3	1	2	2
28	1	2	1	1	3	1
29	2	2	3	2	2	2
30	3	3	3	3	3	3
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	2	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	2	1	1	3	2
37	1	3	1	1	3	2
38	1	2	1	1	2	1
39	1	2	1	2	1	2
40	1	1	1	2	2	1

**English ACT Form 2: DOK Levels by Item and Reviewers continued**

41	3	2	3	3	3	3
42	2	2	3	2	2	2
43	1	1	1	1	1	1
44	3	3	3	3	3	3
45	3	3	3	3	3	3
46	3	3	3	3	3	3
47	2	2	1	1	2	2
48	1	1	1	1	2	1
49	2	2	3	1	2	2
50	1	3	1	1	2	2
51	2	2	1	1	3	1
52	2	3	3	2	3	3
53	2	2	3	1	3	2
54	1	2	3	2	3	2
55	1	2	1	1	3	2
56	1	1	1	1	1	1
57	1	1	1	1	2	1
58	1	1	1	1	1	1
59	3	3	3	3	3	3
60	3	3	3	3	3	3
61	1	3	1	2	3	2
62	1	1	1	1	1	2
63	1	1	1	1	1	1
64	1	1	1	1	2	1
65	1	2	1	1	2	1
66	1	2	3	2	2	2
67	2	3	3	2	3	3
68	1	2	1	1	2	2
69	2	2	1	1	3	2
70	3	3	3	3	2	3
71	1	1	1	1	1	1
72	2	1	3	1	2	1
73	1	1	1	2	1	2
74	3	2	3	3	3	3
75	3	3	3	3	3	3



**English ACT Form 3: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	1	1	1	1	1
2	2	2	1	1	2	1
3	1	2	1	1	2	1
4	2	2	1	2	3	2
5	3	1	3	2	3	3
6	1	1	1	1	3	1
7	1	1	1	1	2	2
8	1	2	1	1	3	1
9	1	1	1	1	1	1
10	3	3	3	3	3	3
11	2	2	1	1	2	1
12	2	3	1	2	3	2
13	3	3	3	3	3	3
14	3	3	3	2	3	3
15	3	3	3	3	3	3
16	1	1	1	2	1	1
17	1	2	3	2	2	2
18	1	1	1	1	2	1
19	1	1	1	1	2	1
20	2	1	1	2	3	2
21	2	3	1	2	2	2
22	3	3	3	2	2	3
23	2	2	1	1	3	2
24	2	1	3	2	2	2
25	2	2	3	2	2	2
26	3	3	3	3	3	3
27	2	2	1	1	3	2
28	2	2	3	2	3	2
29	3	3	3	3	3	3
30	3	3	3	3	2	3
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	3	3	3	3	3	3
34	2	2	1	2	2	2
35	1	1	1	1	2	2
36	2	1	1	1	1	1
37	2	2	1	1	2	2
38	3	3	3	3	3	3
39	2	2	3	2	2	2
40	1	2	1	1	2	1

**English ACT Form 3: DOK Levels by Item and Reviewers continued**

41	3	2	3	3	2	3
42	1	1	1	1	1	1
43	1	1	1	2	1	1
44	3	3	3	3	3	3
45	3	3	3	3	3	3
46	3	3	3	2	3	2
47	1	1	1	1	2	1
48	1	1	1	1	2	1
49	2	2	1	1	2	2
50	1	1	1	1	1	1
51	1	2	1	1	1	1
52	1	1	1	1	1	1
53	2	2	1	1	3	1
54	2	2	3	2	2	2
55	1	2	1	1	1	2
56	1	1	1	1	2	2
57	3	3	3	3	3	3
58	3	3	3	3	3	3
59	3	3	3	3	3	3
60	1	1	1	1	1	1
61	3	3	3	3	3	3
62	2	2	1	1	2	2
63	1	1	1	1	1	1
64	1	2	1	1	1	1
65	1	1	1	1	1	1
66	3	3	3	3	3	3
67	3	3	3	3	3	3
68	1	2	1	1	2	1
69	1	1	1	1	1	1
70	1	2	1	1	2	1
71	1	2	1	1	3	2
72	1	1	1	1	1	1
73	1	2	1	1	2	1
74	1	2	1	2	3	2
75	3	3	3	3	3	3

**English PreACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	2	2	2	1	2	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	2	2	2	1	3	2
6	2	2	1	1	3	1
7	1	1	1	1	2	1
8	2	1	1	1	2	2
9	2	2	1	2	2	2
10	3	3	3	3	3	3
11	2	2	1	3	3	2
12	1	1	1	1	2	1
13	3	3	3	3	3	3
14	2	2	1	1	2	1
15	3	3	3	3	3	3
16	2	1	2	2	2	1
17	3	3	3	3	3	3
18	2	2	3	2	2	1
19	3	3	3	3	3	3
20	1	1	1	1	2	1
21	1	1	1	1	1	1
22	1	1	1	1	2	1
23	3	3	3	3	3	3
24	2	3	2	2	2	1
25	1	1	1	1	2	1
26	1	1	1	1	1	1
27	1	1	1	1	2	1
28	1	1	1	1	2	1
29	1	1	1	1	2	1
30	3	3	3	3	3	3
31	1	2	1	1	2	1
32	1	3	1	2	3	3
33	2	3	3	2	2	3
34	1	2	1	1	1	1
35	1	2	1	1	2	1
36	2	3	3	3	3	3
37	1	1	1	1	2	1
38	2	2	1	1	2	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1

**English PreACT Form 1: DOK Levels by Item and Reviewers continued**

<b>41</b>	3	3	3	3	3	3
<b>42</b>	2	2	1	1	1	1
<b>43</b>	2	3	3	3	3	3
<b>44</b>	3	3	2	3	3	3
<b>45</b>	1	1	1	1	2	1

**English PreACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	3	3	2	3	3	3
2	1	1	1	1	2	1
3	1	2	1	2	2	2
4	2	2	2	1	2	2
5	2	2	1	2	2	2
6	1	1	1	1	2	1
7	1	1	1	1	2	1
8	1	1	1	1	1	1
9	3	3	3	3	3	3
10	2	2	1	1	2	1
11	1	1	1	1	1	1
12	1	2	1	1	1	1
13	2	1	2	1	2	2
14	3	3	3	3	3	3
15	3	3	3	3	3	3
16	2	3	3	3	3	3
17	1	1	1	1	1	1
18	1	2	1	1	1	1
19	1	1	1	1	1	1
20	3	3	3	3	3	3
21	2	3	1	1	2	2
22	2	2	2	2	2	2
23	2	2	2	1	2	2
24	1	1	1	1	1	1
25	2	2	2	2	2	2
26	2	2	3	3	3	3
27	1	1	1	1	1	1
28	3	3	3	3	3	3
29	3	3	3	3	3	3
30	3	3	3	3	3	3
31	1	1	1	1	1	1
32	1	2	2	1	2	2
33	1	1	1	1	2	1
34	1	1	1	1	2	1
35	1	1	1	1	1	1
36	2	2	2	2	2	2
37	1	1	1	1	2	1
38	2	2	2	1	2	2
39	2	3	3	3	2	3
40	1	1	1	1	2	1

**English PreACT Form 2: DOK Levels by Item and Reviewers continued**

<b>41</b>	3	3	3	3	3	3
<b>42</b>	1	1	1	1	1	1
<b>43</b>	1	1	1	1	2	1
<b>44</b>	3	3	3	3	3	3
<b>45</b>	3	3	3	3	3	3

**English PreACT Form 3: DOK Levels by Item and Reviewers**

Item	DOK R1	DOK R2	DOK R3	DOK R4	DOK R5	DOK R6
1	1	2	3	2	2	3
2	1	1	1	1	1	2
3	2	3	3	3	3	3
4	2	3	3	3	3	3
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	2	2	2	2	3	2
9	1	1	1	1	1	1
10	1	1	1	1	2	2
11	1	1	1	1	2	1
12	3	3	3	3	3	3
13	1	1	2	1	2	2
14	2	2	2	2	2	2
15	3	3	3	3	3	3
16	1	1	1	1	2	1
17	1	1	2	1	2	1
18	1	2	2	1	2	2
19	2	3	3	3	2	3
20	2	3	3	3	3	3
21	1	1	1	1	2	1
22	1	1	1	1	2	1
23	1	1	1	1	1	2
24	1	1	1	1	2	1
25	1	2	1	2	2	1
26	2	2	2	2	2	1
27	2	2	2	2	2	2
28	2	2	1	1	2	2
29	1	1	1	1	2	1
30	3	3	3	3	3	3
31	1	1	1	1	2	1
32	1	1	1	2	1	2
33	3	3	3	3	2	3
34	2	2	2	2	2	2
35	1	1	1	1	2	1
36	1	1	1	1	1	1
37	1	2	1	2	2	1
38	1	1	1	1	1	1
39	2	2	2	2	2	3
40	2	2	2	2	2	1

**English PreACT Form 3: DOK Levels by Item and Reviewers continued**

<b>41</b>	1	1	1	1	2	1
<b>42</b>	3	2	3	3	2	3
<b>43</b>	1	1	1	1	1	1
<b>44</b>	3	3	3	3	3	3
<b>45</b>	3	3	3	3	3	3



**Reading ACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	2	1	1	1	2	1
2	2	1	2	2	2	2
3	2	1	2	3	2	2
4	2	1	2	2	2	1
5	2	2	1	1	3	2
6	2	2	2	3	3	2
7	3	3	3	3	3	3
8	3	3	3	3	3	3
9	2	3	3	2	2	2
10	2	2	3	3	2	1
11	3	1	3	3	2	3
12	1	1	1	1	1	2
13	2	2	2	2	2	2
14	2	2	2	2	3	2
15	2	1	2	2	2	2
16	1	1	1	1	2	1
17	2	1	2	2	2	1
18	3	2	1	1	3	2
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	3	2	2	3	2	3
22	2	3	2	3	2	2
23	2	3	2	2	2	1
24	2	2	2	2	3	2
25	1	3	1	1	1	1
26	3	2	2	2	3	2
27	1	1	1	1	2	1
28	2	2	2	2	2	2
29	2	3	1	1	3	1
30	3	3	2	2	2	3
31	2	2	2	2	2	2
32	3	3	2	2	3	2
33	2	2	2	3	2	2
34	2	2	2	1	2	3
35	1	2	2	2	2	2
36	2	2	2	2	2	2
37	2	2	2	2	2	2
38	3	2	2	1	3	1
39	2	2	1	1	2	1
40	2	2	2	2	3	3

**Reading ACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	3	1	3	2	2	3
2	2	2	2	2	2	2
3	2	3	2	2	3	2
4	2	1	2	2	2	1
5	2	3	2	2	3	2
6	3	2	3	3	3	3
7	3	3	3	3	3	2
8	3	3	3	3	3	3
9	3	3	3	3	3	3
10	1	3	2	2	3	2
11	2	3	3	2	3	3
12	2	1	2	2	2	2
13	2	2	2	1	2	1
14	1	1	2	1	3	2
15	2	1	2	2	2	2
16	1	1	1	1	1	1
17	1	1	2	2	2	1
18	1	1	1	1	1	1
19	1	1	2	1	2	2
20	1	1	1	1	1	1
21	3	1	3	3	2	3
22	2	1	2	2	2	2
23	2	2	1	1	2	2
24	2	2	2	2	2	2
25	2	2	2	2	3	2
26	2	1	2	2	2	2
27	2	3	2	1	2	3
28	2	1	2	2	2	1
29	1	1	1	1	1	1
30	2	1	2	2	2	2
31	2	3	2	2	2	2
32	2	1	2	2	2	2
33	2	1	2	2	3	3
34	2	3	2	1	3	2
35	1	2	1	2	1	2
36	2	1	2	1	2	2
37	2	2	2	1	2	1
38	2	1	2	2	3	2
39	2	3	1	2	2	1
40	1	3	1	1	1	2

**Reading ACT Form 3: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	3	2	3	3	3	2
2	3	2	2	2	1	3
3	2	1	2	2	3	2
4	2	3	2	1	3	2
5	2	1	2	1	2	1
6	1	1	1	1	1	2
7	2	2	2	1	2	1
8	1	3	1	1	2	1
9	1	2	1	1	3	3
10	2	3	2	2	3	3
11	2	3	2	3	3	3
12	2	2	2	2	3	2
13	2	2	2	1	2	1
14	2	3	2	2	3	2
15	1	2	1	1	1	2
16	2	3	2	2	3	2
17	1	2	1	1	1	1
18	3	2	2	2	3	2
19	2	3	2	2	2	3
20	1	3	1	1	2	1
21	2	2	2	2	3	2
22	2	2	2	2	1	3
23	2	1	2	1	2	1
24	1	2	2	2	3	2
25	2	1	2	2	2	2
26	3	2	3	3	3	3
27	3	3	3	3	3	3
28	3	1	3	2	2	2
29	3	3	3	3	3	2
30	2	3	3	3	3	3
31	3	3	2	2	3	2
32	1	2	2	1	3	2
33	1	1	1	1	2	1
34	1	1	1	1	2	1
35	1	1	1	1	1	2
36	1	2	2	2	1	2
37	1	1	1	1	1	1
38	2	3	2	2	2	2
39	2	3	2	2	2	3
40	3	3	2	2	3	2

**Reading PreACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	3	2	2	1	2	3
<b>2</b>	3	3	2	1	3	2
<b>3</b>	3	1	3	2	3	3
<b>4</b>	2	3	2	3	2	2
<b>5</b>	2	1	2	2	2	2
<b>6</b>	2	3	3	1	2	2
<b>7</b>	1	1	1	1	2	1
<b>8</b>	1	1	2	1	3	1
<b>9</b>	1	1	1	1	2	1
<b>10</b>	1	1	2	2	2	1
<b>11</b>	1	2	2	1	2	2
<b>12</b>	2	1	2	2	2	3
<b>13</b>	2	3	2	3	2	2
<b>14</b>	1	2	1	1	2	2
<b>15</b>	1	1	1	1	1	1
<b>16</b>	1	1	1	1	1	3
<b>17</b>	1	3	2	2	2	3
<b>18</b>	2	1	2	2	2	3
<b>19</b>	3	2	3	3	3	3
<b>20</b>	3	2	3	2	2	2
<b>21</b>	2	3	3	2	2	2
<b>22</b>	3	2	3	3	3	3
<b>23</b>	3	3	3	2	3	3
<b>24</b>	2	1	2	2	2	2
<b>25</b>	1	2	2	2	3	1

**Reading PreACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	3	2	3	2	3	2
<b>2</b>	2	2	2	2	3	3
<b>3</b>	1	2	2	2	2	3
<b>4</b>	3	2	2	2	2	2
<b>5</b>	2	1	2	2	2	2
<b>6</b>	2	1	2	2	2	2
<b>7</b>	1	2	2	2	2	3
<b>8</b>	2	2	2	1	2	1
<b>9</b>	2	2	1	1	2	1
<b>10</b>	2	2	2	2	2	2
<b>11</b>	1	1	2	2	1	2
<b>12</b>	2	3	3	2	2	3
<b>13</b>	2	3	3	2	3	3
<b>14</b>	1	2	2	2	2	2
<b>15</b>	1	1	2	1	2	1
<b>16</b>	1	2	1	2	2	1
<b>17</b>	2	3	2	2	2	2
<b>18</b>	2	2	2	2	2	1
<b>19</b>	3	3	2	1	3	2
<b>20</b>	3	3	3	3	2	2
<b>21</b>	2	2	2	3	2	2
<b>22</b>	2	2	2	3	2	3
<b>23</b>	1	1	1	1	2	2
<b>24</b>	1	1	1	2	2	1
<b>25</b>	1	2	1	1	3	1

**Reading PreACT Form 3: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	1	2	1	1	2	1
<b>2</b>	2	2	2	2	2	2
<b>3</b>	2	2	2	2	2	2
<b>4</b>	2	2	2	2	3	2
<b>5</b>	2	1	2	2	2	1
<b>6</b>	1	3	1	1	2	2
<b>7</b>	2	2	2	2	3	3
<b>8</b>	2	2	2	3	3	3
<b>9</b>	2	2	2	2	2	2
<b>10</b>	1	3	2	2	2	1
<b>11</b>	2	2	2	1	2	1
<b>12</b>	2	2	2	2	3	2
<b>13</b>	2	1	2	2	2	3
<b>14</b>	2	2	2	2	2	2
<b>15</b>	3	3	3	3	3	3
<b>16</b>	3	3	3	3	2	3
<b>17</b>	3	1	3	2	2	2
<b>18</b>	1	3	2	2	2	2
<b>19</b>	1	2	2	2	2	2
<b>20</b>	2	3	3	2	2	2
<b>21</b>	1	2	2	3	2	2
<b>22</b>	1	1	1	1	3	1
<b>23</b>	2	1	2	2	2	1
<b>24</b>	2	3	2	3	2	3
<b>25</b>	2	1	2	2	2	1

**Writing ACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>Scoring Domain 1</b>	3	3	3	3	3	3
<b>Scoring Domain 2</b>	3	3	3	3	3	3
<b>Scoring Domain 3</b>	3	3	3	2	3	2
<b>Scoring Domain 4</b>	2	3	3	1	3	1

**Writing ACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>Scoring Domain 1</b>	3	3	3	3	3	3
<b>Scoring Domain 2</b>	3	3	3	3	3	3
<b>Scoring Domain 3</b>	3	3	3	2	3	2
<b>Scoring Domain 4</b>	2	3	3	1	3	1

**Writing ACT Form 3: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>Scoring Domain 1</b>	3	3	3	3	3	3
<b>Scoring Domain 2</b>	3	3	3	3	3	3
<b>Scoring Domain 3</b>	3	3	3	2	3	2
<b>Scoring Domain 4</b>	2	3	3	1	3	1

**Mathematics ACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	2	1
4	1	1	1	1	1	1
5	1	2	1	2	2	1
6	1	1	1	1	1	1
7	1	2	2	1	1	1
8	2	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	2	1	1
13	1	1	1	2	2	2
14	1	1	2	1	1	1
15	1	2	1	2	2	1
16	1	1	1	1	1	1
17	2	2	2	2	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	2	1	1	1
21	1	2	1	2	1	1
22	1	1	1	1	1	1
23	2	1	2	1	1	2
24	1	2	2	2	2	2
25	2	1	1	2	2	2
26	1	1	1	2	1	1
27	1	2	1	1	1	1
28	1	2	2	2	2	2
29	1	2	1	1	1	2
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	2	1	2	1	2
36	1	1	2	1	1	2
37	1	1	2	2	1	2
38	1	1	1	1	1	1
39	1	2	1	2	2	2
40	1	1	2	1	1	1
41	1	1	1	2	1	2
42	1	2	1	2	2	2
43	1	1	1	2	2	1
44	1	1	1	1	1	2
45	1	2	1	2	1	2



46	1	1	1	1	1	2
47	1	1	2	2	2	2
48	1	2	1	2	2	2
49	1	2	1	2	1	2
50	1	1	1	1	1	2
51	2	2	2	2	2	1
52	1	1	1	2	2	1
53	1	2	2	1	2	1
54	1	1	1	2	1	1
55	2	2	1	2	2	2
56	1	1	2	2	2	2
57	1	2	1	2	2	2
58	1	3	1	2	1	2
59	2	2	2	1	1	2
60	1	2	1	2	2	2

**Mathematics ACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	1	1	1	1	1
2	1	1	1	1	2	1
3	1	1	1	1	2	1
4	1	2	1	2	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	2	1	1
14	1	1	1	1	1	1
15	1	2	2	2	1	2
16	1	3	1	2	2	2
17	1	1	1	1	1	1
18	2	2	2	2	2	1
19	1	1	1	2	1	1
20	1	1	1	2	2	1
21	1	2	2	2	2	2
22	2	1	2	2	1	2
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	2	2	2	2	2
26	1	1	1	1	1	1
27	1	2	1	1	1	1
28	1	1	1	2	2	1
29	1	2	2	1	2	2
30	1	1	1	1	1	1
31	1	2	2	1	2	2
32	2	2	2	2	2	1
33	1	2	2	1	2	1
34	1	1	2	1	1	1
35	1	1	1	1	1	2
36	1	2	2	1	2	2
37	1	1	2	2	1	1
38	1	2	2	2	2	1
39	1	1	1	1	1	2
40	1	2	2	2	2	2
41	1	2	2	2	1	2
42	1	2	1	1	1	2
43	1	2	2	2	2	2
44	1	1	1	1	1	1
45	2	1	1	2	1	2

<b>46</b>	1	2	2	2	2	2
<b>47</b>	1	1	2	1	2	2
<b>48</b>	1	2	1	1	2	2
<b>49</b>	1	2	1	2	1	2
<b>50</b>	1	1	2	2	2	2
<b>51</b>	1	1	1	1	1	1
<b>52</b>	1	2	1	2	2	1
<b>53</b>	1	1	1	1	1	2
<b>54</b>	1	2	1	1	1	1
<b>55</b>	1	2	1	1	1	2
<b>56</b>	1	2	2	2	2	2
<b>57</b>	1	2	2	1	1	2
<b>58</b>	1	2	2	2	2	2
<b>59</b>	1	3	1	2	2	2
<b>60</b>	2	1	1	1	1	2

**Mathematics PreACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	1	1	2	1	1
2	1	1	1	1	1	1
3	1	2	1	1	1	2
4	1	2	1	2	1	2
5	1	1	1	1	2	1
6	1	1	1	1	1	2
7	1	2	1	2	1	1
8	1	2	2	2	1	2
9	1	1	1	1	2	1
10	1	2	2	2	1	2
11	1	1	2	2	1	2
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	2	2	2	1
15	1	1	2	2	2	2
16	2	2	1	1	1	2
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	2	1	1	2
20	2	1	2	2	1	1
21	1	1	1	1	1	1
22	1	2	1	2	1	2
23	2	2	1	2	1	2
24	1	1	1	2	1	1
25	1	2	2	2	2	2
26	2	1	1	1	1	1
27	1	1	1	2	1	2
28	2	3	2	2	2	2
29	1	3	1	2	2	1
30	1	2	1	1	1	1
31	2	3	2	2	2	2
32	1	2	1	2	2	1
33	1	2	2	2	2	2
34	2	2	2	2	1	2
35	1	1	1	1	1	1
36	1	1	1	1	1	1

**Mathematics PreACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	2
7	1	1	1	1	1	2
8	1	2	1	1	1	1
9	1	2	1	1	1	2
10	1	2	1	2	1	1
11	1	2	2	2	2	1
12	2	2	1	2	2	1
13	1	1	1	1	1	1
14	1	2	1	2	1	1
15	1	2	1	2	1	1
16	2	1	2	1	1	2
17	1	1	1	2	1	1
18	2	2	2	2	2	2
19	1	1	2	2	2	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	2	2	2	1	1
23	2	2	2	2	1	2
24	1	2	1	2	1	1
25	1	2	1	1	1	1
26	2	2	2	2	1	2
27	1	2	2	2	1	1
28	2	3	2	2	2	2
29	1	2	2	2	2	2
30	1	2	2	2	1	1
31	1	2	2	1	1	2
32	1	2	2	1	1	2
33	1	2	2	1	2	2
34	1	2	2	2	2	2
35	1	2	2	2	2	1
36	2	3	2	2	2	2

**Science ACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	2	2	2	3	2
2	2	1	3	1	1	1
3	2	1	3	1	2	1
4	2	1	2	1	1	1
5	2	2	3	2	2	1
6	2	2	3	3	2	3
7	2	2	3	1	2	1
8	3	2	3	2	1	2
9	2	1	2	1	1	2
10	2	2	2	2	2	2
11	2	2	3	2	2	3
12	1	3	3	2	2	3
13	2	2	3	2	2	2
14	2	1	2	1	2	2
15	3	2	2	2	2	2
16	2	2	2	1	2	2
17	1	1	3	2	2	1
18	2	2	3	2	2	1
19	2	2	3	2	2	2
20	3	2	3	3	3	3
21	1	1	1	1	1	1
22	2	2	2	2	2	1
23	3	1	2	2	1	1
24	2	1	3	2	2	1
25	2	1	3	2	1	1
26	2	2	3	2	2	1
27	3	2	3	3	2	2
28	2	2	1	1	2	2
29	1	1	2	1	1	1
30	3	1	3	2	1	2
31	2	1	2	1	1	2
32	2	2	3	2	2	2
33	2	2	3	2	3	2
34	2	2	3	2	3	2
35	2	2	1	2	3	2
36	2	2	3	2	1	2
37	2	2	3	3	3	2
38	3	2	3	3	3	2
39	2	2	3	2	2	2
40	2	2	2	1	3	2

**Science ACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	2	2	1	1	2	2
<b>2</b>	2	2	1	1	2	2
<b>3</b>	2	2	2	2	2	2
<b>4</b>	2	2	2	2	2	2
<b>5</b>	2	2	3	3	2	3
<b>6</b>	2	2	2	2	2	2
<b>7</b>	1	1	1	1	2	2
<b>8</b>	1	1	2	1	2	2
<b>9</b>	1	2	2	3	2	2
<b>10</b>	2	2	3	2	2	2
<b>11</b>	2	2	3	2	1	2
<b>12</b>	1	2	3	2	1	2
<b>13</b>	1	2	3	3	2	1
<b>14</b>	2	2	1	2	2	2
<b>15</b>	2	1	1	1	1	1
<b>16</b>	2	2	3	2	2	1
<b>17</b>	1	1	1	1	1	1
<b>18</b>	2	2	3	2	2	2
<b>19</b>	1	2	3	2	2	2
<b>20</b>	2	2	3	2	2	2
<b>21</b>	1	1	1	1	2	2
<b>22</b>	1	1	2	2	2	2
<b>23</b>	2	2	2	1	2	2
<b>24</b>	2	2	2	2	2	2
<b>25</b>	2	2	1	2	2	2
<b>26</b>	3	3	3	3	3	3
<b>27</b>	2	1	1	2	1	2
<b>28</b>	1	1	1	1	1	2
<b>29</b>	2	2	1	2	2	2
<b>30</b>	2	3	3	2	3	2
<b>31</b>	1	2	1	1	1	2
<b>32</b>	2	3	3	2	2	2
<b>33</b>	2	2	3	2	1	3
<b>34</b>	1	2	3	2	1	1
<b>35</b>	1	3	2	3	1	2
<b>36</b>	2	2	2	1	2	2
<b>37</b>	2	3	3	2	2	2
<b>38</b>	2	2	2	2	2	2
<b>39</b>	1	1	1	1	2	2
<b>40</b>	2	2	3	2	1	2

**Science ACT Form 3: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
1	1	1	1	1	2	1
2	1	1	1	1	1	2
3	2	1	1	1	1	2
4	1	2	1	2	2	2
5	2	3	2	2	3	2
6	2	2	2	3	3	2
7	1	1	1	1	2	1
8	1	1	3	1	1	1
9	1	1	2	1	2	1
10	1	2	3	2	2	1
11	1	3	3	2	2	2
12	1	2	3	3	2	2
13	1	2	3	2	2	2
14	1	1	1	1	2	2
15	2	2	3	3	1	2
16	2	2	3	3	2	2
17	1	2	2	1	2	2
18	3	3	3	2	3	1
19	2	2	2	2	3	2
20	1	1	1	1	2	2
21	1	2	1	1	2	1
22	2	1	1	1	2	1
23	1	2	2	1	1	2
24	1	2	1	2	1	3
25	1	1	3	1	2	1
26	1	2	2	2	2	2
27	1	1	2	2	2	1
28	1	2	1	1	1	1
29	2	2	1	1	2	2
30	2	2	1	1	2	1
31	2	3	1	3	3	2
32	2	2	3	2	2	2
33	2	2	2	2	3	2
34	1	2	2	2	3	2
35	2	2	1	1	2	2
36	1	2	2	2	3	2
37	3	3	2	2	2	2
38	2	2	2	2	2	2
39	3	3	3	2	3	2
40	2	2	3	2	3	2



**Science PreACT Form 1: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	2	2	2	1	2	2
<b>2</b>	2	2	2	1	2	2
<b>3</b>	3	2	2	2	2	2
<b>4</b>	2	2	2	2	2	2
<b>5</b>	3	2	2	1	2	2
<b>6</b>	2	3	2	2	2	2
<b>7</b>	2	2	2	2	2	2
<b>8</b>	1	2	1	2	2	2
<b>9</b>	1	1	1	1	2	1
<b>10</b>	2	2	3	2	2	2
<b>11</b>	1	2	2	2	2	1
<b>12</b>	1	2	2	2	2	2
<b>13</b>	2	2	2	1	2	2
<b>14</b>	1	1	1	1	2	2
<b>15</b>	1	2	2	1	2	2
<b>16</b>	1	2	2	2	1	2
<b>17</b>	1	3	2	2	2	1
<b>18</b>	2	2	2	1	2	2
<b>19</b>	1	3	3	2	2	2
<b>20</b>	2	2	1	2	2	2
<b>21</b>	2	2	2	2	3	2
<b>22</b>	2	2	2	1	2	2
<b>23</b>	2	2	3	2	2	2
<b>24</b>	2	2	3	2	3	2
<b>25</b>	2	1	1	1	2	2
<b>26</b>	2	2	1	1	2	2
<b>27</b>	3	2	2	2	2	2
<b>28</b>	3	2	2	1	2	2
<b>29</b>	1	2	1	1	2	1
<b>30</b>	2	2	3	2	1	1

**Science PreACT Form 2: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	1	1	1	1	2	2
<b>2</b>	2	1	1	1	2	2
<b>3</b>	1	2	2	2	1	1
<b>4</b>	2	1	1	1	1	2
<b>5</b>	3	2	3	3	2	2
<b>6</b>	2	2	1	2	2	1
<b>7</b>	2	1	1	1	2	2
<b>8</b>	1	2	1	2	2	2
<b>9</b>	2	2	1	2	2	2
<b>10</b>	2	3	3	2	3	2
<b>11</b>	3	2	1	3	3	2
<b>12</b>	2	2	1	2	3	2
<b>13</b>	1	1	1	1	2	2
<b>14</b>	1	2	2	2	2	2
<b>15</b>	2	2	3	2	3	2
<b>16</b>	3	3	3	3	3	3
<b>17</b>	2	2	3	2	3	2
<b>18</b>	3	2	3	2	2	2
<b>19</b>	1	1	1	1	2	1
<b>20</b>	2	1	2	2	1	2
<b>21</b>	3	2	2	3	3	2
<b>22</b>	1	1	1	1	1	1
<b>23</b>	3	2	2	3	2	2
<b>24</b>	1	1	1	1	1	1
<b>25</b>	1	1	1	2	2	1
<b>26</b>	2	2	2	1	3	2
<b>27</b>	2	2	2	2	2	2
<b>28</b>	3	2	2	3	3	2
<b>29</b>	1	1	1	2	1	2
<b>30</b>	3	2	1	2	1	2

**Science PreACT Form 3: DOK Levels by Item and Reviewers**

<b>Item</b>	<b>DOK R1</b>	<b>DOK R2</b>	<b>DOK R3</b>	<b>DOK R4</b>	<b>DOK R5</b>	<b>DOK R6</b>
<b>1</b>	1	1	1	1	2	2
<b>2</b>	2	2	2	1	3	2
<b>3</b>	2	2	2	1	3	2
<b>4</b>	2	2	2	2	2	2
<b>5</b>	2	3	2	2	3	2
<b>6</b>	1	2	1	2	1	2
<b>7</b>	2	2	1	2	2	2
<b>8</b>	3	2	2	3	2	2
<b>9</b>	1	1	2	1	1	1
<b>10</b>	1	2	1	2	2	2
<b>11</b>	2	2	3	3	2	2
<b>12</b>	2	2	3	3	1	2
<b>13</b>	1	1	1	1	2	2
<b>14</b>	2	2	2	2	2	2
<b>15</b>	2	3	3	2	3	2
<b>16</b>	2	1	3	2	2	2
<b>17</b>	2	2	3	2	3	2
<b>18</b>	1	1	1	1	2	2
<b>19</b>	3	2	3	3	1	2
<b>20</b>	2	2	3	3	2	2
<b>21</b>	2	2	2	1	1	2
<b>22</b>	2	2	3	2	2	2
<b>23</b>	2	2	2	2	2	2
<b>24</b>	2	2	1	1	1	2
<b>25</b>	1	1	1	2	2	2
<b>26</b>	2	2	1	2	2	2
<b>27</b>	2	2	2	2	3	2
<b>28</b>	2	2	1	2	3	2
<b>29</b>	1	2	3	1	2	2
<b>30</b>	2	3	3	2	3	2

**English ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	3	W.22		3	W.23		3	W.20	W.23	3	W.23		3	W.22	L.37	3	L.37	W.22
2	1	L.35		1	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
3	1	L.35		2	L.38		3	W.20	W.23	1	L.35		1	L.36		2	L.35	
4	2	W.20	L.37	2	L.38		3	W.20	W.23	1	L.35		1	L.35		1	L.35	
5	2	W.20	L.37	2	L.38		3	W.20	W.23	1	L.38		2	L.37		2	L.39	L.38
6	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		2	L.36	
7	1	L.35		2	L.38		3	W.20	W.23	1	L.35		2	L.35		2	L.35	
8	2	L.35		2	L.38		2	W.22	W.23	1	L.38		2	L.35		1	L.35	
9	2	W.20	L.37	3	W.22		3	W.20	W.23	2	L.38		2	L.39		3	W.23	L.39
10	1	L.37		1	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
11	1	W.20		2	L.35		2	W.20	W.23	1	L.36		1	L.36		1	L.35	
12	3	W.20		3	W.22		3	W.20	W.23	2	W.23		3	W.22	W.23	3	W.22	L.37
13	2	W.20	L.37	2	L.38		3	W.20	W.23	1	L.36		2	L.38		1	L.38	
14	1	L.35		2	L.36		1	L.35	L.36	2	L.36		1	L.36		2	L.35	
15	3	W.22		3	W.22		3	W.22	W.23	3	W.23		3	W.22	W.23	3	W.23	
16	3	W.20		3	W.23		3	W.20	W.23	2	W.23		3	W.22		3	W.22	
17	1	L.35		1	L.36		1	L.35		1	L.36		1	L.36		1	L.36	
18	1	L.35		1	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
19	2	W.20		3	L.38		3	W.20	W.23	1	L.36		1	L.35		2	L.37	
20	2	W.20		1	L.35		3	W.20	W.23	1	L.35		3	W.23		1	L.35	
21	1	L.35		1	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
22	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
23	2	W.20	L.37	1	L.38		3	W.20	W.23	2	L.35		2	L.37	L.39	1	L.35	
24	2	W.20	L.37	2	L.38		3	W.20	W.23	1	L.37		3	W.22		1	L.38	
25	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	

**English ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	1	W.20		2	L.38	L.35	1	L.35		1	L.37		2	L.37		1	L.35	
27	1	L.35		1	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
28	1	L.35		1	L.36		1	L.36		2	L.35		1	L.36		1	L.36	
29	3	W.20		3	W.23	W.22	3	W.20	W.23	3	W.23		3	W.23		3	L.37	W.23
30	3	W.22		3	W.22		3	W.22		3	W.20		3	W.22	W.23	3	W.23	
31	2	L.35		3	L.38		1	L.35		1	L.35		1	L.35		1	L.35	
32	1	L.35	L.37	2	L.38		3	W.21	W.23	1	L.38		2	L.38		1	L.38	
33	1	L.35		2	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
34	2	W.21	L.37	3	L.38		3	W.21	W.23	1	L.36		3	W.23		1	L.39	
35	1	L.35		2	L.39		1	L.35	L.36	1	L.38		1	L.36		1	L.36	
36	1	L.35		3	L.38		2	L.35	L.37	1	L.37		2	W.22		1	L.35	
37	1	L.35		3	L.38		1	L.35		1	L.37		2	W.22	W.23	2	L.37	
38	2	W.20	L.37	3	L.38		2	L.37	W.23	1	L.35		3	W.23		2	L.37	
39	3	W.20		2	L.36		3	W.21	W.23	2	W.23		2	L.39		3	W.23	L.37
40	2	L.35		2	L.36		1	L.36		1	L.35		1	L.36		2	L.36	
41	2	W.21		3	W.23	W.22	3	W.21	W.23	2	W.23		3	W.23		3	W.22	
42	2	L.37	L.37	3	L.38		3	W.21	W.23	1	L.37		1	L.36		2	L.37	
43	1	W.21		3	L.38		2	W.21	W.23	1	L.37		2	W.23	L.39	1	L.35	
44	1	W.21		2	L.38		2	W.21	W.23	1	L.37		2	L.39		1	L.35	
45	3	W.21		3	W.22	W.23	3	W.21	W.22	3	W.23		3	W.23		3	W.22	
46	3	W.20		3	W.22		3	W.20	W.22	3	W.23		3	W.23		3	W.22	L.38
47	3	W.20		3	W.23	W.22	3	W.20	W.22	3	W.23		3	W.23		3	W.23	L.37
48	1	L.35		2	L.39		2	W.20	W.23	1	L.38		2	L.38		1	L.38	
49	3	W.20		3	W.23	W.22	3	W.20	W.22	3	W.23		3	W.22		3	W.23	L.37
50	1	L.35		2	L.35		1	L.35		1	L.35		1	L.35		1	L.35	

**English ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6 continued**

51	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.35	L.36
52	1	L.35		3	L.38		1	L.35		1	L.38		3	W.23		1	L.35	
53	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
54	1	L.35		1	L.35		1	L.36		1	L.36		1	L.36		1	L.36	
55	1	L.35		2	L.38		1	L.35		1	L.38		2	L.38	L.39	2	L.35	
56	2	W.20		3	L.38		2	W.20	W.22	1	L.37		2	W.22		1	L.35	
57	1	L.35		2	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
58	1	L.35		2	L.36		1	L.36		1	L.36		1	L.35		1	L.35	
59	3	W.20		3	W.22	W.23	3	W.20	W.22	3	W.20		3	W.23	W.22	3	W.22	
60	3	W.22		3	W.22	W.23	3	W.22		3	W.20		3	W.22		3	W.22	
61	1	L.35		2	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
62	1	L.35		2	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
63	1	L.35		2	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
64	3	W.20		3	W.22	W.23	3	W.20	W.22	3	W.23		3	W.22		2	W.22	
65	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
66	3	W.20	L.37	3	W.22	W.23	3	W.20	W.23	3	L.35		2	L.37	L.38	3	W.23	
67	3	W.20	L.37	3	W.22		3	W.20	W.23	3	L.37		3	W.23		3	W.22	
68	1	L.35		1	L.38		1	L.35		1	L.36		1	L.36		1	L.35	
69	1	L.35		3	W.23	W.22	2	L.35		1	L.37		2	L.37		2	L.37	
70	2	W.20		2	L.38		2	W.20	W.23	1	L.37		3	W.22		2	L.37	
71	1	L.35		3	L.38		1	L.35		1	L.38		2	L.39		1	L.35	
72	3	W.20		3	W.23	W.22	3	W.20		3	W.23		3	W.23		3	W.23	
73	1	L.35		1	L.36		1	L.35		1	L.36		1	L.36		1	L.36	
74	1	L.35		3	L.38		3	W.20	W.23	1	L.36		1	L.36		2	L.37	
75	3	W.20		2	W.22	W.23	3	W.20	W.23	2	L.37		3	W.23		2	W.22	

**English ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	2	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
2	2	W.20	L.37	2	L.37		3	W.21	W.23	2	L.37		3	W.22		2	W.22	
3	2	W.20		2	L.38		3	W.21	W.23	1	L.35		2	W.22		1	L.35	
4	2	W.20	L.37	2	L.38	L.40	3	W.21	W.23	1	L.38		2	L.40		1	L.35	
5	1	L.36		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
6	2	W.20		2	L.37		3	W.21	L.37	2	L.37		2	W.23		2	W.23	L.37
7	2	L.35		1	L.37		3	W.21		1	L.37		3	W.23		2	L.37	
8	1	L.35		2	L.38		1	L.35	L.36	1	L.35		2	L.35		1	L.35	
9	1	L.35		2	L.37		1	L.35		1	L.35		2	W.22	W.23	1	L.35	
10	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
11	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
12	3	W.20	W.22	3	W.22		3	W.21		3	W.23		2	W.23		3	W.22	
13	2	L.35		2	W.22		3	W.21	L.35	2	L.35		3	W.23	L.35	3	W.23	
14	3	W.20		2	W.22		3	W.21	W.23	3	W.20		3	W.22	W.23	3	W.23	
15	3	W.22		3	W.23		3	W.21	W.22	3	W.20		3	W.22		3	W.22	
16	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
17	1	L.35		1	L.36		1	L.36		1	L.35		2	L.36	W.23	1	L.36	
18	1	L.35		2	L.37		3	W.20	W.23	2	L.37		3	W.23		1	L.35	
19	1	L.36		1	L.37		1	L.36		1	L.35		1	L.36		1	L.36	
20	1	L.35		2	L.38		1	L.35		1	L.35		2	L.35		2	L.37	
21	2	W.23		3	L.37		3	W.20	W.23	1	L.35		3	W.23		2	L.37	
22	2	L.35		2	L.37		1	L.35		1	L.36		3	W.23		1	L.35	
23	2	W.20		3	L.36		3	W.21	W.23	2	L.37		2	L.39		1	L.35	
24	2	W.20		3	L.38		3	W.21	W.23	2	L.37		2	W.23		2	L.38	
25	1	L.35		2	L.38		1	L.35		1	L.35		1	L.35		1	L.35	

**English ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	1	L.35		2	L.38		1	L.35		1	L.35		2	L.39		1	L.35	
27	2	W.20		2	L.38	L.40	3	W.20	W.23	1	L.35		2	L.37	L.39	2	L.38	
28	1	L.35		2	L.37		1	L.35		1	L.35		3	L.35	W.23	1	L.35	
29	2	W.20		2	L.38		3	W.20	W.23	2	L.38		2	L.37	L.39	2	L.38	
30	3	W.22		3	W.22		3	W.20	W.22	3	W.20		3	W.22		3	W.22	
31	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
32	1	L.35		1	L.35		1	L.35		1	L.35		1	L.35		1	L.35	
33	1	L.35		1	L.35		1	L.35		1	L.35		2	L.35		1	L.35	
34	1	L.36		1	L.35		1	L.36		1	L.35		1	L.36		1	L.36	
35	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.35	
36	1	L.35		2	L.36		1	L.35	L.37	1	L.35		3	W.23		2	L.37	
37	1	L.35		3	L.37		1	L.35		1	L.35		3	W.23	L.35	2	L.37	
38	1	L.35		2	L.38		1	L.35		1	L.35		2	L.35		1	L.35	
39	1	L.35		2	L.38	L.40	1	L.36		2	L.38		1	L.36		2	L.37	
40	1	L.35		1	L.38		1	L.35		2	L.38		2	L.37		1	L.35	
41	3	W.20		2	W.22		3	W.20	W.23	3	W.20		3	W.22	W.23	3	W.22	
42	2	W.20		2	L.38	L.40	3	W.20	W.23	2	L.37		2	L.40		2	L.38	
43	1	L.35		1	L.35		1	L.36		1	L.36		1	L.36		1	L.35	
44	3	W.20		3	W.22		3	W.20	W.23	3	W.23		3	W.23	W.22	3	W.22	
45	3	W.22		3	W.23		3	W.20	W.22	3	W.20		3	W.22		3	W.22	
46	3	W.23		3	W.23		3	W.20	W.22	3	W.20		3	W.22		3	W.23	
47	2	W.20		2	L.38	L.40	1	W.20	W.23	1	L.35		2	W.22		2	L.38	
48	1	L.35		1	L.36		1	L.36	L.35	1	L.35		2	L.35		1	L.35	
49	2	W.20		2	L.38	L.40	3	W.20	W.23	1	L.35		2	L.38		2	L.38	
50	1	L.35		3	L.36		1	L.35		1	L.35		2	L.35		2	L.37	



**English ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6 continued**

51	2	W.20		2	L.37		1	L.35		1	L.35		3	W.22		1	L.35	
52	2	W.20		3	W.23	L.40	3	W.20	W.23	2	W.20		3	W.22		3	W.22	L.37
53	2	W.20		2	L.37		3	W.20	W.23	1	L.35		3	W.23		2	L.37	
54	1	L.35		2	L.37		3	W.20	W.23	2	L.37		3	W.23		2	L.39	
55	1	L.35		2	L.36	L.37	1	L.35		1	L.35		3	W.22		2	L.37	
56	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
57	1	L.35		1	L.36		1	L.35	L.36	1	L.35		2	L.35		1	L.36	
58	1	L.35		1	L.35	L.38	1	L.35		1	L.35		1	L.36		1	L.35	
59	3	W.20		3	W.22		3	W.20	W.23	3	W.23		3	W.23		3	W.22	
60	3	W.22		3	W.23		3	W.20	W.22	3	W.20		3	W.22		3	W.22	
61	1	L.35		3	L.38		1	L.35		2	L.37		3	W.23		2	L.37	
62	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		2	L.37	
63	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
64	1	L.35		1	L.38	L.35	1	L.35		1	L.35		2	L.35	W.22	1	L.35	
65	1	L.35		2	L.36	L.35	1	L.35		1	L.35		2	L.35		1	L.35	
66	1	L.35		2	L.37		3	W.20	W.23	2	L.37		2	L.39	L.40	2	L.38	
67	2	W.20		3	W.22		3	W.20	W.23	2	L.37		3	W.22		3	W.22	
68	1	L.35		2	L.38		1	L.35		1	L.35		2	L.35		2	L.38	
69	2	W.20		2	L.37		1	L.35		1	L.35		3	W.22		2	L.37	
70	3	W.20		3	W.23		3	W.20	W.23	3	W.20		2	L.39	W.23	3	W.23	
71	1	L.35		1	L.35		1	L.35		1	L.35		1	L.36		1	L.35	
72	2	W.20		1	L.38	L.40	3	W.20	W.23	1	L.35		2	W.22		1	L.35	
73	1	L.35		1	L.36		1	L.35		2	L.38		1	L.36		2	L.37	
74	3	W.20		2	W.22		3	W.20	W.23	3	W.23		3	W.23		3	W.22	
75	3	W.20		3	W.23		3	W.20	W.23	3	W.23		3	W.23		3	W.23	

**English ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
2	2	L.35	W.23	2	L.37		1	L.35		1	L.35		2	L.37	W.23	1	L.35	
3	1	L.35		2	L.38	L.40	1	L.35		1	L.35		2	L.37		1	L.35	
4	2	L.35		2	L.36	L.37	1	L.35		2	L.35		3	W.23		2	L.37	
5	3	W.20		1	W.22		3	W.20	W.23	2	W.23		3	W.22	W.23	3	W.23	
6	1	L.35		1	L.37	L.39	1	L.35		1	L.35		3	W.23		1	L.35	
7	1	L.35		1	L.36		1	L.35	L.36	1	L.35		2	L.35		2	L.37	
8	1	L.35		2	L.38	L.40	1	L.35		1	L.35		3	W.23		1	L.35	
9	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
10	3	W.20	W.20	3	W.22		3	W.20	W.23	3	W.23		3	W.22		3	W.23	
11	2	W.23		2	L.37	L.40	1	L.35		1	L.35		2	L.35		1	L.35	
12	2	W.23		3	L.37	L.40	1	L.35		2	L.37		3	W.23		2	L.37	
13	3	W.20		3	W.22		3	W.20	W.23	3	W.23		3	W.23		3	W.23	
14	3	W.20		3	W.22		3	W.19	W.23	2	W.23		3	W.22		3	W.23	
15	3	W.22		3	W.23		3	W.20	W.22	3	W.20		3	W.20	W.22	3	W.22	
16	1	L.36		1	L.36		1	L.36		2	L.36		1	L.36		1	L.36	
17	1	W.21	L.37	2	L.38	L.40	3	W.21	W.23	2	L.37		2	L.39		2	L.38	
18	1	L.35		1	L.35	L.38	1	L.35		1	L.35		2	W.22		1	L.35	
19	1	L.35		1	L.35	L.40	1	L.35		1	L.35		2	L.35		1	L.35	
20	2	W.23	L.37	1	L.38	L.40	1	L.35		2	L.37		3	W.22		2	L.37	
21	2	W.23		3	W.22	W.23	1	L.35		2	L.35		2	L.35		2	L.37	
22	3	W.21	W.22	3	W.22		3	W.21	W.23	2	L.37		2	L.39		3	L.38	
23	2	L.37		2	L.38	L.40	1	L.35		1	L.35		3	W.23		2	L.37	
24	2	L.37		1	L.38	L.40	3	W.21	W.23	2	L.38		2	L.39		2	L.38	
25	2	W.21	L.37	2	L.38	L.40	3	W.21	W.23	2	L.38		2	L.40	L.39	2	L.38	

**English ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6**

26	3	W.21		3	W.22		3	W.21	W.23	3	W.23		3	W.23		3	W.22	
27	2	L.35	W.23	2	L.38	L.40	1	L.35		1	L.36		3	W.23		2	L.37	
28	2	W.21		2	L.37	L.40	3	W.21	W.23	2	L.38		3	W.22		2	L.37	
29	3	W.21		3	W.23	W.22	3	W.21	W.23	3	W.23		3	W.23	W.21	3	W.22	
30	3	W.21	W.22	3	W.22		3	W.21	W.23	3	W.20		2	W.22		3	W.23	
31	1	L.37		1	L.36		1	L.36		1	L.36		1	L.36		1	L.35	
32	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
33	3	W.20		3	W.23		3	W.20	W.23	3	W.23		3	W.23		3	W.23	
34	2	W.20	L.37	2	L.37	L.40	1	L.35		2	L.37		2	W.23		2	L.37	
35	1	L.37		1	L.36	L.37	1	L.35	L.36	1	L.35		2	L.35	L.36	2	L.37	
36	2	L.35		1	L.35		1	L.36		1	L.35		1	L.36		1	L.36	
37	2	L.35		2	L.36	L.40	1	L.35		1	L.35		2	L.35		2	L.35	
38	3	W.20	W.22	3	W.23		3	W.20	W.23	3	W.23		3	W.23		3	W.23	
39	2	W.23		2	L.37	L.40	3	W.20	W.23	2	L.37		2	L.39		2	L.37	
40	1	L.35		2	L.35	L.40	1	L.35		1	L.35		2	L.35		1	L.35	
41	3	W.20		2	W.22		3	W.20	W.23	3	W.23		2	W.23		3	W.22	
42	1	L.35		1	L.36		1	L.36	L.35	1	W.23		1	L.36		1	L.36	
43	1	L.35		1	L.35		1	L.36		2	L.35		1	L.36		1	L.36	
44	3	W.20		3	W.22		3	W.20	W.23	3	W.23		3	W.23		3	W.22	
45	3	W.20		3	W.23		3	W.20	W.23	3	W.20		3	W.23		3	W.22	
46	3	W.20		3	L.37	L.40	3	W.20	W.22	2	L.37		3	W.23		2	L.37	
47	1	L.35		1	L.35	L.38	1	L.35		1	L.36		2	L.37		1	L.35	
48	1	L.35		1	L.35	L.38	1	L.35		1	L.35		2	L.35		1	L.35	
49	2	W.20	L.37	2	L.37	L.40	1	L.35		1	L.35		2	L.38		2	L.38	
50	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	

**English ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6 continued**

51	1	L.35		2	L.35	L.40	1	L.35	L.36	1	L.36		1	L.36		1	L.35	L.36
52	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
53	2	W.23		2	W.23		1	L.35		1	L.35		3	W.23		1	L.38	
54	2	W.23		2	L.36	L.40	3	W.20	W.23	2	L.37		2	W.22		2	L.37	
55	1	L.35		2	L.36	L.40	1	L.35		1	L.36		1	L.36		2	L.37	
56	1	L.35		1	L.36	L.40	1	L.35		1	L.35		2	W.23		2	L.35	
57	3	W.20		3	W.22	W.23	3	W.20	W.23	3	W.23		3	W.22		3	W.22	
58	3	W.20		3	W.22	L.36	3	W.20	W.23	3	W.23		3	W.22		3	W.22	
59	3	W.20		3	W.23		3	W.20	W.23	3	W.23		3	W.23	W.22	3	W.23	
60	1	L.35		1	L.36		1	L.36		1	L.35		1	L.36		1	L.36	
61	3	W.20		3	W.23		3	W.20	W.23	3	W.23		3	W.23		3	W.22	
62	2	W.20	L.37	2	L.37	L.40	1	L.35		1	L.38		2	L.40	L.38	2	L.38	
63	1	L.35		1	L.36		1	L.36	L.36	1	L.36		1	L.36		1	L.35	
64	1	L.35		2	L.36	L.40	1	L.35	L.36	1	L.35		1	L.36		1	L.35	
65	1	L.35		1	L.36		1	L.36		1	L.36		1	L.36		1	L.36	
66	3	W.20		3	W.23		3	W.20	W.23	3	W.23		3	W.22	W.23	3	W.22	
67	3	W.20		3	W.22		3	W.20	W.23	3	W.23		3	W.23		3	W.22	
68	1	L.35		2	L.37	L.40	1	L.35		1	L.35		2	L.35		1	L.35	
69	1	L.35		1	L.36		1	L.35		1	L.36		1	L.36		1	L.36	
70	1	L.35		2	L.37	L.40	1	L.35		1	L.35		2	L.35		1	L.35	
71	1	L.35		2	L.37	L.40	1	L.35		1	L.37		3	W.22		2	L.37	
72	1	L.35		1	L.35		1	L.35		1	L.35		1	L.36		1	L.35	
73	1	L.35		2	L.37	L.39	1	L.35		1	L.35		2	L.35		1	L.35	
74	1	L.35		2	L.37	L.40	1	L.35		2	L.37		3	W.23		2	L.37	
75	3	W.19		3	W.23		3	W.20	W.23	3	W.20		3	W.23	W.22	3	W.23	

**English PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	2	W.22	L.39	2	L.40	L.42	2	L.40		1	L.40		2	L.42	L.40	1	L.40	
2	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		1	L.37	
3	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.38	
4	1	L.37		1	L.37		1	L.37		1	L.37		1	L.37		1	L.37	
5	2	W.22		2	L.40	W.24	2	W.22	W.25	1	L.37		3	W.24	W.25	2	L.39	
6	2	L.39		2	L.40	W.24	1	L.37		1	L.37		3	W.25	L.39	1	L.37	
7	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
8	2	L.39		1	L.37		1	L.37		1	L.37		2	L.37		2	L.39	
9	2	L.39		2	L.39	W.24	1	L.37		2	L.39		2	W.24	L.39	2	L.39	
10	3	W.22		3	W.24	W.25	3	W.22	W.25	3	W.25		3	W.22		3	L.39	
11	2	L.37		2	W.25	W.24	1	L.37		3	W.25		3	W.25		2	L.37	
12	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
13	3	W.22		3	W.25		3	W.22	W.25	3	W.25		3	W.22		3	W.25	L.39
14	2	L.39		2	L.40	W.24	1	L.37		1	L.37		2	W.24	L.39	1	L.37	
15	3	W.22		3	W.25		3	W.22	W.25	3	W.25		3	W.25		3	W.25	
16	2	L.39		1	L.40	L.42	2	L.39	W.22	2	L.39		2	L.41	L.42	1	L.40	
17	3	W.22	L.39	3	W.24	L.39	3	W.22	W.25	3	W.23		3	W.24		3	W.25	
18	2	W.22	L.39	2	L.40	W.24	3	W.22	W.25	2	L.39		2	W.24		1	L.37	W.24
19	3	W.22	L.39	3	W.24	L.39	3	W.22	W.25	3	W.25		3	W.22	W.25	3	W.25	
20	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
21	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		1	L.38	
22	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
23	3	W.22	W.25	3	W.25	W.24	3	W.22	W.25	3	W.25		3	W.22	W.24	3	W.24	
24	2	L.39		3	W.25	L.40	2	W.29		2	L.39		2	W.24		1	W.24	
25	1	L.38		1	L.38		1	L.38		1	L.37		2	L.38		1	L.37	

**English PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	1	L.37		1	L.37		1	L.37		1	L.37		1	L.37		1	L.37	
27	1	L.38		1	L.38		1	L.38		1	L.37		2	L.38		1	L.38	
28	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
29	1	L.38		1	L.37		1	L.37		1	L.39		2	L.37		1	L.37	
30	3	W.22		3	W.25	W.24	3	W.22	W.24	3	W.25		3	W.22		3	W.25	
31	1	L.37		2	L.40	W.24	1	L.37		1	L.37		2	W.24	L.38	1	L.37	
32	1	L.37		3	W.24	L.39	1	L.37		2	L.39		3	W.22		3	L.37	W.24
33	2	W.22	L.39	3	L.40	L.42	3	W.22	W.24	2			2	W.22		3	W.24	
34	1	L.38		2	L.40	W.24	1	L.37	L.39	1	L.37		1	L.37		1	L.38	
35	1	L.39		2	L.40	W.24	1	L.37		1	L.37		2	L.38		1	L.37	
36	2	W.22	W.25	3	W.25	L.40	3	W.22	W.25	3	W.25		3	W.22	W.24	3	W.24	
37	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37	L.39	1	L.37	
38	2	L.39		2	L.40	W.24	1	L.37		1	L.37		2	W.24	L.37	1	L.37	
39	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		1	L.38	
40	1	L.38		1	L.38		1	L.38		1	L.40		1	L.38		1	L.38	
41	3	W.22	W.25	3	W.25		3	W.22	W.25	3	W.25		3	W.22	W.25	3	W.25	
42	2	L.39		2	L.40	L.42	1	L.37		1	L.40		1	L.41	L.42	1	L.40	
43	2	W.25		3	W.25		3	W.22	W.25	3	W.25		3	W.25	W.22	3	W.25	
44	3	W.22	W.25	3	W.24	L.39	2	W.22	W.24	3	W.25		3	W.22	W.25	3	W.25	
45	1	L.38		1	L.37		1	L.37		1	L.38		2	L.38		1	L.37	

**English PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	3	W.22	W.25	3	W.25	W.24	2	W.22	W.25	3	W.25		3	W.22	W.24	3	W.25	
2	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37	L.39	1	L.37	
3	1	L.37		2	L.40	W.24	1	L.37		2	L.39		2	W.24		2	L.38	
4	2	L.39		2	L.40	L.42	2	L.42		1	L.40		2	L.41	L.42	2	L.40	
5	2	L.39		2	L.40	L.42	1	L.37		2	L.39		2	W.24		2	W.24	L.37
6	1	L.37		1	L.37		1	L.37		1	L.37		2	L.39	W.24	1	L.37	
7	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
8	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.38	
9	3	W.22	W.25	3	W.25	W.24	3	W.22	W.25	3	W.25		3	W.24	W.22	3	W.24	
10	2	L.39		2	L.40	W.24	1	L.37		1	L.40		2	L.37		1	L.40	
11	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.38	
12	1	L.37		2	L.40	W.24	1	L.37		1	L.38		1	L.37	L.41	1	L.37	
13	2	L.39		1	L.39	L.42	2	L.39		1	L.39		2	W.24		2	L.39	
14	3	W.22	W.25	3	W.25	L.39	3	W.22	W.25	3	W.25		3	W.22		3	W.25	
15	3	W.24		3	L.39	W.24	3	W.24		3	W.22		3	W.22		3	W.25	
16	2	W.22	W.25	3	W.24	L.39	3	W.22	W.25	3	W.25		3	W.22		3	W.24	
17	1	L.38		1	L.38		1	L.38		1	L.37		1	L.37		1	L.38	
18	1	L.38		2	L.40	W.24	1	L.38		1	L.38		1	L.40		1	L.37	
19	1	L.38		1	L.38		1	L.38		1	L.39		1	L.38		1	L.38	
20	3	W.22	W.25	3	W.25	W.24	3	W.22	W.25	3	W.25		3	W.22		3	W.25	
21	2	W.25		3	W.25	L.40	1	L.37		1	L.37		2	W.24		2	W.24	
22	2	L.39		2	L.40	W.24	2	L.39		2	L.39		2	W.24	L.39	2	L.37	
23	2	L.39		2	L.40	L.42	2	L.39		1	L.37		2	W.24		2	L.37	
24	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.38	
25	2	L.39		2	L.40	L.42	2	L.39		2	L.39		2	W.24		2	W.24	L.39

**English PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2	W.25		2	W.24	L.39	3	W.22	W.25	3	W.25		3	W.22	W.24	3	W.24	
27	1	L.38		1	L.37		1	L.38		1	L.37		1	L.38		1	L.38	
28	3	W.24		3	W.24	L.39	3	W.22		3	W.25		3	W.22	W.24	3	W.25	
29	3	W.22		3	W.24	L.39	3	W.22	W.24	3	W.22		3	W.22	W.24	3	W.24	
30	3	W.24		3	W.24	L.39	3	W.22	W.24	3	W.22		3	W.22		3	W.24	
31	1	L.37		1	L.38		1	L.38		1	L.38		1	L.38		1	L.37	
32	1	L.39		2	L.40		2	L.39		1	L.37		2	L.41	L.42	2	L.40	
33	1	L.37		1	L.37		1	L.37		1	L.38		2	L.37		1	L.37	
34	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
35	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.38	
36	2	W.22		2	L.40	L.42	2	W.22	W.24	2	L.39		2	W.24		2	L.39	
37	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
38	2	L.39		2	L.40	L.42	2	W.22	W.25	1	L.39		2	W.24		2	L.37	W.24
39	2	W.25		3	W.25	W.24	3	W.22		3	W.25		2	W.24		3	W.24	L.39
40	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
41	3	W.22		3	W.25	L.39	3	W.22	W.25	3	W.25		3	W.22	W.24	3	W.24	
42	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		1	L.38	
43	1	L.37		1	L.37		1	L.37	W.25	1	L.37		2	L.37		1	L.37	
44	3	W.24		3	W.24	L.39	3	W.22	W.24	3	W.25		3	W.25	W.22	3	W.25	
45	3	W.24		3	W.24	L.39	3	W.24		3	W.22		3	W.22		3	W.25	



**English PreACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1	L.39		2	L.40	L.42	3	W.22	W.25	2	L.39		2	W.24		3	W.24	
2	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		2	L.38	
3	2	L.39		3	W.25	W.24	3	W.22	W.25	3	W.25		3	W.25		3	W.24	L.37
4	2	W.24		3	L.39	W.24	3	W.22	W.25	3	W.24		3	W.24	W.25	3	W.24	L.39
5	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		1	L.38	
6	1	L.38		1	L.38		1	L.38		1	L.37		1	L.38		1	L.38	
7	1	L.38		1	L.37	L.38	1	L.38		1	L.38		1	L.38		1	L.38	L.37
8	2	L.39		2	L.40	W.24	2	L.39		2	L.39		3	W.22		2	L.39	
9	1	L.39		1	L.38		1	L.38		1	L.37		1	L.38		1	L.38	
10	1	L.38		1	L.37	L.38	1	L.37	L.38	1	L.37		2	L.37		2	L.37	
11	1	L.38		1	L.37		1	L.38		1	L.38		2	L.38		1	L.37	
12	3	W.22	W.24	3	W.25	W.24	3	W.22	W.25	3	W.23		3	W.22	W.24	3	W.25	
13	1	L.39		1	L.38		2	L.39		1	L.38		2	L.38		2	L.37	
14	2	L.39		2	L.40	L.42	2	L.39		2	L.39		2	L.40	L.41	2	L.39	
15	3	W.22	W.24	3	W.25	L.39	3	W.22	W.24	3	W.25		3	W.22		3	W.25	
16	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
17	1	L.39		1	L.37		2	W.22		1	L.37		2	W.22		1	L.39	
18	1	L.39		2	L.40	W.24	2	L.39		1	L.39		2	L.37		2	L.39	
19	2	W.22		3	W.24	L.39	3	W.22	W.25	3	W.25		2	W.24	W.25	3	W.24	L.39
20	2	W.22	W.25	3	W.25	L.39	3	W.22	W.25	3	W.25		3	W.22	W.24	3	W.25	
21	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
22	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37	L.39	1	L.37	
23	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		2	L.38	
24	1	L.38		1	L.37		1	L.37	L.38	1	L.38		2	L.37		1	L.37	
25	1	L.38		2	L.40	L.42	1	L.37		2	L.39		2	L.37		1	L.40	

**English PreACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2	L.39		2	W.30	L.40	2	W.22		2	L.39		2	W.24		1	L.37	
27	2	L.39		2	L.40	W.24	2	L.39		2	L.39		2	W.24		2	L.39	
28	2	L.39		2	L.40	W.24	1	L.37		1	L.37		2	W.24	L.37	2	L.39	
29	1	L.38		1	L.38		1	L.38		1	L.38		2	L.37	L.38	1	L.38	
30	3	W.24		3	W.24		3	W.22	W.24	3	W.22		3	W.22		3	W.25	
31	1	L.37		1	L.37		1	L.37	L.38	1	L.38		2	L.37		1	L.37	
32	1	L.37		1	L.40	W.24	1	L.37		2	L.39		1	L.38		2	L.37	
33	3	W.22	W.25	3	W.25	L.39	3	W.22	W.24	3	W.25		2	W.24		3	W.24	
34	2	L.39		2	L.40	L.42	2	L.39		2	L.39		2	W.24		2	L.39	
35	1	L.37		1	L.37		1	L.37		1	L.37		2	L.37		1	L.37	
36	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.38	
37	1	L.37		2	L.40	W.24	1	L.37		2	L.39		2	L.37		1	L.39	
38	1	L.37		1	L.37		1	L.37		1	L.37		1	L.37		1	L.37	
39	2	L.39		2	L.40	L.42	2	L.39		2	L.39		2	L.41	W.24	3	L.40	W.24
40	2	L.39		2	L.40	W.24	2	L.39		2	L.39		2	W.24		1	L.37	
41	1	L.37		1	L.39	L.37	1	L.37		1	L.37		2	L.37		1	L.37	
42	3	W.22	W.25	2	W.24	L.39	3	W.22	W.25	3	W.25		2	W.24		3	W.24	
43	1	L.38		1	L.38		1	L.38		1	L.38		1	L.38		1	L.37	
44	3	W.22		3	W.24	L.39	3	W.22	W.24	3	W.25		3	W.22	W.24	3	W.25	
45	3	W.24		3	W.24	L.39	3	W.22	W.24	3	W.22		3	W.22		3	W.25	

**Reading ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	2	RL.1		1	RL.1		1	RL.1		1	RL.1		2	RL.1	RL.9	1	RL.1	
2	2			1	RL.2		2	RL.1		2	RL.2		2	RL.1		2	RL.2	
3	2	RL.1		1	RL.1		2	RL.1		3	RL.6		2	RL.1		2	RL.3	
4	2			1	RL.1		2	RL.4		2	RL.4		2	RL.6		1	RL.4	
5	2	RL.4		2	RL.4		1	RL.1		1	RL.3		3	RL.4		2	RL.6	
6	2		RL.4	2	RL.5		2	RL.4		3	RL.4		3	RL.6		2	RL.4	
7	3	RL.2		3	RL.2		3	RL.2	RL.8	3	RL.5		3	RL.2		3	RL.3	
8	3	RL.3		3	RL.3		3	RL.3	RL.8	3	RL.5		3	RL.5	RL.3	3	RL.4	
9	2	RL.1		3	RL.5		3	RL.1	RL.8	2	RL.1		2	RL.1		2	RL.3	
10	2	RL.1		2	RL.5		3	RL.1	RL.8	3	RL.2		2	RL.2		1	RL.1	
11	3	RI.15		1	RI.11		3	RI.15		3	RI.11		2	RI.15		3	RI.15	
12	1	RI.12		1	RI.12		1	RI.10		1	RI.12		1	RI.12		2	RI.12	
13	2	RI.12		2	RI.12		2	RI.12		2	RI.14		2	RI.13		2	RI.10	
14	2	RI.14		2		RI.13	2	RI.13		2	RI.13		3	RI.14		2	RI.14	
15	2			1	RI.11		2	RI.11		2	RI.10		2	RI.10	RI.15	2	RI.11	
16	1	RI.10		1	RI.12		1	RI.10		1	RI.12		2	RI.10		1	RI.10	
17	2	RI.13		1	RI.13		2	RI.13		2	RI.13		2	RI.13		1	RI.13	
18	3	RI.15	RI.10	2	RI.14		1	RI.10		1	RI.10		3	RI.14		2	RI.10	
19	1	RI.10		1	RI.10		1	RI.10		1	RI.12		1	RI.10		1	RI.10	
20	1	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
21	3	RI.15		2	RI.15		2	RI.15		3	RI.12		2	RI.15		3	RI.15	
22	2	RI.10		3	RI.10		2	RI.10		3	RI.10		2	RI.10		2	RI.10	
23	2	RI.12		3	RI.10		2	RI.12		2	RI.11		2	RI.16		1	RI.10	
24	2	RI.10		2	RI.14		2			2	RI.13		3	RI.15		2	RI.12	
25	1	RI.10		3	RI.15		1	RI.10		1	RI.10		1	RI.10		1	RI.10	

**Reading ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	3	RI.15		2		RI.13	2	RI.15		2	RI.15		3	RI.15	RI.14	2	RI.14	
27	1	RI.10		1	RI.10		1	RI.10		1	RI.10		2	RI.10		1	RI.10	
28	2	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13	
29	2	RI.12		3	RI.14		1	RI.10		1	RI.10		3	RI.16		1	RI.10	
30	3	RI.15		3	RI.15		2	RI.15		2	RI.15		2	RI.10		3	RI.15	
31	2			2	RI.11		2	RI.11		2	RI.10		2	RI.10		2	RI.11	
32	3	RI.15		3	RI.14		2	RI.10		2	RI.10		3	RI.15		2	RI.10	
33	2	RI.12		2	RI.10		2	RI.10		3	RI.12		2	RI.12		2	RI.10	
34	2	RI.10		2	RI.10		2			1	RI.10		2	RI.10		3	RI.14	
35	1	RI.13		2		RI.13	2	RI.13		2	RI.13		2	RI.13		2	RI.13	
36	2	RI.13		2		RI.13	2	RI.13		2	RI.15		2	RI.13		2	RI.14	
37	2	RI.10		2	RI.10		2	RI.10		2	RI.12		2	RI.10	RI.11	2	RI.10	
38	3	RI.14		2	RI.14		2			1	RI.10		3	RI.13	RI.11	1	RI.14	
39	2	RI.10		2	RI.14		1	RI.10		1	RI.10		2	RI.12	RI.10	1	RI.11	
40	2	RI.14		2	RI.14		2	RI.15		2	RI.15		3	RI.15		3	RI.15	

**Reading ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	3			1	RL.2	RL.9	3	RL.1		2	RL.5		2	RL.2		3	RL.2	
2	2			2	RL.2	RL.9	2	RL.2		2	RL.6		2	RL.2		2	RL.1	
3	2	RL.5		3	RL.5	RL.3	2	RL.5	RL.1	2	RL.1		3	RL.4		2	RL.3	
4	2	RL.4		1	RL.4		2	RL.4		2	RL.4		2	RL.4		1	RL.4	
5	2	RL.4		3	RL.4		2	RL.4		2	RL.4		3	RL.4		2	RL.3	
6	3	RL.2		2	RL.2	RL.9	3	RL.2	RL.8	3	RL.2		3	RL.2		3	RL.2	
7	3			3	RL.3		3			3	RL.6		3	RL.6		2	RL.6	
8	3			3	RL.3		3	RL.3	RL.8	3	RL.5		3	RL.2		3	RL.5	
9	3	RL.3		3	RL.2	RL.3	3	RL.1	RL.8	3	RL.2		3	RL.2		3	RL.5	
10	1	RL.1		3	RL.1		2	RL.1		2	RL.2		3	RL.1		2	RL.3	
11	2	RI.15		3	RI.15		3	RI.15		2	RI.15		3	RI.15		3	RI.14	
12	2			1	RI.11		2	RI.11		2	RI.11		2	RI.10		2	RI.11	
13	2	RI.10		2	RI.11		2	RI.10		1	RI.15		2	RI.14	RI.15	1	RI.10	
14	1	RI.10		1	RI.10		2	RI.10		1	RI.10		3	RI.12	RI.10	2	RI.10	
15	2			1	RI.11		2	RI.11		2	RI.11		2	RI.10		2	RI.11	
16	1	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
17	1	RI.13		1	RI.13		2	RI.13		2	RI.13		2	RI.13		1	RI.13	
18	1	RI.10		1	RI.11		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
19	1	RI.10		1	RI.10		2	RI.10		1	RI.10		2	RI.10		2	RI.10	
20	1	RI.10		1	RI.11		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
21	3	RI.15		1	RI.15		3	RI.15		3	RI.15		2	RI.10	RI.11	3	RI.15	
22	2	RI.10		1	RI.10		2	RI.10		2	RI.12		2	RI.12		2	RI.12	
23	2	RI.12		2	RI.14	RI.10	1	RI.10		1	RI.10		2	RI.10		2	RI.14	
24	2	RI.10		2	RI.14	RI.10	2	RI.10		2	RI.10		2	RI.12		2	RI.12	
25	2	RI.15		2	RI.13		2	RI.13		2	RI.13		3	RI.13		2	RI.15	

**Reading ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2			1	RI.11		2	RI.11		2	RI.11		2	RI.10		2	RI.11	
27	2	RI.14		3	RI.12	RI.14	2	RI.10		1	RI.10		2	RI.16	RI.13	3	RI.15	
28	2	RI.13		1	RI.13		2	RI.13		2	RI.13		2	RI.13		1	RI.13	
29	1	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
30	2	RI.13		1	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13	
31	2	RI.10		3	RI.10		2	RI.10		2	RI.13		2	RI.10		2	RI.10	
32	2			1	RI.11		2	RI.11		2	RI.11		2	RI.10		2	RI.14	
33	2			1	RI.15		2	RI.15		2	RI.15		3	RI.14		3	RI.15	
34	2	RI.10		3	RI.13	RI.14	2	RI.10		1	RI.13		3	RI.14	RI.15	2	RI.11	
35	1	RI.12		2	RI.12		1	RI.10		2	RI.12		1	RI.10		2	RI.12	
36	2	RI.13		1	RI.13		2	RI.13		1	RI.13		2	RI.13		2	RI.13	
37	2	RI.10		2	RI.10	RI.14	2	RI.10		1	RI.10		2	RI.10		1	RI.10	
38	2	RI.13		1	RI.13	RI.14	2	RI.13		2	RI.13		3	RI.13		2	RI.13	
39	2	RI.10		3	RI.15		1	RI.10		2	RI.10		2	RI.10	RI.15	1	RI.10	
40	1	RI.10		3	RI.11		1	RI.10		1	RI.10		1	RI.10		2	RI.11	

**Reading ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	3	RI.15		2	RL.2		3			3	RL.5		3	RL.2		2	RL.5	
2	3	RI.10		2	RL.1		2	RL.1		2	RL.1		1	RL.1		3	RL.2	
3	2			1	RL.2		2	RL.2		2	RL.2		3	RL.1		2	RL.2	
4	2	RI.10		3	RL.1	RL.5	2	RL.5		1	RL.1		3	RL.6		2	RL.3	
5	2	RI.13		1	RL.4		2	RL.4		1	RL.4		2	RL.4		1	RL.4	
6	1	RI.10		1	RL.2		1	RL.1		1	RL.1		1	RL.1		2	RL.1	
7	2	RI.13		2	RL.4		2	RL.4		1	RL.3		2	RL.4		1	RL.4	
8	1	RI.12		3	RL.3		1	RL.3	RL.1	1	RL.1		2	RL.5		1	RL.1	
9	1	RI.12		2	RL.5	RL.2	1	RL.1		1	RL.1		3	RL.1		3	RL.6	
10	2	RI.13		3	RL.4		2	RL.4		2	RL.4		3	RL.6		3	RL.2	
11	2			3			2			3	RI.15		3	RI.14	RI.15	3	RI.15	
12	2	RI.12		2	RI.11		2	RI.14		2	RI.12		3	RI.14		2	RI.14	
13	2	RI.13		2	RI.13		2	RI.13		1	RI.13		2	RI.13		1	RI.13	
14	2	RI.13		3	RI.13		2	RI.14		2	RI.13		3	RI.15		2	RI.13	
15	1	RI.10		2	RI.11		1	RI.10		1	RI.10		1	RI.10		2	RI.12	
16	2			3	RI.14		2	RI.11		2	RI.11		3	RI.13		2	RI.10	
17	1	RI.10		2	RI.10		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
18	3	RI.14		2	RI.11		2			2	RI.14		3	RI.15		2	RI.15	
19	2	RI.13		3	RI.13		2	RI.13		2	RI.13		2	RI.13		3	RI.14	
20	1	RI.10		3	RI.14	RI.10	1	RI.10		1	RI.10		2	RI.10		1	RI.10	
21	2	RI.14		2	RI.15		2	RI.14		2	RI.15		3	RI.14	RI.11	2	RI.14	
22	2	RI.10		2	RI.14		2	RI.10		2	RI.15		1	RI.10		3	RI.15	
23	2	RI.13		1	RI.13		2	RI.13		1	RI.13		2	RI.13		1	RI.13	
24	1	RI.10		2	RI.14	RI.12	2	RI.10		2	RI.11		3	RI.15		2	RI.10	
25	2			1	RI.11		2	RI.11		2	RI.11		2	RI.10		2	RI.11	

**Reading ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	3			2	RI.12	RI.14	3	RI.17		3	RI.11		3	RI.15	RI.14	3	RI.14	
27	3	RI.10		3	RI.10	RI.14	3	RI.10		3	RI.10		3	RI.14		3	RI.10	
28	3			1	RI.11		3	RI.17	RI.10	2	RI.11		2	RI.10		2	RI.10	
29	3			3	RI.10	RI.15	3	RI.17		3	RI.11		3	RI.15		2	RI.11	
30	2	RI.14		3	RI.10	RI.15	3	RI.17	RI.10	3	RI.10		3	RI.14	RI.15	3	RI.14	
31	3	RI.15		3	RI.10	RI.12	2	RI.10		2	RI.10		3	RI.13	RI.15	2	RI.14	
32	1	RI.10		2	RI.11	RI.12	2	RI.10		1	RI.12		3	RI.14		2	RI.10	
33	1	RI.10		1	RI.11		1	RI.10		1	RI.12		2	RI.10		1	RI.10	
34	1	RI.10		1	RI.11		1	RI.10		1	RI.10		2	RI.10		1	RI.10	
35	1	RI.10		1	RI.11		1	RI.10		1	RI.10		1	RI.10		2	RI.10	
36	1	RI.10		2	RI.11	RI.14	2	RI.12		2	RI.15		1	RI.10		2	RI.10	
37	1	RI.10		1	RI.11		1	RI.10		1	RI.10		1	RI.10		1	RI.10	
38	2	RI.12		3	RI.12	RI.14	2	RI.10		2	RI.15		2	RI.12	RI.11	2	RI.12	
39	2	RI.12		3	RI.10		2	RI.10		2	RI.12		2	RI.11		3	RI.12	
40	3	RI.12		3	RI.13		2	RI.13		2	RI.12		3	RI.13		2	RI.11	



**Reading PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	3	RI.15		2	RL.5		2	RL.6		1	RL.6		2	RL.6	RL.2	3	RL.6	
2	3	RI.13	RI.10	3	RL.4		2	RL.1		1	RL.1		3	RL.4	RL.6	2	RL.1	
3	3	RI.14		1	RL.2	RL.9	3	RL.5		2	RL.3		3	RL.2	RL.5	3	RL.2	
4	2	RI.10		3	RL.1		2	RL.1		3	RL.1		2	RL.1		2	RL.3	
5	2	RI.12	RI.10	1	RL.2	RL.9	2	RL.1		2	RL.5		2	RL.1		2	RL.2	
6	2	RI.14		3	RL.4		3	RL.5		1	RL.1		2	RL.1	RL.4	2	RL.4	
7	1	RI.10		1	RL.3		1	RL.1		1	RL.1		2	RL.1		1	RL.1	
8	1	RI.10		1	RL.2	RL.9	2	RL.1		1	RL.5		3	RL.2	RL.6	1	RL.1	
9	1	RI.10		1	RI.11	RI.20	1	RI.10		1	RI.10		2	RI.10		1	RI.10	
10	1			1	RI.13		2	RI.13		2	RI.13		2	RI.13		1	RI.13	
11	1	RI.10		2	RI.12		2	RI.12		1	RI.10		2	RI.10	RI.11	2	RI.10	
12	2	RI.13		1	RI.13		2	RI.13		2	RI.12		2	RI.13		3	RI.14	
13	2	RI.10		3	RI.10		2	RI.10		3	RI.10		2	RI.10		2	RI.11	
14	1	RI.10		2	RI.10		1	RI.10		1	RI.10		2	RI.10	RI.11	2	RI.10	
15	1	RI.10		1	RI.11	RI.20	1	RI.10		1	RI.10		1	RI.10		1	RI.10	
16	1	RI.10		1	RI.11	RI.20	1	RI.10		1	RI.10		1	RI.10		3	RI.10	
17	1	RI.10		3	RI.13		2	RI.13		2	RI.10		2	RI.13		3	RI.14	
18	2			1	RI.11	RI.20	2	RI.11		2	RI.10		2	RI.12		3	RI.11	
19	3	RI.15		2	RI.10		3	RI.10		3	RI.10		3	RI.15	RI.17	3	RI.15	
20	3	RI.17		2	RI.14		3	RI.14		2	RI.12		2	RI.10	RI.12	2	RI.11	
21	2	RI.12		3	RI.11		3	RI.14		2	RI.10		2	RI.11	RI.14	2	RI.14	
22	3	RI.10		2	RI.10		3	RI.10		3	RI.10		3	RI.12	RI.17	3	RI.11	
23	3	RI.15		3	RI.10		3	RI.10		2	RI.10		3	RI.14	RI.17	3	RI.15	
24	2	RI.13		1	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13	
25	1	RI.10		2	RI.14		2	RI.10		2	RI.10		3	RI.14		1	RI.10	

**Reading PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	3			2	RL.2		3	RL.2		2	RL.3		3	RL.2		2	RL.2	
2	2	RI.10		2	RL.1		2	RL.1		2	RL.2		3	RL.5	RL.6	3	RL.5	
3	1	RI.10		2	RL.1		2	RL.1	RL.6	2	RL.2		2	RL.1		3	RL.2	
4	3	RI.14	RI.15	2	RL.4		2	RL.4		2	RL.2		2	RL.1		2	RL.3	
5	2	RI.13		1	RL.4		2	RL.4		2	RL.4		2	RL.4		2	RL.4	
6	2	RI.13		1	RL.4		2	RL.4		2	RL.4		2	RL.4		2	RL.4	
7	1	RI.10		2	RL.3		2	RL.1		2	RL.1		2	RL.1		3	RL.2	
8	2	RI.10	RI.15	2	RL.2		2	RL.1		1	RL.1		2	RL.1		1	RL.1	
9	2	RI.10		2	RL.2		1	RL.1		1	RL.1		2	RL.1		1	RL.1	
10	2	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13	
11	1	RI.10		1	RI.11		2	RI.12		2	RI.10		1	RI.10		2	RI.10	
12	2	RI.14		3	RI.14		3	RI.14	RI.12	2	RI.12		2	RI.12	RI.14	3	RI.12	
13	2	RI.14		3	RI.14		3	RI.14	RI.12	2	RI.12		3	RI.14		3	RI.15	
14	1	RI.10		2	RI.10		2	RI.10		2	RI.10		2	RI.10		2	RI.14	
15	1	RI.10		1	RI.11		2	RI.10		1	RI.10		2	RI.10		1	RI.10	
16	1	RI.10		2	RI.11		1	RI.10		2	RI.10		2	RI.10		1	RI.10	
17	2	RI.13		3	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13	
18	2	RI.13		2	RI.13		2	RI.13		2	RI.13		2	RI.13		1	RI.13	
19	3	RI.17		3	RI.14		2	RI.14		1	RI.10		3	RI.14	RI.15	2	RI.10	
20	3	RI.17		3	RI.14		3	RI.14	RI.17	3	RI.14		2	RI.11	RI.14	2	RI.10	RI.15
21	2			2	RI.10	RI.13	2	RI.10		3	RI.11		2	RI.10		2	RI.11	
22	2	RI.10		2	RI.10	RI.13	2	RI.10		3	RI.11		2	RI.10	RI.12	3	RI.14	
23	1	RI.10		1	RI.11		1	RI.10		1	RI.10		2	RI.10	RI.12	2	RI.10	
24	1	RI.10		1	RI.11		1	RI.10		2	RI.14		2	RI.12		1	RI.10	
25	1	RI.10		2	RI.11		1	RI.10		1	RI.10		3	RI.11	RI.15	1	RI.10	

**Reading PreACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6**

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1	RL.1		2	RL.2		1	RL.1		1	RL.1		2	RL.1	RL.3	1	RL.1	
2	2	RL.3	RL.1	2	RL.1	RL.4	2	RL.1		2	RL.1		2	RL.4		2	RL.3	
3	2	RL.4		2	RL.1	RL.4	2	RL.1		2	RL.4		2	RL.6	RL.4	2	RL.4	
4	2	RL.3		2	RL.3		2	RL.3	RL.1	2	RL.1		3	RL.3	RL.2	2	RL.3	
5	2	RL.4		1	RL.4		2	RL.4		2	RL.4		2	RL.4		1	RL.4	
6	1	RL.3	RL.1	3	RL.5		1	RL.6		1	RL.1		2	RL.3		2	RL.1	
7	2	RL.4		2	RL.1	RL.2	2	RL.3	RL.1	2	RL.3		3	RL.6	RL.5	3	RL.5	
8	2	RL.5		2	RL.1		2	RL.4		3	RL.1		3	RL.5		3	RL.2	
9	2	RI.10		2	RI.10		2	RI.10		2	RI.10		2	RI.10	RI.11	2	RI.11	
10	1	RI.10		3	RI.14	RI.10	2	RI.10		2	RI.13		2	RI.10		1	RI.10	
11	2	RI.15		2	RI.10		2	RI.12		1	RI.10		2	RI.12	RI.14	1	RI.10	
12	2	RI.13		2	RI.10		2	RI.10		2	RI.12		3	RI.15		2	RI.13	
13	2	RI.10		1	RI.10		2	RI.10		2	RI.10		2	RI.11		3	RI.11	
14	2	RI.14		2	RI.13	RI.10	2	RI.14	RI.13	2	RI.13		2	RI.12		2	RI.14	
15	3			3	RI.12		3	RI.18		3	RI.11		3	RI.16		3	RI.11	
16	3			3	RI.11	RI.10	3	RI.15	RI.18	3	RI.10		2	RI.12		3	RI.15	
17	3	RI.10		1	RI.10	RI.13	3	RI.10	RI.18	2	RI.10		2	RI.10		2	RI.12	
18	1	RI.10		3	RI.12		2	RI.10		2	RI.10		2	RI.10	RI.14	2	RI.10	
19	1	RI.10		2	RI.11	RI.10	2	RI.10		2	RI.10		2	RI.11	RI.12	2	RI.14	
20	2	RI.14		3	RI.12	RI.14	3	RI.14		2	RI.12		2	RI.10		2	RI.11	
21	1	RI.12		2	RI.10		2	RI.10		3	RI.10		2	RI.10		2	RI.10	
22	1	RI.10		1	RI.11		1	RI.10		1	RI.10		3	RI.14		1	RI.10	
23	2	RI.13		1	RI.13		2	RI.13		2	RI.13		2	RI.13		1	RI.13	
24	2	RI.14		3	RI.15		2	RI.15		3	RI.14		2	RI.11		3	RI.15	
25	2	RI.13		1	RI.12		2	RI.13		2	RI.13		2	RI.13		1	RI.13	

**Writing ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6**

	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
Item	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
Scoring Domain 1	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.23	3	W.19	W.22
Scoring Domain 2	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.23
Scoring Domain 3	3	W.19	W.22	3	W.19	W.21	3	W.19	W.22	2	W.22	W.23	3	W.19	W.22	2	W.20	W.22
Scoring Domain 4	2	W.22	L.35	3	W.19	W.22	3	L.37	L.35	1	L.35	L.36	3	W.19	L.35	1	W.20	L.35

**Writing ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6**

	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
Item	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
Scoring Domain 1	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.23	3	W.19	W.22
Scoring Domain 2	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.23
Scoring Domain 3	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	2	W.22	W.23	3	W.19	W.22	2	W.20	W.22
Scoring Domain 4	2	W.22	L.35	3	W.19	W.22	3	L.37	L.35	1	L.35	L.36	3	W.19	L.35	1	W.20	L.35

**Writing ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6**

	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
Item	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
Scoring Domain 1	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.23	3	W.19	W.22
Scoring Domain 2	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	3	W.19	W.23
Scoring Domain 3	3	W.19	W.22	3	W.19	W.22	3	W.19	W.22	2	W.22	W.23	3	W.19	W.22	2	W.20	W.22
Scoring Domain 4	2	W.22	L.35	3	W.19	W.22	3	L.37	L.35	1	L.35	L.36	3	W.19	L.35	1	W.20	L.35

**Mathematics ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-3**

Item	Reviewer 1				Reviewer 2				Reviewer 3			
	DOK	R1P	R1S	R1T	DOK	R2P	R2S	R2T	DOK	R3P	R3S	R3T
1	1	ALG1.26			1	ALG1.26			1	ALG1.26		
2	1				1	GEO.42			1	GEO.42	ALG2.39	ALG2.37
3	1				1				1	ALG1.42		
4	1				1	GEO.42			1	GEO.42	ALG2.37	
5	1				2	ALG1.12			1	ALG1.12	ALG2.20	
6	1	GEO.21			1	GEO.21			1	GEO.21		
7	1				2	ALG1.7			2	ALG1.13	ALG2.21	
8	2				1	ALG1.26			1	ALG1.12	ALG2.20	
9	1	GEO.32			1	GEO.32			1	GEO.32	GEO.1	
10	1	ALG2.9			1	ALG2.9			1	ALG2.9		
11	1	ALG1.46			1				1	ALG1.46		
12	1				1				1	GEO.10		
13	1	ALG1.13			1	ALG1.13	ALG1.21		1	ALG1.20	ALG1.19	
14	1	ALG1.27			1	ALG1.38			2	ALG1.35		
15	1				2	GEO.43			1	GEO.43	ALG2.38	
16	1	ALG1.26			1	ALG1.26	ALG1.28		1	ALG1.26		
17	2	ALG1.27			2	ALG1.34			2	ALG1.27	ALG1.34	
18	1	ALG1.8			1	ALG1.8	ALG2.13		1	ALG1.9	ALG1.8	ALG2.13
19	1	ALG1.17			1	ALG1.12			1	ALG1.12	ALG1.14	
20	1	ALG1.3			1	ALG1.3			2	ALG1.3		
21	1	ALG1.45			2	ALG1.45	ALG1.7		1	ALG1.45	ALG1.13	ALG2.21
22	1	GEO.32			1			GEO.30	1			GEO.30
23	2	GEO.38			1			GEO.38	2			GEO.38
24	1				2	ALG1.13	ALG2.21	ALG2.22	2	ALG1.20	ALG1.19	
25	2	GEO.3			1	GEO.2			1			GEO.5

**Mathematics ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-3 continued**

26	1				1	GEO.4	GEO.1		1	ALG2.28		
27	1	ALG1.36			2	GEO.31			1	ALG1.22		
28	1				2	ALG2.12			2	ALG1.12	ALG2.20	
29	1	GEO.21			2	GEO.21			1			GEO.21
30	1	ALG1.26			1			ALG2.14	1	ALG1.12	ALG2.20	
31	1	ALG1.26			1				1	ALG1.26	ALG2.33	
32	1	GEO.9			1	GEO.4	GEO.9		1			GEO.9
33	1	ALG1.2			1	ALG1.10			1	ALG1.10	ALG2.15	
34	1	ALG2.2			1	ALG2.2			1	ALG2.2	ALG2.1	
35	1				2	ALG1.44	ALG2.41	ALG2.43	1	GEO.42	ALG2.37	
36	1	ALG1.31			1	ALG2.30			2	ALG1.31	ALG2.30	
37	1				1	ALG1.44	ALG2.40	ALG2.41	2	GEO.43	GEO.40	
38	1	ALG1.2			1	ALG1.2	ALG1.1		1	ALG1.2		
39	1	ALG2.46			2	ALG2.46			1	ALG2.42	ALG2.38	
40	1	ALG2.19			1	ALG2.13			2	ALG1.11	ALG2.19	
41	1				1	ALG2.38			1	GEO.43	ALG2.38	
42	1	GEO.21			2	GEO.34			1	GEO.21	GEO.34	
43	1	GEO.23			1	GEO.23			1	GEO.34		
44	1				1				1	ALG1.46		
45	1	ALG2.4			2	ALG2.4			1	ALG2.4		
46	1				1	ALG1.12			1	GEO.42	ALG2.37	
47	1	ALG1.17			1	ALG1.12	ALG1.17	ALG2.20	2	ALG1.12	ALG2.20	
48	1				2	ALG1.43			1	ALG1.42		
49	1	ALG1.36			2	ALG1.36	ALG2.34		1	ALG1.36	ALG2.34	
50	1	ALG2.5			1		ALG2.4		1	ALG1.18	ALG2.5	

**Mathematics ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-3 continued**

<b>51</b>	2	ALG1.4			2	ALG1.4			2	ALG1.4		
<b>52</b>	1	GEO.36			1	ALG1.7			1			GEO.36
<b>53</b>	1	ALG1.1			2	ALG1.2			2	ALG1.1	ALG1.2	
<b>54</b>	1				1	ALG1.5			1	ALG1.12	ALG1.16	
<b>55</b>	2	GEO.21			2	GEO.41			1			GEO.34
<b>56</b>	1	GEO.25			1				2			
<b>57</b>	1	ALG1.41			2	ALG1.41	ALG1.7		1	ALG1.41		
<b>58</b>	1				3	ALG2.38			1		ALG1.44	ALG2.41
<b>59</b>	2	GEO.22			2				2			
<b>60</b>	1	GEO.26	GEO.34		2	GEO.13			1			GEO.34

**Mathematics ACT Form 1: DOK Levels and Standard Coded by Reviewers 4-6**

Item	Reviewer 4				Reviewer 5				Reviewer 6			
	DOK	R4P	R4S	R4T	DOK	R5P	R5S	R5T	DOK	R6P	R6S	R6T
1	1	ALG1.26			1	ALG1.26			1	ALG1.26		
2	1	ALG2.39			1	ALG2.39			1			GEO.43
3	1				2	ALG1.43			1	ALG1.42		
4	1	ALG2.37			1				1			GEO.42
5	2				2				1	ALG1.34	ALG1.5	
6	1	GEO.21			1	GEO.21			1			GEO.21
7	1	ALG1.17	ALG1.12		1				1	ALG1.8		
8	1	ALG1.17			1				1	ALG1.2	ALG1.16	
9	1				1				1			GEO.32
10	1	ALG2.9			1	ALG2.9			1	ALG2.9		
11	1	ALG1.28			1				1			GEO.9
12	2				1				1			GEO.10
13	2	ALG1.13	ALG1.20		2	ALG1.20			2	ALG1.20	ALG1.13	
14	1	ALG1.12			1	ALG1.35			1	ALG1.27		
15	2				2				1	ALG1.47		
16	1	ALG1.18			1	ALG1.26			1	ALG1.17		
17	2	ALG1.12			1	ALG1.35			1	ALG1.34		
18	1	ALG1.8			1	ALG1.9			1	ALG1.8		
19	1				1	ALG1.17			1	ALG1.17		
20	1	ALG1.3			1	ALG1.3			1	ALG1.3		
21	2	ALG1.45			1	ALG1.45			1	ALG1.46		
22	1				1	GEO.32			1			GEO.33
23	1	GEO.38			1	GEO.38			2			GEO.12
24	2	ALG1.13	ALG1.21		2	ALG1.21			2	ALG1.7		
25	2			GEO.5	2	GEO.2			2			GEO.5



**Mathematics ACT Form 1: DOK Levels and Standard Coded by Reviewers 4-6 continued**

26	2				1	GEO.1			1			GEO.25
27	1	ALG1.37			1	ALG1.28			1	ALG1.12		
28	2	ALG1.4			2				2	ALG1.12		
29	1			GEO.21	1	GEO.21	GEO.1		2			GEO.25
30	1	ALG1.17			1	ALG1.35			1	ALG1.27		
31	1	ALG1.26			1	ALG1.26			1			
32	1		ALG1.12		1	ALG1.17	GEO.9		1			GEO.9
33	1	ALG1.3			1		ALG1.2		1	ALG1.8		
34	1	ALG2.2			1	ALG2.2			1	ALG2.2		
35	2	ALG2.41			1				2	ALG2.41		
36	1		ALG1.25	ALG2.30	1	ALG1.26			2	ALG1.29		
37	2			ALG2.41	1	ALG2.43	ALG2.41		2	ALG2.41		
38	1	ALG1.2			1	ALG1.2			1	ALG1.1		
39	2	ALG2.46			2	ALG2.46			2	ALG2.46		
40	1	ALG2.12			1	ALG1.11			1	ALG2.13		
41	2			GEO.41	1	ALG2.37			2	ALG2.37		
42	2			GEO.23	2			GEO.21	2			GEO.21
43	2				2			GEO.23	1			GEO.23
44	1	ALG1.38			1				2	ALG1.30		
45	2	ALG2.2			1	ALG2.4			2	ALG2.4		
46	1				1				2	ALG1.44		
47	2	ALG1.17			2	ALG1.12			2	ALG1.44		
48	2				2	ALG1.42			2	ALG1.42		
49	2	ALG1.36			1	ALG1.36			2	ALG1.20		
50	1	ALG2.4	ALG2.5		1	ALG1.18	ALG1.8		2	ALG2.25		

**Mathematics ACT Form 1: DOK Levels and Standard Coded by Reviewers 4-6 continued**

<b>51</b>	2	ALG1.4			2	ALG1.4			1	ALG1.12		
<b>52</b>	2			GEO.36	2			GEO.36	1			GEO.36
<b>53</b>	1	ALG1.1			2	ALG1.2			1	ALG1.1		
<b>54</b>	2				1				1	ALG1.17		
<b>55</b>	2			GEO.34	2				2			GEO.34
<b>56</b>	2			GEO.21	2			GEO.21	2			GEO.19
<b>57</b>	2				2	ALG1.41			2	ALG1.41		
<b>58</b>	2			GEO.43	1				2	ALG2.38		
<b>59</b>	1			GEO.21	1		ALG1.18		2	ALG2.4		
<b>60</b>	2			GEO.34	2		ALG1.34		2			GEO.35

**Mathematics ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-3**

Item	Reviewer 1			Reviewer 2				Reviewer 3				
	DOK	R1P	R1S	R1T	DOK	R2P	R2S	R2T	DOK	R3P	R3S	R3T
1	1				1	ALG1.12			1	ALG1.12	ALG2.20	
2	1				1				1	GEO.42	ALG2.37	
3	1				1	ALG1.12			1	ALG1.12	ALG2.20	
4	1				2	GEO.43			1	GEO.42	ALG2.38	
5	1	ALG1.26			1	ALG1.26			1	ALG1.26	ALG1.25	
6	1	GEO.9			1	GEO.4			1			GEO.9
7	1	ALG1.18			1	ALG1.18			1	ALG1.9	ALG1.18	
8	1				1	GEO.42			1	GEO.42	ALG2.37	
9	1	ALG1.9			1	ALG1.18			1	ALG1.18		
10	1	ALG2.1			1	ALG2.2			1	ALG2.2	ALG2.1	
11	1	ALG2.8			1	ALG2.8			1	ALG2.8		
12	1				1				1	ALG1.42		
13	1				1	ALG2.44			1	GEO.42	ALG2.37	
14	1				1	GEO.36			1			GEO.36
15	1	ALG1.21			2	ALG1.20			2	ALG1.13	ALG2.21	
16	1				3	ALG1.14			1	ALG1.11	ALG2.19	
17	1	ALG1.8			1	ALG1.8			1	ALG1.10	ALG2.15	
18	2	GEO.18			2	GEO.18			2	GEO.15	GEO.18	
19	1	GEO.32			1	GEO.32			1	GEO.32		
20	1				1	ALG1.8			1	ALG1.12		
21	1				2	ALG1.15	ALG1.14		2	ALG1.11	ALG2.12	
22	2	GEO.2			1	GEO.2			2	GEO.6	GEO.5	
23	1	ALG2.36			1			ALG2.36	1	ALG2.36		
24	1	ALG1.26			1			ALG2.30	1	ALG1.14	ALG2.22	
25	1				2	GEO.43		ALG2.38	2	GEO.43	ALG2.38	

**Mathematics ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-3 continued**

26	1	ALG1.29			1	ALG1.46			1	ALG1.28	ALG1.5	
27	1				2	ALG1.2			1	ALG1.8		
28	1	GEO.18			1	GEO.18			1	GEO.15	GEO.18	
29	1				2	ALG1.5			2	ALG1.12	ALG1.5	
30	1	GEO.31			1	GEO.31			1		ALG1.46	GEO.31
31	1				2				2	GEO.34	GEO.41	
32	2	GEO.32			2	GEO.23			2	GEO.21		
33	1				2	GEO.23			2	GEO.39	GEO.41	
34	1	ALG1.1			1	ALG1.2			2	ALG1.2	ALG1.1	
35	1	ALG1.3			1				1	ALG1.3		
36	1	GEO.25			2	GEO.27			2	GEO.27	GEO.25	
37	1	ALG2.16			1	ALG2.16			2	ALG2.16	ALG2.19	
38	1	ALG1.4			2	ALG1.4			2	ALG1.4	ALG1.5	
39	1				1	ALG1.2			1	ALG1.2	ALG1.1	ALG2.46
40	1	ALG1.21			2	ALG1.20			2	ALG1.13	ALG1.20	
41	1				2	ALG1.43			2	ALG1.42	ALG1.43	
42	1				2	ALG2.41	ALG2.44		1	ALG1.47	ALG2.43	
43	1				2	ALG1.7			2	ALG1.42	ALG1.12	
44	1	ALG1.11			1	ALG1.11			1	ALG2.15		
45	2				1				1			
46	1				2	ALG1.35	ALG1.38		2	ALG1.38	ALG1.34	
47	1	GEO.28			1	GEO.25	GEO.28		2	GEO.28	GEO.35	
48	1	ALG1.31			2	ALG1.32			1	ALG2.19		
49	1				2	GEO.31			1	ALG1.46	ALG1.13	
50	1	GEO.30			1				2	GEO.10	GEO.12	

**Mathematics ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-3 continued**

<b>51</b>	1	ALG1.46			1	ALG1.30			1	ALG1.46	ALG1.12	
<b>52</b>	1	ALG1.25			2	ALG1.34			1	ALG1.25		
<b>53</b>	1	ALG1.18			1	ALG2.4			1	ALG2.25	ALG2.4	
<b>54</b>	1				2				1	ALG1.44		
<b>55</b>	1				2				1	ALG1.42		
<b>56</b>	1				2	ALG1.17	ALG2.27		2	ALG1.3		
<b>57</b>	1	GEO.21			2				2			
<b>58</b>	1	ALG1.15			2	ALG1.17			2	ALG1.17	ALG2.17	ALG2.23
<b>59</b>	1	GEO.30			3	GEO.30			1			GEO.30
<b>60</b>	2				1	ALG1.18	ALG2.29		1	ALG1.18	ALG1.12	ALG2.20

**Mathematics ACT Form 2: DOK Levels and Standard Coded by Reviewers 4-6**

Item	Reviewer 4				Reviewer 5				Reviewer 6			
	DOK	R4P	R4S	R4T	DOK	R5P	R5S	R5T	DOK	R6P	R6S	R6T
1	1				1				1	ALG1.17		
2	1				2				1	ALG1.43		
3	1	ALG1.4			2	ALG1.30			1	ALG1.17		
4	2			GEO.41	1	ALG2.37			1	ALG2.37		
5	1	ALG1.26			1	ALG1.26			1	ALG1.26		
6	1				1	GEO.9			1			GEO.9
7	1	ALG1.18			1	ALG1.18			1	ALG1.32		
8	1				1				1			GEO.43
9	1	ALG1.18			1	ALG1.18			1	ALG1.32	ALG1.9	
10	1	ALG2.5			1	ALG2.2			1	ALG2.2	ALG2.1	
11	1	ALG2.8			1	ALG2.8			1	ALG2.8		
12	1				1				1	ALG1.43		
13	2	ALG2.39			1	ALG2.44	ALG2.39		1	ALG2.38		
14	1				1				1			GEO.36
15	2	ALG1.13			1	ALG1.14			2	ALG1.20	ALG1.19	
16	2				2				2	ALG1.17	GEO.41	
17	1	ALG1.10			1	ALG1.9	ALG1.10		1	ALG1.9		
18	2	GEO.18			2	GEO.18			1			GEO.18
19	2				1				1	ALG1.12		
20	2				2				1	ALG1.12		
21	2	ALG2.24			2	ALG2.12			2	ALG1.16		
22	2			GEO.5	1			GEO.3	2			GEO.2
23	1	ALG2.36			1	ALG2.36			1	ALG2.36		
24	1	ALG2.29	ALG2.24		1	ALG1.26			1	ALG2.24		
25	2	ALG1.13	ALG1.20		2	ALG2.20			2	GEO.43	ALG2.38	

**Mathematics ACT Form 2: DOK Levels and Standard Coded by Reviewers 4-6 continued**

26	1	ALG1.41			1	ALG1.45	ALG1.26		1	ALG1.22		
27	1				1		ALG1.2		1	ALG1.2	ALG1.5	
28	2	GEO.18			2	GEO.18	ALG2.21		1			GEO.18
29	1				2				2	ALG1.44		
30	1	GEO.31			1			GEO.31	1	ALG1.13		
31	1	GEO.34			2				2			GEO.34
32	2	GEO.21			2			GEO.21	1			GEO.21
33	1				2				1			GEO.21
34	1	ALG1.2			1	ALG1.2			1	ALG1.2	ALG2.36	
35	1	ALG1.3			1		ALG1.3		2	ALG1.3		
36	1	GEO.25			2			GEO.37	2	GEO.27		
37	2	ALG2.16			1	ALG2.16			1	ALG2.16		
38	2	ALG1.4			2		ALG1.4		1		ALG1.4	GEO.41
39	1	ALG1.2			1	ALG1.2			2	ALG2.46		
40	2	ALG1.13	ALG1.20		2	ALG1.20			2	ALG1.20		
41	2				1	ALG1.43			2	ALG1.43	ALG1.42	
42	1	ALG2.41			1	ALG2.43	ALG2.41		2			GEO.41
43	2	ALG1.17			2	ALG1.12			2	ALG1.43		
44	1	ALG2.13			1	ALG1.8			1	ALG1.8		
45	2			GEO.21	1			GEO.21	2			GEO.20
46	2	ALG1.12			2	ALG2.33			2	ALG1.34	ALG1.37	
47	1				2			GEO.28	2			GEO.28
48	1	ALG2.19			2	ALG2.31			2	ALG2.29		
49	2	ALG1.12			1				2	ALG1.22	ALG1.46	
50	2				2			GEO.32	2			GEO.10

**Mathematics ACT Form 2: DOK Levels and Standard Coded by Reviewers 4-6 continued**

<b>51</b>	1	ALG1.46			1	ALG1.30			1	ALG1.30		
<b>52</b>	2	ALG1.25			2	ALG2.35			1	ALG1.16	ALG1.5	
<b>53</b>	1	ALG2.4			1	ALG2.4			2	ALG2.4	ALG2.5	
<b>54</b>	1	ALG2.39			1	GEO.43			1			GEO.41
<b>55</b>	1				1				2	ALG1.42		
<b>56</b>	2	ALG2.12			2	ALG1.17			2	ALG1.7	ALG1.6	
<b>57</b>	1	GEO.21			1				2			GEO.19
<b>58</b>	2	ALG1.20			2	ALG1.17			2	ALG1.5		
<b>59</b>	2	GEO.18			2			GEO.31	2			GEO.30
<b>60</b>	1	ALG1.20			1		ALG1.26		2	ALG1.18		



**Mathematics PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-3**

Item	Reviewer 1				Reviewer 2				Reviewer 3			
	DOK	R1P	R1S	R1T	DOK	R2P	R2S	R2T	DOK	R3P	R3S	R3T
1	1	ALG1.17			1	ALG1.12			1	ALG1.12		
2	1			GEO.18	1				1			GEO.10
3	1	ALG1.30	ALG1.46		2	ALG1.22			1	ALG1.30		
4	1			GEO.15	2	GEO.41	GEO.18		1	GEO.14	GEO.18	
5	1	ALG1.1			1	ALG1.2			1	ALG1.1	ALG1.2	
6	1	ALG1.26			1	ALG1.2			1	ALG1.26	ALG1.25	
7	1			GEO.34	2	GEO.34			1			GEO.33
8	1			GEO.8	2	GEO.16	GEO.15		2	GEO.8	GEO.18	
9	1	ALG1.15			1				1	ALG1.42		
10	1	ALG1.15			2	ALG1.9			2	ALG1.13	ALG1.15	
11	1	ALG1.3			1	ALG1.9			2	ALG1.16	ALG1.7	
12	1				1				1	ALG1.42		
13	1			GEO.30	1	GEO.32			1	GEO.30	GEO.32	
14	1	ALG1.17			1	ALG1.12			2	ALG1.16	ALG1.16	
15	1			GEO.41	1	GEO.33			2			GEO.34
16	2	ALG1.31			2	ALG1.29			1	ALG1.31	ALG1.39	
17	1			GEO.19	1			GEO.21	1			GEO.21
18	1	ALG1.20			1	ALG1.20			1	ALG1.19	ALG1.20	
19	1	ALG1.2			1	ALG1.2			2	ALG1.1	ALG1.2	
20	2			GEO.2	1			GEO.2	2	GEO.2	GEO.4	
21	1				1				1	ALG1.8	ALG1.9	
22	1	ALG1.47			2				1	ALG1.47		
23	2			GEO.41	2	ALG1.5			1	ALG1.12		GEO.34
24	1			GEO.41	1			GEO.35	1	ALG1.12		GEO.34
25	1		ALG1.4	GEO.41	2		ALG1.5	GEO.34	2	ALG1.4	ALG1.12	GEO.34

**Mathematics PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-3 continued**

<b>26</b>	2	ALG1.47			1	ALG1.47			1	ALG1.47		
<b>27</b>	1	ALG1.12			1	ALG1.12	ALG1.9		1	ALG1.12		
<b>28</b>	2				3				2	ALG1.47		
<b>29</b>	1				3	ALG1.6	ALG1.9		1	ALG1.6		
<b>30</b>	1	ALG1.16			2	ALG1.13			1	ALG1.15		
<b>31</b>	2			GEO.26	3			GEO.26	2	GEO.26	GEO.29	
<b>32</b>	1				2	ALG1.8	ALG1.9		1			
<b>33</b>	1			GEO.41	2			GEO.9	2	GEO.11	GEO.9	
<b>34</b>	2	GEO.4	GEO.5		2			GEO.31	2	GEO.3	GEO.5	
<b>35</b>	1	ALG1.17			1	ALG1.12			1	ALG1.17		
<b>36</b>	1			GEO.20	1			GEO.20	1			GEO.20

**Mathematics PreACT Form 1: DOK Levels and Standard Coded by Reviewers 4-6**

Item	Reviewer 4				Reviewer 5				Reviewer 6			
	DOK	R4P	R4S	R4T	DOK	R5P	R5S	R5T	DOK	R6P	R6S	R6T
1	2				1				1	ALG1.12	ALG1.17	
2	1				1	GEO.10			1			GEO.10
3	1	ALG1.40			1	ALG1.28			2	ALG1.22	ALG1.33	
4	2	GEO.18	GEO.16		1			GEO.18	2	ALG1.16		GEO.41
5	1	ALG1.2			2	ALG1.2			1	ALG1.2	ALG1.1	
6	1	ALG1.26			1	ALG1.26			2	ALG1.26		
7	2				1				1	ALG1.12		GEO.34
8	2			GEO.18	1			GEO.8	2			GEO.16
9	1				2	ALG1.12			1	ALG1.43	ALG1.17	
10	2	ALG1.13			1	ALG1.7			2	ALG1.12		
11	2				1				2	ALG1.14	ALG1.6	
12	1				1				1	ALG1.43		
13	1				1			GEO.32	1			GEO.30
14	2				2				1	ALG1.17		
15	2				2				2			GEO.34
16	1				1	ALG1.33			2	ALG1.28		
17	1			GEO.21	1			GEO.21	1			GEO.21
18	1	ALG1.20			1	ALG1.20			1	ALG1.20	ALG1.19	
19	1	ALG1.2			1	ALG1.2			2			
20	2			GEO.5	1			GEO.5	1			GEO.2
21	1				1	ALG1.9			1			
22	2				1				2	ALG1.47		
23	2				1				2	ALG1.17		GEO.34
24	2				1				1	ALG1.12		
25	2				2				2	ALG1.36		

**Mathematics PreACT Form 1: DOK Levels and Standard Coded by Reviewers 4-6 continued**

26	1				1				1			
27	2	ALG1.12			1	ALG1.12			2	ALG1.12		
28	2				2				2	ALG1.44		
29	2				2				1	ALG1.6		
30	1	ALG1.20			1				1	ALG1.11		
31	2			GEO.25	2			GEO.26	2			GEO.25
32	2				2				1	ALG1.17		
33	2				2			GEO.9	2			GEO.9
34	2			GEO.18	1			GEO.1	2			GEO.2
35	1				1	ALG1.12			1	ALG1.17		
36	1			GEO.21	1			GEO.20	1			GEO.20

**Mathematics PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-3**

Item	Reviewer 1				Reviewer 2				Reviewer 3			
	DOK	R1P	R1S	R1T	DOK	R2P	R2S	R2T	DOK	R3P	R3S	R3T
1	1				1	ALG1.2			1	ALG1.1	ALG1.2	
2	1				1				1			
3	1	ALG1.17			1	ALG1.12			1	ALG1.17		
4	1				1				1			GEO.10
5	1	ALG1.10			1	ALG1.2			1	ALG1.16	ALG1.7	
6	1				1			GEO.42	1	GEO.42	ALG2.37	
7	1	ALG2.17			1	ALG2.17			1	ALG1.31	ALG2.30	
8	1	ALG1.35			2	ALG2.14			1	ALG1.35	ALG1.38	
9	1				2			GEO.36	1			GEO.36
10	1	ALG1.46			2	ALG1.30	ALG1.31		1	ALG1.40	ALG1.30	
11	1				2				2	ALG1.11	ALG1.14	
12	2	ALG1.17			2	ALG1.34			1	ALG1.12	ALG1.17	
13	1	GEO.30			1			GEO.32	1			GEO.30
14	1				2			GEO.34	1			GEO.34
15	1				2	ALG1.12			1	ALG1.16	ALG1.12	
16	2	ALG1.46			1	ALG1.30			2	ALG1.30		
17	1				1	ALG1.9			1	ALG1.11	ALG1.12	
18	2				2	ALG1.16			2	ALG1.14		
19	1			GEO.41	1			GEO.34	2			GEO.34
20	1	ALG1.17			1	ALG1.17			1	ALG1.17		
21	1	ALG1.2			1	ALG1.2			1	ALG1.1	ALG1.2	
22	1			GEO.30	2			GEO.32	2	GEO.30		
23	2	ALG2.40	ALG2.42		2	ALG2.39			2	GEO.39	GEO.42	
24	1	ALG1.28			2	ALG1.43	ALG1.29		1	ALG1.30	ALG1.39	
25	1	ALG1.6			2	ALG1.2			1			

**Mathematics PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-3 continued**

<b>26</b>	2			GEO.18	2			GEO.32	2	GEO.18	GEO.15	
<b>27</b>	1				2			GEO.34	2	GEO.11		
<b>28</b>	2			GEO.30	3			GEO.18	2	GEO.14	GEO.18	
<b>29</b>	1	ALG1.30			2	ALG1.45			2	ALG1.45	ALG1.46	
<b>30</b>	1	ALG1.3			2	ALG1.3			2	ALG1.3		
<b>31</b>	1			GEO.23	2			GEO.23	2			GEO.23
<b>32</b>	1	ALG1.15			2	ALG2.23			2	ALG1.15	ALG2.23	
<b>33</b>	1	ALG1.26			2	ALG2.21			2	ALG1.32	ALG2.31	
<b>34</b>	1	ALG1.40			2	ALG2.36			2	ALG1.32	ALG2.36	ALG2.31
<b>35</b>	1				2				2	ALG1.3		
<b>36</b>	2	GEO.28	GEO.25		3			GEO.25	2	GEO.25	GEO.26	

**Mathematics PreACT Form 2: DOK Levels and Standard Coded by Reviewers 4-6**

Item	Reviewer 4				Reviewer 5				Reviewer 6			
	DOK	R4P	R4S	R4T	DOK	R5P	R5S	R5T	DOK	R6P	R6S	R6T
1	1	ALG1.2			1	ALG1.2			1	ALG1.1	ALG1.2	
2	1				1				1		ALG1.6	
3	1	ALG1.17			1	ALG1.12			1	ALG1.17		
4	1				1				1			GEO.17
5	1	ALG1.18			1				1	ALG1.7		
6	1				1				2	ALG1.43		
7	1			GEO.28	1	ALG1.28			2	ALG1.28		
8	1				1	ALG1.27			1	ALG1.34		
9	1				1				2			GEO.36
10	2				1	ALG1.30			1	ALG1.28		
11	2				2				1	ALG1.17		
12	2	ALG1.13	ALG1.17		2				1	ALG1.17		
13	1				1			GEO.32	1			GEO.32
14	2				1				1			GEO.34
15	2				1				1	ALG1.7		
16	1	ALG1.30			1	ALG1.30			2	ALG1.30		
17	2				1				1	ALG1.4		
18	2				2				2	ALG1.12		
19	2				2				1	ALG1.4		
20	1	ALG1.17			1	ALG1.12			1	ALG1.12		
21	1	ALG1.2			1	ALG1.2			1	ALG2.24		
22	2			GEO.34	1				1			GEO.32
23	2	ALG2.39			1	ALG2.39			2			GEO.39
24	2	ALG1.30			1	ALG1.46			1	ALG1.22		
25	1				1				1	ALG1.6		

**Mathematics PreACT Form 2: DOK Levels and Standard Coded by Reviewers 4-6 continued**

<b>26</b>	2				1	GEO.10			2			GEO.18
<b>27</b>	2				1				1			GEO.11
<b>28</b>	2			GEO.18	2	GEO.18			2			GEO.17
<b>29</b>	2	ALG1.46			2	ALG1.46			2	ALG1.45		
<b>30</b>	2	ALG1.11			1	ALG1.3			1	ALG1.3		
<b>31</b>	1			GEO.23	1			GEO.23	2			GEO.22
<b>32</b>	1	ALG2.23			1	ALG1.15			2	ALG1.15		
<b>33</b>	1	ALG2.24			2	ALG1.38	ALG1.26		2	ALG1.7		
<b>34</b>	2	ALG2.36			2	ALG1.38	ALG1.37		2	ALG1.7		
<b>35</b>	2				2				1	ALG1.6		
<b>36</b>	2			GEO.25	2			GEO.25	2			GEO.25



### Science ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1	CHEM.3		2	CHEM.3		2	CHEM.3		2	CHEM.3		3	CHEM.3		2	CHEM.3	
2	2	CHEM.3		1	CHEM.3		3	CHEM.3		1	CHEM.3		1	CHEM.3		1		
3	2	CHEM.3		1	CHEM.3		3	CHEM.3		1	CHEM.3		2	CHEM.3		1		
4	2	CHEM.3		1	CHEM.3		2	CHEM.3		1	CHEM.3		1	CHEM.3		1		
5	2	CHEM.3		2	CHEM.3		3	CHEM.3		2	CHEM.3		2	CHEM.3		1		
6	2	CHEM.3		2	CHEM.3		3	CHEM.3		3	CHEM.3		2	CHEM.3		3	CHEM.3	
7	2	CHEM.3		2	CHEM.3		3	CHEM.3		1	CHEM.3		2	CHEM.3		1	CHEM.3	
8	3	BIO.11		2	BIO.11		3	BIO.11		2	BIO.11		1	BIO.11		2	BIO.11	
9	2	BIO.11		1	BIO.11		2	BIO.11		1	BIO.11		1	BIO.11		2	BIO.11	
10	2	BIO.11		2	BIO.11		2	BIO.11		2	BIO.11		2	BIO.11		2	BIO.11	
11	2	BIO.11		2	BIO.11		3	BIO.11		2	BIO.11		2	BIO.11		3	BIO.11	
12	1	BIO.11		3	BIO.11		3	BIO.11		2	BIO.11		2	BIO.11		3	BIO.11	
13	2	BIO.11		2	BIO.11		3	BIO.11		2	BIO.11		2	BIO.11		2	BIO.11	
14	2	PHY.2	CHEM.9	1	PHY.2		2			1	PHY.2		2			2	PHY.2	
15	3	PHY.2	CHEM.9	2	PHY.2		2			2	PHY.2		2			2	PHY.2	
16	2	PHY.2	CHEM.9	2	PHY.2		2			1	PHY.2		2			2	PHY.2	
17	1	PHY.2	CHEM.9	1	PHY.2		3			2	PHY.2		2			1		
18	2	PHY.2	CHEM.9	2	PHY.2		3			2	PHY.2		2			1		
19	2	PHY.2	CHEM.9	2	PHY.2		3			2	PHY.2		2			2	PHY.2	
20	3	PHY.2	CHEM.9	2	PHY.2		3			3	PHY.2		3			3	PHY.2	
21	1			1			1	CHEM.4		1			1			1		
22	2			2			2	CHEM.4		2	BIO.8	BIO.1	2			1		
23	3			1			2	CHEM.4		2			1			1		
24	2			1			3	CHEM.4		2	BIO.8		2			1		
25	2	BIO.13		1			3	CHEM.4		2	BIO.13		1	BIO.13		1		

**Science ACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2			2			3	CHEM.4		2	BIO.8		2			1		
27	3			2			3	CHEM.4		3	BIO.8		2			2		
28	2			2	ESS.13		1	CHEM.4		1	BIO.6		2	BIO.8		2	BIO.8	
29	1			1	ESS.13		2	CHEM.9		1	BIO.6		1	BIO.8		1		
30	3			1	ESS.13		3	CHEM.7		2	BIO.6		1	BIO.8		2	BIO.8	
31	2			1	ESS.13		2	CHEM.7		1	BIO.6		1	BIO.8		2		
32	2			2	ESS.13		3	CHEM.4		2	BIO.6		2	BIO.8		2		
33	2			2	ESS.13		3	CHEM.7		2	BIO.6		3	BIO.8		2		
34	2			2	ESS.13		3	CHEM.4		2	BIO.6		3	BIO.8		2		
35	2	PHY.1		2			1	PHY.1		2	PHY.1		3	PHY.1		2	PHY.1	
36	2	PHY.2		2			3	PHY.2		2	PHY.2	PHY.1	1	PHY.1		2	PHY.2	
37	2	PHY.1		2	PHY.1		3	PHY.1		3	PHY.1		3	PHY.1		2	PHY.2	
38	3	PHY.1		2	PHY.1		3	PHY.1		3	PHY.1		3	PHY.1		2	PHY.1	
39	2	PHY.1	PHY.2	2	PHY.1		3	PHY.1		2	PHY.1		2	PHY.1		2	PHY.1	
40	2	PHY.2		2	PHY.1		2	PHY.1		1	PHY.1		3	PHY.1		2		

## Science ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	2	BIO.10		2			1			1	BIO.8		2			2		
2	2	BIO.10		2			1			1	BIO.8		2			2		
3	2	BIO.10		2			2			2	BIO.8	BIO.1	2			2	BIO.1	
4	2	BIO.10		2			2			2	BIO.8		2			2		
5	2	BIO.10		2			3			3	BIO.8		2			3		
6	2	BIO.10		2			2			2	BIO.8		2			2		
7	1	CHEM.4		1	CHEM.4		1	CHEM.2	CHEM.4	1	CHEM.4		2	CHEM.4		2		
8	1	CHEM.4		1	CHEM.4		2	CHEM.2	CHEM.4	1	CHEM.4		2	CHEM.4		2		
9	1	CHEM.4		2	CHEM.4		2	CHEM.2	CHEM.4	3	CHEM.4		2	CHEM.4		2	CHEM.4	
10	2	CHEM.4		2	CHEM.4		3	CHEM.2	CHEM.4	2	CHEM.4		2	CHEM.4		2		
11	2	CHEM.4		2	CHEM.4		3	CHEM.2	CHEM.4	2	CHEM.4		1	CHEM.4		2		
12	1	CHEM.4		2	CHEM.4		3	CHEM.2	CHEM.4	2	CHEM.4		1	CHEM.4		2		
13	1	CHEM.4		2	CHEM.4		3	CHEM.2	CHEM.4	3	CHEM.4		2	CHEM.4		1	CHEM.4	
14	2	CHEM.6	CHEM.7	2	CHEM.7		1	CHEM.7		2	CHEM.7		2	CHEM.7		2		
15	2	CHEM.6	CHEM.7	1	CHEM.7		1			1	CHEM.7		1			1		
16	2	CHEM.6	CHEM.7	2			3			2	CHEM.7		2	CHEM.7		1		
17	1	CHEM.6	CHEM.7	1			1	CHEM.7		1	CHEM.7		1	CHEM.7		1		
18	2	CHEM.6	CHEM.7	2	CHEM.7		3	CHEM.7		2	CHEM.7		2	CHEM.7		2	CHEM.6	
19	1	CHEM.6	CHEM.7	2	CHEM.7		3	CHEM.5		2	CHEM.5	CHEM.7	2	CHEM.5		2	CHEM.5	
20	2	CHEM.6	CHEM.7	2	CHEM.7		3	CHEM.7		2	CHEM.7		2	CHEM.7		2	CHEM.5	
21	1	PHY.12		1	PHY.12		1	PHY.12		1	PHY.12		2	PHY.11		2		
22	1	PHY.12		1	PHY.12		2	PHY.12		2	PHY.12		2	PHY.8		2		
23	2	PHY.12		2	PHY.12		2	PHY.12		1	PHY.12		2	PHY.11		2		
24	2	PHY.12		2	PHY.12		2	PHY.12		2	PHY.12		2	PHY.11		2		
25	2	PHY.12		2	PHY.12		1	PHY.12		2	PHY.12		2	PHY.11	PHY.12	2	PHY.12	

**Science ACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	3	PHY.12		3	PHY.12		3	PHY.12		3	PHY.12		3	PHY.11	PHY.12	3		
27	2	BIO.4		1	BIO.14		1	BIO.2		2	BIO.15		1	BIO.3		2		
28	1	BIO.4		1	BIO.14		1	BIO.2		1	BIO.15		1	BIO.3		2		
29	2	BIO.4		2	BIO.14		1	BIO.2		2	BIO.15		2			2		
30	2	BIO.4		3	BIO.14		3	BIO.2		2	BIO.15		3	BIO.3		2		
31	1	BIO.4		2	BIO.14		1	BIO.2		1	BIO.15		1			2		
32	2	BIO.4		3	BIO.14		3	BIO.2		2	BIO.15		2	BIO.3		2		
33	2	BIO.4		2	BIO.14		3	BIO.2		2	BIO.15		1	BIO.3		3		
34	1	ESS.15		2			3	PHY.9		2	ESS.9	ESS.13	1			1		
35	1	ESS.15		3	ESS.13		2	ESS.9		3	ESS.9	ESS.13	1			2		
36	2	ESS.15		2	ESS.13		2	ESS.9		1	ESS.9		2			2		
37	2	ESS.15		3	ESS.13		3	ESS.9		2	ESS.9		2			2		
38	2	ESS.15		2	ESS.13		2	ESS.9		2	ESS.9		2			2		
39	1	ESS.15		1			1	ESS.9		1	ESS.9		2			2		
40	2	ESS.15		2	ESS.13		3	ESS.9		2	ESS.9		1			2		

### Science ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1	CHEM.3		1			1	CHEM.3		1	CHEM.3		2	CHEM.3		1	CHEM.3	
2	1	CHEM.3		1			1	CHEM.3		1	CHEM.3		1	CHEM.3		2	CHEM.3	
3	2	CHEM.3		1			1	CHEM.3		1	CHEM.3		1	CHEM.3		2		
4	1	CHEM.3		2	CHEM.3		1	CHEM.3		2	CHEM.3		2	CHEM.3		2		
5	2	CHEM.3		3	CHEM.3		2	CHEM.3		2	CHEM.3		3	CHEM.3		2		
6	2	CHEM.3		2	CHEM.3		2	CHEM.3		3	CHEM.5	CHEM.3	3	CHEM.3		2		
7	1	BIO.6	BIO.10	1			1			1	BIO.8		2			1		
8	1	BIO.6	BIO.10	1			3			1	BIO.8		1			1		
9	1	BIO.6	BIO.10	1			2			1	BIO.8		2			1		
10	1	BIO.6	BIO.10	2			3			2	BIO.8		2			1		
11	1	BIO.6	BIO.10	3			3			2	BIO.8		2			2		
12	1	BIO.6	BIO.10	2			3			3	BIO.8		2			2		
13	1	BIO.6	BIO.10	2			3			2	BIO.8		2			2		
14	1	BIO.13	BIO.16	1			1	BIO.16		1	BIO.16		2	BIO.16		2		
15	2	BIO.16	BIO.13	2	BIO.16		3	BIO.14		3	BIO.16		1	BIO.16		2		
16	2	BIO.13	BIO.16	2	BIO.16		3	BIO.16		3	BIO.16		2	BIO.16		2	BIO.16	
17	1	BIO.13	BIO.16	2	BIO.16		2	BIO.16		1	BIO.16		2	BIO.16		2		
18	3	BIO.16	BIO.13	3	BIO.16		3	BIO.16		2	BIO.16		3	BIO.16		1	BIO.16	
19	2	BIO.13	BIO.16	2	BIO.16		2	BIO.14		2	BIO.16		3	BIO.16		2		
20	1	BIO.13	BIO.16	1			1	BIO.14		1	BIO.16		2	BIO.16	BIO.13	2	BIO.16	
21	1	CHEM.5		2			1			1	CHEM.4		2			1		
22	2	CHEM.5		1			1			1	CHEM.4		2			1		
23	1	CHEM.5		2	CHEM.4		2			1			1			2		
24	1	CHEM.5		2			1	CHEM.4		2	CHEM.4		1			3	CHEM.6	
25	1	CHEM.5		1			3			1	CHEM.4		2			1		

**Science ACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	1	CHEM.7		2			2	CHEM.4		2	CHEM.4		2			2	CHEM.6	
27	1	CHEM.7		1			2	CHEM.4		2	CHEM.4		2			1		
28	1	ESS.13		2			1	ESS.9		1	ESS.13		1	ESS.13		1	ESS.13	
29	2	ESS.13		2			1			1	ESS.13		2	ESS.13		2		
30	2	ESS.13		2			1			1	ESS.13		2			1		
31	2	ESS.13		3			1			3	ESS.13		3	ESS.13		2		
32	2	ESS.13		2			3			2	ESS.13		2	ESS.13		2		
33	2	ESS.13		2			2			2	ESS.13		3			2		
34	1	ESS.13		2			2			2	ESS.13		3	ESS.13		2		
35	2	CHEM.3		2			1			1	PHY.11		2			2		
36	1	CHEM.3		2			2	PHY.11		2	PHY.11		3	PHY.11		2		
37	3	CHEM.3		3			2	PHY.11		2	PHY.11		2	PHY.11		2		
38	2	CHEM.3		2			2	PHY.11		2	PHY.11		2	PHY.11		2		
39	3	CHEM.3		3			3	PHY.11		2	PHY.11	CHEM.1	3	PHY.11		2		
40	2	CHEM.3		2			3	PHY.11		2	PHY.11		3	PHY.11		2		

### Science PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	2	BIO.6		2			2			1	BIO.6		2			2		
2	2	BIO.6		2			2			1	BIO.6		2			2		
3	3	BIO.6		2			2			2	BIO.6		2			2		
4	2	BIO.6		2			2			2	BIO.6		2			2		
5	3	BIO.6		2			2			1	BIO.6		2			2		
6	2	BIO.6		3			2			2	BIO.6		2			2		
7	2	BIO.6		2			2			2	BIO.6		2			2		
8	1			2			1			2	BIO.8		2			2		
9	1			1			1			1	BIO.8		2			1		
10	2			2			3			2	BIO.8		2			2		
11	1			2			2			2	BIO.8		2			1		
12	1			2			2			2	BIO.8		2			2		
13	2			2			2			1	BIO.8		2			2		
14	1	PHY.12		1			1	PHY.12		1	PHY.12		2	PHY.12		2		
15	1	PHY.12		2	PHY.12		2	PHY.12		1	PHY.12		2	PHY.12		2		
16	1	PHY.12		2	PHY.12		2	PHY.12		2	PHY.12		1	PHY.12		2		
17	1	PHY.12		3	PHY.12		2	PHY.12		2	PHY.12		2	PHY.12		1		
18	2	PHY.12		2	PHY.12		2	PHY.12		1	PHY.12		2	PHY.12		2		
19	1	PHY.12		3	PHY.12		3	PHY.12		2	PHY.12		2	PHY.12		2		
20	2			2	CHEM.6		1	CHEM.6		2	CHEM.6		2	CHEM.6		2		
21	2			2	CHEM.6		2	CHEM.6		2	CHEM.6		3	CHEM.6		2		
22	2			2	CHEM.6		2	CHEM.6		1	CHEM.6		2	CHEM.6		2		
23	2			2	CHEM.6		3	CHEM.6		2	CHEM.6		2	CHEM.6		2		
24	2			2	CHEM.6		3	CHEM.6		2	CHEM.6		3	CHEM.6		2		
25	2			1			1	ESS.9		1	ESS.13		2	ESS.13		2		

**Science PreACT Form 1: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2			2			1	ESS.9		1	ESS.13		2	ESS.13		2		
27	3			2			2	ESS.9		2	ESS.13		2	ESS.13		2		
28	3			2			2	ESS.9		1	ESS.13		2	ESS.13		2		
29	1			2			1	ESS.9		1			2	ESS.13		1		
30	2			2			3	ESS.9		2	ESS.13		1	ESS.13		1		



### Science PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1			1			1			1	BIO.8		2	BIO.8		2		
2	2			1			1			1	BIO.8		2	BIO.8		2		
3	1			2			2			2	BIO.8		1			1		
4	2			1			1			1			1			2		
5	3			2			3			3	BIO.8		2	BIO.8		2		
6	2			2			1			2	BIO.8		2	BIO.8		1		
7	2	ESS.14		1			1			1	ESS.14		2	ESS.15		2		
8	1	ESS.14		2			1			2	ESS.14		2	ESS.15		2		
9	2	ESS.14		2			1			2	ESS.14		2	ESS.15		2		
10	2	ESS.14		3	ESS.14		3			2	ESS.14		3	ESS.15		2		
11	3	ESS.14		2	ESS.14		1			3	ESS.14		3	ESS.15		2	ESS.14	
12	2	ESS.2	ESS.1	2	PHY.1		1	PHY.2		2	PHY.1		3	PHY.1		2		
13	1	ESS.2	ESS.1	1	PHY.1		1	PHY.1		1	PHY.1		2	PHY.1		2		
14	1	ESS.2	ESS.1	2	PHY.1		2	PHY.1		2	PHY.1		2	PHY.1		2		
15	2	ESS.2	ESS.1	2	PHY.1		3	PHY.2		2	PHY.1		3	PHY.1		2		
16	3	ESS.2	ESS.1	3	PHY.1		3	PHY.2		3	PHY.1		3	PHY.1		3		
17	2	ESS.2	ESS.1	2	PHY.1		3	PHY.2		2	PHY.1		3	PHY.1		2		
18	3	ESS.2	ESS.1	2	PHY.1		3	PHY.1		2	PHY.1		2	PHY.1		2		
19	1			1			1	BIO.10		1	BIO.8		2	BIO.8		1		
20	2			1			2	BIO.10		2			1	BIO.8		2		
21	3			2			2	BIO.10		3	BIO.8		3	BIO.8		2		
22	1			1			1	BIO.10		1			1			1		
23	3			2			2	BIO.10		3	BIO.8		2	BIO.8		2		
24	1			1			1	BIO.10		1	BIO.8		1	BIO.13		1	BIO.13	
25	1			1			1			2	CHEM.6		2			1		

**Science PreACT Form 2: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2			2			2	CHEM.4		1	CHEM.6		3			2		
27	2			2			2			2	CHEM.6		2			2		
28	3			2			2			3	CHEM.6		3			2		
29	1			1			1			2			1			2		
30	3			2			1			2	CHEM.6		1			2		

### Science PreACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6

Item	Reviewer 1			Reviewer 2			Reviewer 3			Reviewer 4			Reviewer 5			Reviewer 6		
	DOK	R1P	R1S	DOK	R2P	R2S	DOK	R3P	R3S	DOK	R4P	R4S	DOK	R5P	R5S	DOK	R6P	R6S
1	1			1			1			1	BIO.8		2			2		
2	2			2			2			1	BIO.8		3			2		
3	2			2			2			1	BIO.8		3			2		
4	2			2			2			2	BIO.8		2			2		
5	2			3			2			2	BIO.8		3			2		
6	1			2			1			2	BIO.8		1			2		
7	2	ESS.13		2	ESS.13		1	ESS.9		2	ESS.13		2			2		
8	3	ESS.13		2	ESS.13		2	ESS.9		3	ESS.13		2	ESS.13		2		
9	1	ESS.13		1	ESS.13		2	ESS.9		1			1	ESS.13		1	ESS.14	
10	1			2	ESS.13		1	ESS.9		2	ESS.13		2	ESS.13		2		
11	2	ESS.13		2	ESS.13		3	ESS.9		3	ESS.13		2	ESS.13		2		
12	2	ESS.13		2	ESS.13		3	ESS.9		3	ESS.13		1	ESS.13		2		
13	1	PHY.2		1			1	PHY.2		1	PHY.1		2	PHY.1		2		
14	2	PHY.2		2			2	PHY.2		2	PHY.1		2	PHY.1		2		
15	2	PHY.2		3			3	PHY.2		2	PHY.1		3	PHY.1		2		
16	2	PHY.2		1			3	PHY.2		2			2	PHY.1		2		
17	2	PHY.2		2			3	PHY.2		2	PHY.1		3	PHY.1		2	PHY.2	
18	1	BIO.16		1	BIO.16		1	BIO.16		1	BIO.16		2	BIO.16		2	BIO.16	
19	3	BIO.16		2	BIO.16		3	BIO.16		3	BIO.16		1	BIO.16		2		
20	2	BIO.16		2	BIO.16		3	BIO.16		3	BIO.16		2	BIO.16		2	BIO.16	
21	2	BIO.16		2	BIO.16		2	BIO.16		1	BIO.16		1	BIO.16		2		
22	2	BIO.16		2	BIO.16		3	BIO.16		2	BIO.16		2	BIO.16		2	BIO.16	
23	2	BIO.16		2	BIO.16		2	BIO.16		2	BIO.16		2	BIO.16		2		
24	2			2	BIO.16		1	BIO.16		1	BIO.16		1	BIO.16	BIO.13	2		
25	1			1			1	CHEM.6		2	CHEM.6		2	CHEM.6		2		

**Science PreACT Form 3: DOK Levels and Standard Coded by Reviewers 1-6 continued**

26	2			2			1	CHEM.6		2	CHEM.6		2	CHEM.6		2		
27	2			2			2	CHEM.6		2	CHEM.6		3	CHEM.6		2		
28	2			2			1	CHEM.6		2	CHEM.6		3	CHEM.6		2		
29	1			2			3	CHEM.6		1	CHEM.6		2	CHEM.6		2	CHEM.5	
30	2			3			3	CHEM.6		2	CHEM.6		3	CHEM.6		2		

**English ACT Form 1: Standard Coded to Each Item by Reviewers**

1	L.37	L.37	W.20	W.22	W.22	W.22	W.23	W.23	W.23	
2	L.35	L.35	L.35	L.35	L.35	L.35				
3	L.35	L.35	L.35	L.36	L.38	W.20	W.23			
4	L.35	L.35	L.35	L.37	L.38	W.20	W.20	W.23		
5	L.37	L.37	L.38	L.38	L.38	L.39	W.20	W.20	W.23	
6	L.35	L.36	L.36	L.36	L.36	L.36				
7	L.35	L.35	L.35	L.35	L.38	W.20	W.23			
8	L.35	L.35	L.35	L.38	L.38	W.22	W.23			
9	L.37	L.38	L.39	L.39	W.20	W.20	W.22	W.23	W.23	
10	L.35	L.35	L.35	L.35	L.35	L.37				
11	L.35	L.35	L.36	L.36	W.20	W.20	W.23			
12	L.37	W.20	W.20	W.22	W.22	W.22	W.23	W.23	W.23	
13	L.36	L.37	L.38	L.38	L.38	W.20	W.20	W.23		
14	L.35	L.35	L.35	L.36	L.36	L.36	L.36			
15	W.22	W.22	W.22	W.22	W.23	W.23	W.23	W.23		
16	W.20	W.20	W.22	W.22	W.23	W.23	W.23			
17	L.35	L.35	L.36	L.36	L.36	L.36				
18	L.35	L.35	L.35	L.35	L.35	L.35				
19	L.35	L.36	L.37	L.38	W.20	W.20	W.23			
20	L.35	L.35	L.35	W.20	W.20	W.23	W.23			
21	L.35	L.35	L.35	L.35	L.35	L.35				
22	L.35	L.35	L.36	L.36	L.36	L.36				
23	L.35	L.35	L.37	L.37	L.38	L.39	W.20	W.20	W.23	
24	L.37	L.37	L.38	L.38	W.20	W.20	W.22	W.23		
25	L.35	L.35	L.36	L.36	L.36	L.36				

**English ACT Form 1: Standard Coded to Each Item by Reviewers continued**

26	L.35	L.35	L.35	L.37	L.37	L.38	W.20			
27	L.35	L.35	L.35	L.35	L.35	L.35				
28	L.35	L.35	L.36	L.36	L.36	L.36				
29	L.37	W.20	W.20	W.22	W.23	W.23	W.23	W.23	W.23	
30	W.20	W.22	W.22	W.22	W.22	W.23	W.23			
31	L.35	L.35	L.35	L.35	L.35	L.38				
32	L.35	L.37	L.38	L.38	L.38	L.38	W.21	W.23		
33	L.35	L.35	L.36	L.36	L.36	L.36				
34	L.36	L.37	L.38	L.39	W.21	W.21	W.23	W.23		
35	L.35	L.35	L.36	L.36	L.36	L.38	L.39			
36	L.35	L.35	L.35	L.37	L.37	L.38	W.22			
37	L.35	L.35	L.37	L.37	L.38	W.22	W.23			
38	L.35	L.37	L.37	L.37	L.38	W.20	W.23	W.23		
39	L.36	L.37	L.39	W.20	W.21	W.23	W.23	W.23		
40	L.35	L.35	L.36	L.36	L.36	L.36				
41	W.21	W.21	W.22	W.22	W.23	W.23	W.23	W.23		
42	L.36	L.37	L.37	L.37	L.37	L.38	W.21	W.23		
43	L.35	L.37	L.38	L.39	W.21	W.21	W.23	W.23		
44	L.35	L.37	L.38	L.39	W.21	W.21	W.23			
45	W.21	W.21	W.22	W.22	W.22	W.23	W.23	W.23		
46	L.38	W.20	W.20	W.22	W.22	W.22	W.23	W.23		
47	L.37	W.20	W.20	W.22	W.22	W.23	W.23	W.23	W.23	
48	L.35	L.38	L.38	L.38	L.39	W.20	W.23			
49	L.37	W.20	W.20	W.22	W.22	W.22	W.23	W.23	W.23	
50	L.35	L.35	L.35	L.35	L.35	L.35				

**English ACT Form 1: Standard Coded to Each Item by Reviewers continued**

51	L.35	L.35	L.35	L.36	L.36	L.36	L.36			
52	L.35	L.35	L.35	L.38	L.38	W.23				
53	L.35	L.35	L.36	L.36	L.36	L.36				
54	L.35	L.35	L.36	L.36	L.36	L.36				
55	L.35	L.35	L.35	L.38	L.38	L.38	L.39			
56	L.35	L.37	L.38	W.20	W.20	W.22	W.22			
57	L.35	L.35	L.36	L.36	L.36	L.36				
58	L.35	L.35	L.35	L.36	L.36	L.36				
59	W.20	W.20	W.20	W.22	W.22	W.22	W.22	W.23	W.23	
60	W.20	W.22	W.22	W.22	W.22	W.22	W.23			
61	L.35	L.35	L.35	L.35	L.35	L.35				
62	L.35	L.36	L.36	L.36	L.36	L.36				
63	L.35	L.36	L.36	L.36	L.36	L.36				
64	W.20	W.20	W.22	W.22	W.22	W.22	W.23	W.23		
65	L.35	L.36	L.36	L.36	L.36	L.36				
66	L.35	L.37	L.37	L.38	W.20	W.20	W.22	W.23	W.23	W.23
67	L.37	L.37	W.20	W.20	W.22	W.22	W.23	W.23		
68	L.35	L.35	L.35	L.36	L.36	L.38				
69	L.35	L.35	L.37	L.37	L.37	W.22	W.23			
70	L.37	L.37	L.38	W.20	W.20	W.22	W.23			
71	L.35	L.35	L.35	L.38	L.38	L.39				
72	W.20	W.20	W.22	W.23	W.23	W.23	W.23			
73	L.35	L.35	L.36	L.36	L.36	L.36				
74	L.35	L.36	L.36	L.37	L.38	W.20	W.23			
75	L.37	W.20	W.20	W.22	W.22	W.23	W.23	W.23		

**English ACT Form 2: Standard Coded to Each Item by Reviewers**

<b>1</b>	L.35	L.36	L.36	L.36	L.36	L.36			
<b>2</b>	L.37	L.37	L.37	W.20	W.21	W.22	W.22	W.23	
<b>3</b>	L.35	L.35	L.38	W.20	W.21	W.22	W.23		
<b>4</b>	L.35	L.37	L.38	L.38	L.40	L.40	W.20	W.21	W.23
<b>5</b>	L.36	L.36	L.36	L.36	L.36	L.36			
<b>6</b>	L.37	L.37	L.37	L.37	W.20	W.21	W.23	W.23	
<b>7</b>	L.35	L.37	L.37	L.37	W.21	W.23			
<b>8</b>	L.35	L.35	L.35	L.35	L.35	L.36	L.38		
<b>9</b>	L.35	L.35	L.35	L.35	L.37	W.22	W.23		
<b>10</b>	L.35	L.36	L.36	L.36	L.36	L.36			
<b>11</b>	L.35	L.36	L.36	L.36	L.36	L.36			
<b>12</b>	W.20	W.21	W.22	W.22	W.22	W.23	W.23		
<b>13</b>	L.35	L.35	L.35	L.35	W.21	W.22	W.23	W.23	
<b>14</b>	W.20	W.20	W.21	W.22	W.22	W.23	W.23	W.23	
<b>15</b>	W.20	W.21	W.22	W.22	W.22	W.22	W.23		
<b>16</b>	L.35	L.35	L.36	L.36	L.36	L.36			
<b>17</b>	L.35	L.35	L.36	L.36	L.36	L.36	W.23		
<b>18</b>	L.35	L.35	L.37	L.37	W.20	W.23	W.23		
<b>19</b>	L.35	L.36	L.36	L.36	L.36	L.37			
<b>20</b>	L.35	L.35	L.35	L.35	L.37	L.38			
<b>21</b>	L.35	L.37	L.37	W.20	W.23	W.23	W.23		
<b>22</b>	L.35	L.35	L.35	L.36	L.37	W.23			
<b>23</b>	L.35	L.36	L.37	L.39	W.20	W.21	W.23		
<b>24</b>	L.37	L.38	L.38	W.20	W.21	W.23	W.23		
<b>25</b>	L.35	L.35	L.35	L.35	L.35	L.38			



**English ACT Form 2: Standard Coded to Each Item by Reviewers continued**

26	L.35	L.35	L.35	L.35	L.38	L.39			
27	L.35	L.37	L.38	L.38	L.39	L.40	W.20	W.20	W.23
28	L.35	L.35	L.35	L.35	L.35	L.37	W.23		
29	L.37	L.38	L.38	L.38	L.39	W.20	W.20	W.23	
30	W.20	W.20	W.22	W.22	W.22	W.22	W.22		
31	L.35	L.36	L.36	L.36	L.36	L.36			
32	L.35	L.35	L.35	L.35	L.35	L.35			
33	L.35	L.35	L.35	L.35	L.35	L.35			
34	L.36	L.36	L.36	L.36	L.35	L.35			
35	L.35	L.35	L.36	L.36	L.36	L.36			
36	L.35	L.35	L.35	L.36	L.37	L.37	W.23		
37	L.35	L.35	L.35	L.35	L.37	L.37	W.23		
38	L.35	L.35	L.35	L.35	L.35	L.38			
39	L.35	L.36	L.36	L.37	L.38	L.38	L.40		
40	L.35	L.35	L.35	L.37	L.38	L.38			
41	W.20	W.20	W.20	W.22	W.22	W.22	W.23	W.23	
42	L.37	L.38	L.38	L.40	L.40	W.20	W.20	W.23	
43	L.35	L.35	L.35	L.36	L.36	L.36			
44	W.20	W.20	W.22	W.22	W.22	W.23	W.23	W.23	
45	W.20	W.20	W.22	W.22	W.22	W.22	W.23		
46	W.20	W.20	W.22	W.22	W.23	W.23	W.23		
47	L.35	L.38	L.38	L.40	W.20	W.20	W.22	W.23	
48	L.35	L.35	L.35	L.35	L.35	L.36	L.36		
49	L.35	L.38	L.38	L.38	L.40	W.20	W.20	W.23	
50	L.35	L.35	L.35	L.35	L.36	L.37			

**English ACT Form 2: Standard Coded to Each Item by Reviewers continued**

51	L.35	L.35	L.35	L.37	W.20	W.22			
52	L.37	L.40	W.20	W.20	W.20	W.22	W.22	W.23	W.23
53	L.35	L.37	L.37	W.20	W.20	W.23	W.23		
54	L.35	L.37	L.37	L.39	W.20	W.23	W.23		
55	L.35	L.35	L.35	L.36	L.37	L.37	W.22		
56	L.35	L.36	L.36	L.36	L.36	L.36			
57	L.35	L.35	L.35	L.35	L.36	L.36	L.36		
58	L.35	L.35	L.35	L.35	L.35	L.36	L.38		
59	W.20	W.20	W.22	W.22	W.23	W.23	W.23		
60	W.20	W.20	W.22	W.22	W.22	W.22	W.23		
61	L.35	L.35	L.37	L.37	L.38	W.23			
62	L.35	L.35	L.36	L.36	L.36	L.37			
63	L.35	L.35	L.36	L.36	L.36	L.36			
64	L.35	L.35	L.35	L.35	L.35	L.35	L.38	W.22	
65	L.35	L.35	L.35	L.35	L.35	L.35	L.36		
66	L.35	L.37	L.37	L.38	L.39	L.40	W.20	W.23	
67	L.37	W.20	W.20	W.22	W.22	W.22	W.23		
68	L.35	L.35	L.35	L.35	L.38	L.38			
69	L.35	L.35	L.37	L.37	W.20	W.22			
70	L.39	W.20	W.20	W.20	W.23	W.23	W.23	W.23	
71	L.35	L.35	L.35	L.35	L.35	L.36			
72	L.35	L.35	L.38	L.40	W.20	W.20	W.22	W.23	
73	L.35	L.35	L.36	L.36	L.37	L.38			
74	W.20	W.20	W.22	W.22	W.23	W.23	W.23		
75	W.20	W.20	W.23	W.23	W.23	W.23	W.23		

**English ACT Form 3: Standard Coded to Each Item by Reviewers**

<b>1</b>	L.35	L.35	L.36	L.36	L.36	L.36				
<b>2</b>	L.35	L.35	L.35	L.35	L.37	L.37	W.23	W.23		
<b>3</b>	L.35	L.35	L.35	L.35	L.37	L.38	L.40			
<b>4</b>	L.35	L.35	L.35	L.36	L.37	L.37	W.23			
<b>5</b>	W.20	W.20	W.22	W.22	W.23	W.23	W.23	W.23		
<b>6</b>	L.35	L.35	L.35	L.35	L.37	L.39	W.23			
<b>7</b>	L.35	L.35	L.35	L.35	L.36	L.36	L.37			
<b>8</b>	L.35	L.35	L.35	L.35	L.38	L.40	W.23			
<b>9</b>	L.35	L.36	L.36	L.36	L.36	L.36				
<b>10</b>	W.20	W.20	W.20	W.22	W.22	W.23	W.23	W.23		
<b>11</b>	L.35	L.35	L.35	L.35	L.37	L.40	W.23			
<b>12</b>	L.35	L.37	L.37	L.37	L.40	W.23	W.23			
<b>13</b>	W.20	W.20	W.22	W.23	W.23	W.23	W.23			
<b>14</b>	W.19	W.20	W.22	W.22	W.23	W.23	W.23			
<b>15</b>	W.20	W.20	W.20	W.22	W.22	W.22	W.22	W.23		
<b>16</b>	L.36	L.36	L.36	L.36	L.36	L.36				
<b>17</b>	L.37	L.37	L.38	L.38	L.39	L.40	W.21	W.21	W.23	
<b>18</b>	L.35	L.35	L.35	L.35	L.35	L.38	W.22			
<b>19</b>	L.35	L.35	L.35	L.35	L.35	L.35	L.40			
<b>20</b>	L.35	L.37	L.37	L.37	L.38	L.40	W.22	W.23		
<b>21</b>	L.35	L.35	L.35	L.37	W.22	W.23	W.23			
<b>22</b>	L.37	L.38	L.39	W.21	W.21	W.22	W.22	W.23		
<b>23</b>	L.35	L.35	L.37	L.37	L.38	L.40	W.23			
<b>24</b>	L.37	L.38	L.38	L.38	L.39	L.40	W.21	W.23		
<b>25</b>	L.37	L.38	L.38	L.38	L.39	L.40	L.40	W.21	W.21	W.23

**English ACT Form 3: Standard Coded to Each Item by Reviewers continued**

26	W.21	W.21	W.22	W.22	W.23	W.23	W.23			
27	L.35	L.35	L.36	L.37	L.38	L.40	W.23	W.23		
28	L.37	L.37	L.38	L.40	W.21	W.21	W.22	W.23		
29	W.21	W.21	W.21	W.22	W.22	W.23	W.23	W.23	W.23	
30	W.20	W.21	W.21	W.22	W.22	W.22	W.23	W.23		
31	L.35	L.36	L.36	L.36	L.36	L.37				
32	L.35	L.35	L.36	L.36	L.36	L.36				
33	W.20	W.20	W.23	W.23	W.23	W.23	W.23			
34	L.35	L.37	L.37	L.37	L.37	L.40	W.20	W.23		
35	L.35	L.35	L.35	L.36	L.36	L.36	L.37	L.37	L.37	
36	L.35	L.35	L.35	L.36	L.36	L.36				
37	L.35	L.35	L.35	L.35	L.35	L.36	L.40			
38	W.20	W.20	W.22	W.23	W.23	W.23	W.23	W.23		
39	L.37	L.37	L.37	L.39	L.40	W.20	W.23	W.23		
40	L.35	L.35	L.35	L.35	L.35	L.35	L.40			
41	W.20	W.20	W.22	W.22	W.23	W.23	W.23			
42	L.35	L.35	L.36	L.36	L.36	L.36	W.23			
43	L.35	L.35	L.35	L.36	L.36	L.36				
44	W.20	W.20	W.22	W.22	W.23	W.23	W.23			
45	W.20	W.20	W.20	W.22	W.23	W.23	W.23			
46	L.37	L.37	L.37	L.40	W.20	W.20	W.22	W.23		
47	L.35	L.35	L.35	L.35	L.36	L.37	L.38			
48	L.35	L.35	L.35	L.35	L.35	L.35	L.38			
49	L.35	L.35	L.37	L.37	L.38	L.38	L.40	W.20		
50	L.35	L.35	L.36	L.36	L.36	L.36				

**English ACT Form 3: Standard Coded to Each Item by Reviewers continued**

51	L.35	L.35	L.35	L.35	L.36	L.36	L.36	L.36	L.40	
52	L.35	L.35	L.36	L.36	L.36	L.36				
53	L.35	L.35	L.38	W.23	W.23	W.23				
54	L.36	L.37	L.37	L.40	W.20	W.22	W.23	W.23		
55	L.35	L.35	L.36	L.36	L.36	L.37	L.40			
56	L.35	L.35	L.35	L.35	L.36	L.40	W.23			
57	W.20	W.20	W.22	W.22	W.22	W.23	W.23	W.23		
58	L.36	W.20	W.20	W.22	W.22	W.22	W.23	W.23		
59	W.20	W.20	W.22	W.23	W.23	W.23	W.23	W.23		
60	L.35	L.35	L.36	L.36	L.36	L.36				
61	W.20	W.20	W.22	W.23	W.23	W.23	W.23			
62	L.35	L.37	L.37	L.38	L.38	L.38	L.40	L.40	W.20	
63	L.35	L.35	L.36	L.36	L.36	L.36	L.36			
64	L.35	L.35	L.35	L.35	L.36	L.36	L.36	L.40		
65	L.35	L.36	L.36	L.36	L.36	L.36				
66	W.20	W.20	W.22	W.22	W.23	W.23	W.23	W.23		
67	W.20	W.20	W.22	W.22	W.23	W.23	W.23			
68	L.35	L.35	L.35	L.35	L.35	L.37	L.40			
69	L.35	L.35	L.36	L.36	L.36	L.36				
70	L.35	L.35	L.35	L.35	L.35	L.37	L.40			
71	L.35	L.35	L.37	L.37	L.37	L.40	W.22			
72	L.35	L.35	L.35	L.35	L.35	L.36				
73	L.35	L.35	L.35	L.35	L.35	L.37	L.39			
74	L.35	L.35	L.37	L.37	L.37	L.40	W.23			
75	W.19	W.20	W.20	W.22	W.23	W.23	W.23	W.23		

**English PreACT Form 1: Standard Coded to Each Item by Reviewers**

<b>1</b>	L.39	L.40	L.40	L.40	L.40	L.40	L.42	L.42	W.22	
<b>2</b>	L.37	L.37	L.38	L.38	L.38	L.38				
<b>3</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>4</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>5</b>	L.37	L.39	L.40	W.22	W.22	W.24	W.24	W.25	W.25	
<b>6</b>	L.37	L.37	L.37	L.39	L.39	L.40	W.24	W.25		
<b>7</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>8</b>	L.37	L.37	L.37	L.37	L.39	L.39				
<b>9</b>	L.37	L.39	L.39	L.39	L.39	L.39	W.24	W.24		
<b>10</b>	L.39	W.22	W.22	W.22	W.24	W.25	W.25	W.25		
<b>11</b>	L.37	L.37	L.37	W.24	W.25	W.25	W.25			
<b>12</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>13</b>	L.39	W.22	W.22	W.22	W.25	W.25	W.25	W.25		
<b>14</b>	L.37	L.37	L.37	L.39	L.39	L.40	W.24	W.24		
<b>15</b>	W.22	W.22	W.25	W.25	W.25	W.25	W.25			
<b>16</b>	L.39	L.39	L.39	L.40	L.40	L.41	L.42	L.42	W.22	
<b>17</b>	L.39	L.39	W.22	W.22	W.23	W.24	W.24	W.25	W.25	
<b>18</b>	L.37	L.39	L.39	L.40	W.22	W.22	W.24	W.24	W.24	W.25
<b>19</b>	L.39	L.39	W.22	W.22	W.22	W.24	W.25	W.25	W.25	W.25
<b>20</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>21</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>22</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>23</b>	W.22	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25	W.25
<b>24</b>	L.39	L.39	L.40	W.24	W.24	W.25	W.29			
<b>25</b>	L.37	L.37	L.38	L.38	L.38	L.38				

**English PreACT Form 1: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>27</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>28</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>29</b>	L.37	L.37	L.37	L.37	L.38	L.39				
<b>30</b>	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25		
<b>31</b>	L.37	L.37	L.37	L.37	L.38	L.40	W.24	W.24		
<b>32</b>	L.37	L.37	L.37	L.39	L.39	W.22	W.24	W.24		
<b>33</b>	L.39	L.40	L.42	W.22	W.22	W.22	W.24	W.24		
<b>34</b>	L.37	L.37	L.37	L.38	L.38	L.39	L.40	W.24		
<b>35</b>	L.37	L.37	L.37	L.38	L.39	L.40	W.24			
<b>36</b>	L.40	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25	W.25
<b>37</b>	L.37	L.37	L.37	L.37	L.37	L.37	L.39			
<b>38</b>	L.37	L.37	L.37	L.37	L.39	L.40	W.24	W.24		
<b>39</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>40</b>	L.38	L.38	L.38	L.38	L.38	L.40				
<b>41</b>	W.22	W.22	W.22	W.25	W.25	W.25	W.25	W.25	W.25	
<b>42</b>	L.37	L.39	L.40	L.40	L.40	L.41	L.42	L.42		
<b>43</b>	W.22	W.22	W.25	W.25	W.25	W.25	W.25	W.25		
<b>44</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25	W.25
<b>45</b>	L.37	L.37	L.37	L.38	L.38	L.38				

**English PreACT Form 2: Standard Coded to Each Item by Reviewers**

<b>1</b>	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25	W.25	W.25
<b>2</b>	L.37	L.37	L.37	L.37	L.37	L.37	L.39			
<b>3</b>	L.37	L.37	L.38	L.39	L.40	W.24	W.24			
<b>4</b>	L.39	L.40	L.40	L.40	L.41	L.42	L.42	L.42		
<b>5</b>	L.37	L.37	L.39	L.39	L.40	L.42	W.24	W.24		
<b>6</b>	L.37	L.37	L.37	L.37	L.37	L.39	W.24			
<b>7</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>8</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>9</b>	W.22	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25	W.25
<b>10</b>	L.37	L.37	L.39	L.40	L.40	L.40	W.24			
<b>11</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>12</b>	L.37	L.37	L.37	L.37	L.38	L.40	L.41	W.24		
<b>13</b>	L.39	L.39	L.39	L.39	L.39	L.42	W.24			
<b>14</b>	L.39	W.22	W.22	W.22	W.25	W.25	W.25	W.25	W.25	
<b>15</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25			
<b>16</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25	
<b>17</b>	L.37	L.37	L.38	L.38	L.38	L.38				
<b>18</b>	L.37	L.38	L.38	L.38	L.40	L.40	W.24			
<b>19</b>	L.38	L.38	L.38	L.38	L.38	L.39				
<b>20</b>	W.22	W.22	W.22	W.24	W.25	W.25	W.25	W.25	W.25	
<b>21</b>	L.37	L.37	L.40	W.24	W.24	W.25	W.25			
<b>22</b>	L.37	L.39	L.39	L.39	L.39	L.40	W.24	W.24		
<b>23</b>	L.37	L.37	L.39	L.39	L.40	L.42	W.24			
<b>24</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>25</b>	L.39	L.39	L.39	L.39	L.40	L.42	W.24	W.24		



**English PreACT Form 2: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25	
<b>27</b>	L.37	L.37	L.38	L.38	L.38	L.38				
<b>28</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25	W.25		
<b>29</b>	L.39	W.22	W.22	W.22	W.22	W.24	W.24	W.24	W.24	
<b>30</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.24	W.24		
<b>31</b>	L.37	L.37	L.38	L.38	L.38	L.38				
<b>32</b>	L.37	L.39	L.39	L.40	L.40	L.41	L.42			
<b>33</b>	L.37	L.37	L.37	L.37	L.37	L.38				
<b>34</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>35</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>36</b>	L.39	L.39	L.40	L.42	W.22	W.22	W.24	W.24		
<b>37</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>38</b>	L.37	L.39	L.39	L.40	L.42	W.22	W.24	W.24	W.25	
<b>39</b>	L.39	W.22	W.24	W.24	W.24	W.25	W.25	W.25		
<b>40</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>41</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25	
<b>42</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>43</b>	L.37	L.37	L.37	L.37	L.37	L.37	W.25			
<b>44</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25	
<b>45</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25			

**English PreACT Form 3: Standard Coded to Each Item by Reviewers**

<b>1</b>	L.39	L.39	L.40	L.42	W.22	W.24	W.24	W.25		
<b>2</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>3</b>	L.37	L.39	W.22	W.24	W.24	W.25	W.25	W.25	W.25	
<b>4</b>	L.39	L.39	W.22	W.24	W.24	W.24	W.24	W.24	W.25	W.25
<b>5</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>6</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>7</b>	L.37	L.37	L.38	L.38	L.38	L.38	L.38	L.38		
<b>8</b>	L.39	L.39	L.39	L.39	L.40	W.22	W.24			
<b>9</b>	L.37	L.38	L.38	L.38	L.38	L.39				
<b>10</b>	L.37	L.37	L.37	L.37	L.37	L.38	L.38	L.38		
<b>11</b>	L.37	L.37	L.38	L.38	L.38	L.38				
<b>12</b>	W.22	W.22	W.22	W.23	W.24	W.24	W.24	W.25	W.25	W.25
<b>13</b>	L.37	L.38	L.38	L.38	L.39	L.39				
<b>14</b>	L.39	L.39	L.39	L.39	L.40	L.40	L.41	L.42		
<b>15</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.25	W.25	W.25	
<b>16</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>17</b>	L.37	L.37	L.39	L.39	W.22	W.22				
<b>18</b>	L.37	L.39	L.39	L.39	L.39	L.40	W.24			
<b>19</b>	L.39	L.39	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25
<b>20</b>	L.39	W.22	W.22	W.22	W.24	W.25	W.25	W.25	W.25	W.25
<b>21</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>22</b>	L.37	L.37	L.37	L.37	L.37	L.37	L.39			
<b>23</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>24</b>	L.37	L.37	L.37	L.37	L.38	L.38	L.38			
<b>25</b>	L.37	L.37	L.38	L.39	L.40	L.40	L.42			

**English PreACT Form 3: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	L.37	L.39	L.39	L.40	W.22	W.24	W.30			
<b>27</b>	L.39	L.39	L.39	L.39	L.40	W.24	W.24			
<b>28</b>	L.37	L.37	L.37	L.39	L.39	L.40	W.24	W.24		
<b>29</b>	L.37	L.38	L.38	L.38	L.38	L.38	L.38			
<b>30</b>	W.22	W.22	W.22	W.24	W.24	W.24	W.25			
<b>31</b>	L.37	L.37	L.37	L.37	L.37	L.38	L.38			
<b>32</b>	L.37	L.37	L.37	L.38	L.39	L.40	W.24			
<b>33</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25	
<b>34</b>	L.39	L.39	L.39	L.39	L.40	L.42	W.24			
<b>35</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>36</b>	L.38	L.38	L.38	L.38	L.38	L.38				
<b>37</b>	L.37	L.37	L.37	L.39	L.39	L.40	W.24			
<b>38</b>	L.37	L.37	L.37	L.37	L.37	L.37				
<b>39</b>	L.39	L.39	L.39	L.40	L.40	L.41	L.42	W.24	W.24	
<b>40</b>	L.37	L.39	L.39	L.39	L.40	W.24	W.24			
<b>41</b>	L.37	L.37	L.37	L.37	L.37	L.37	L.39			
<b>42</b>	L.39	W.22	W.22	W.24	W.24	W.24	W.25	W.25	W.25	
<b>43</b>	L.37	L.38	L.38	L.38	L.38	L.38				
<b>44</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.24	W.25	W.25	
<b>45</b>	L.39	W.22	W.22	W.22	W.24	W.24	W.24	W.25		

**Reading ACT Form 1: Standard Coded to Each Item by Reviewers**

<b>1</b>	RL.1	RL.1	RL.1	RL.1	RL.1	RL.1	RL.9	
<b>2</b>	RL.1	RL.1	RL.2	RL.2	RL.2			
<b>3</b>	RL.1	RL.1	RL.1	RL.1	RL.3	RL.6		
<b>4</b>	RL.1	RL.4	RL.4	RL.4	RL.6			
<b>5</b>	RL.1	RL.3	RL.4	RL.4	RL.4	RL.6		
<b>6</b>	RL.4	RL.4	RL.4	RL.4	RL.5	RL.6		
<b>7</b>	RL.2	RL.2	RL.2	RL.2	RL.3	RL.5	RL.8	
<b>8</b>	RL.3	RL.3	RL.3	RL.3	RL.4	RL.5	RL.5	RL.8
<b>9</b>	RL.1	RL.1	RL.1	RL.1	RL.3	RL.5	RL.8	
<b>10</b>	RL.1	RL.1	RL.1	RL.2	RL.2	RL.5	RL.8	
<b>11</b>	RI.11	RI.11	RI.15	RI.15	RI.15	RI.15		
<b>12</b>	RI.10	RI.12	RI.12	RI.12	RI.12	RI.12		
<b>13</b>	RI.10	RI.12	RI.12	RI.12	RI.13	RI.14		
<b>14</b>	RI.13	RI.13	RI.13	RI.14	RI.14	RI.14		
<b>15</b>	RI.10	RI.10	RI.11	RI.11	RI.11	RI.15		
<b>16</b>	RI.10	RI.10	RI.10	RI.10	RI.12	RI.12		
<b>17</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>18</b>	RI.10	RI.10	RI.10	RI.10	RI.14	RI.14	RI.15	
<b>19</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.12		
<b>20</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10		
<b>21</b>	RI.12	RI.15	RI.15	RI.15	RI.15	RI.15		
<b>22</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10		
<b>23</b>	RI.10	RI.10	RI.11	RI.12	RI.12	RI.16		
<b>24</b>	RI.10	RI.12	RI.13	RI.14	RI.15			
<b>25</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.15		

**Reading ACT Form 1: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	RI.13	RI.14	RI.14	RI.15	RI.15	RI.15	RI.15	
<b>27</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10		
<b>28</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>29</b>	RI.10	RI.10	RI.10	RI.12	RI.14	RI.16		
<b>30</b>	RI.10	RI.15	RI.15	RI.15	RI.15	RI.15		
<b>31</b>	RI.10	RI.10	RI.11	RI.11	RI.11			
<b>32</b>	RI.10	RI.10	RI.10	RI.14	RI.15	RI.15		
<b>33</b>	RI.10	RI.10	RI.10	RI.12	RI.12	RI.12		
<b>34</b>	RI.10	RI.10	RI.10	RI.10	RI.14			
<b>35</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>36</b>	RI.13	RI.13	RI.13	RI.13	RI.14	RI.15		
<b>37</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12	
<b>38</b>	RI.10	RI.11	RI.13	RI.14	RI.14	RI.14		
<b>39</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12	RI.14	
<b>40</b>	RI.14	RI.14	RI.15	RI.15	RI.15	RI.15		

**Reading ACT Form 2: Standard Coded to Each Item by Reviewers**

<b>1</b>	RL.1	RL.2	RL.2	RL.2	RL.5	RL.9		
<b>2</b>	RL.1	RL.2	RL.2	RL.2	RL.6	RL.9		
<b>3</b>	RL.1	RL.1	RL.3	RL.3	RL.4	RL.5	RL.5	RL.5
<b>4</b>	RL.4	RL.4	RL.4	RL.4	RL.4	RL.4		
<b>5</b>	RL.3	RL.4	RL.4	RL.4	RL.4	RL.4		
<b>6</b>	RL.2	RL.2	RL.2	RL.2	RL.2	RL.2	RL.8	RL.9
<b>7</b>	RL.3	RL.6	RL.6	RL.6				
<b>8</b>	RL.2	RL.3	RL.3	RL.5	RL.5	RL.8		
<b>9</b>	RL.1	RL.2	RL.2	RL.2	RL.3	RL.3	RL.5	RL.8
<b>10</b>	RL.1	RL.1	RL.1	RL.1	RL.2	RL.3		
<b>11</b>	RI.14	RI.15	RI.15	RI.15	RI.15	RI.15		
<b>12</b>	RI.10	RI.11	RI.11	RI.11	RI.11			
<b>13</b>	RI.10	RI.10	RI.10	RI.11	RI.14	RI.15	RI.15	
<b>14</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10	RI.12	
<b>15</b>	RI.10	RI.11	RI.11	RI.11	RI.11			
<b>16</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10		
<b>17</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>18</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11		
<b>19</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10		
<b>20</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11		
<b>21</b>	RI.10	RI.11	RI.15	RI.15	RI.15	RI.15	RI.15	
<b>22</b>	RI.10	RI.10	RI.10	RI.12	RI.12	RI.12		
<b>23</b>	RI.10	RI.10	RI.10	RI.10	RI.12	RI.14	RI.14	
<b>24</b>	RI.10	RI.10	RI.10	RI.10	RI.12	RI.12	RI.14	
<b>25</b>	RI.13	RI.13	RI.13	RI.13	RI.15	RI.15		

**Reading ACT Form 2: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	RI.10	RI.11	RI.11	RI.11	RI.11			
<b>27</b>	RI.10	RI.10	RI.12	RI.13	RI.14	RI.14	RI.15	RI.16
<b>28</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>29</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10		
<b>30</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>31</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.13		
<b>32</b>	RI.10	RI.11	RI.11	RI.11	RI.14			
<b>33</b>	RI.14	RI.15	RI.15	RI.15	RI.15			
<b>34</b>	RI.10	RI.10	RI.11	RI.13	RI.13	RI.14	RI.14	RI.15
<b>35</b>	RI.10	RI.10	RI.12	RI.12	RI.12	RI.12		
<b>36</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>37</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10	RI.14	
<b>38</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13	RI.14	
<b>39</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.15	RI.15	
<b>40</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.11		

**Reading ACT Form 3: Standard Coded to Each Item by Reviewers**

<b>1</b>	RI.15	RL.2	RL.2	RL.5	RL.5				
<b>2</b>	RI.10	RL.1	RL.1	RL.1	RL.1	RL.2			
<b>3</b>	RL.1	RL.2	RL.2	RL.2	RL.2				
<b>4</b>	RI.10	RL.1	RL.1	RL.3	RL.5	RL.5	RL.6		
<b>5</b>	RI.13	RL.4	RL.4	RL.4	RL.4	RL.4			
<b>6</b>	RI.10	RL.1	RL.1	RL.1	RL.1	RL.2			
<b>7</b>	RI.13	RL.3	RL.4	RL.4	RL.4	RL.4			
<b>8</b>	RI.12	RL.1	RL.1	RL.1	RL.3	RL.3	RL.5		
<b>9</b>	RI.12	RL.1	RL.1	RL.1	RL.2	RL.5	RL.6		
<b>10</b>	RI.13	RL.2	RL.4	RL.4	RL.4	RL.6			
<b>11</b>	RI.14	RI.15	RI.15	RI.15					
<b>12</b>	RI.11	RI.12	RI.12	RI.14	RI.14	RI.14			
<b>13</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>14</b>	RI.13	RI.13	RI.13	RI.13	RI.14	RI.15			
<b>15</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12			
<b>16</b>	RI.10	RI.11	RI.11	RI.13	RI.14				
<b>17</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10			
<b>18</b>	RI.11	RI.14	RI.14	RI.15	RI.15				
<b>19</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.14			
<b>20</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10	RI.14		
<b>21</b>	RI.11	RI.14	RI.14	RI.14	RI.14	RI.15	RI.15		
<b>22</b>	RI.10	RI.10	RI.10	RI.14	RI.15	RI.15			
<b>23</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>24</b>	RI.10	RI.10	RI.10	RI.11	RI.12	RI.14	RI.15		
<b>25</b>	RI.10	RI.11	RI.11	RI.11	RI.11				



**Reading ACT Form 3: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	RI.11	RI.12	RI.14	RI.14	RI.14	RI.15	RI.17		
<b>27</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.14	RI.14		
<b>28</b>	RI.10	RI.10	RI.10	RI.11	RI.11	RI.17			
<b>29</b>	RI.10	RI.11	RI.11	RI.15	RI.15	RI.17			
<b>30</b>	RI.10	RI.10	RI.10	RI.14	RI.14	RI.14	RI.15	RI.15	RI.17
<b>31</b>	RI.10	RI.10	RI.10	RI.12	RI.13	RI.14	RI.15	RI.15	
<b>32</b>	RI.10	RI.10	RI.10	RI.11	RI.12	RI.12	RI.14		
<b>33</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12			
<b>34</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11			
<b>35</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11			
<b>36</b>	RI.10	RI.10	RI.10	RI.11	RI.12	RI.14	RI.15		
<b>37</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11			
<b>38</b>	RI.10	RI.11	RI.12	RI.12	RI.12	RI.12	RI.14	RI.15	
<b>39</b>	RI.10	RI.10	RI.11	RI.12	RI.12	RI.12			
<b>40</b>	RI.11	RI.12	RI.12	RI.13	RI.13	RI.13			

**Reading PreACT Form 1: Standard Coded to Each Item by Reviewers**

<b>1</b>	RI.15	RL.2	RL.5	RL.6	RL.6	RL.6	RL.6	
<b>2</b>	RI.10	RI.13	RL.1	RL.1	RL.1	RL.4	RL.4	RL.6
<b>3</b>	RI.14	RL.2	RL.2	RL.2	RL.3	RL.5	RL.5	RL.9
<b>4</b>	RI.10	RL.1	RL.1	RL.1	RL.1	RL.3		
<b>5</b>	RI.10	RI.12	RL.1	RL.1	RL.2	RL.2	RL.5	RL.9
<b>6</b>	RI.14	RL.1	RL.1	RL.4	RL.4	RL.4	RL.5	
<b>7</b>	RI.10	RL.1	RL.1	RL.1	RL.1	RL.3		
<b>8</b>	RI.10	RL.1	RL.1	RL.2	RL.2	RL.5	RL.6	RL.9
<b>9</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	RI.20	
<b>10</b>	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>11</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12	RI.12	
<b>12</b>	RI.12	RI.13	RI.13	RI.13	RI.13	RI.14		
<b>13</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11		
<b>14</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	
<b>15</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	RI.20	
<b>16</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	RI.20	
<b>17</b>	RI.10	RI.10	RI.13	RI.13	RI.13	RI.14		
<b>18</b>	RI.10	RI.11	RI.11	RI.11	RI.12	RI.20		
<b>19</b>	RI.10	RI.10	RI.10	RI.15	RI.15	RI.15	RI.17	
<b>20</b>	RI.10	RI.11	RI.12	RI.12	RI.14	RI.14	RI.17	
<b>21</b>	RI.10	RI.11	RI.11	RI.12	RI.14	RI.14	RI.14	
<b>22</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12	RI.17	
<b>23</b>	RI.10	RI.10	RI.10	RI.14	RI.15	RI.15	RI.17	
<b>24</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13		
<b>25</b>	RI.10	RI.10	RI.10	RI.10	RI.14	RI.14		

**Reading PreACT Form 2: Standard Coded to Each Item by Reviewers**

<b>1</b>	RL.2	RL.2	RL.2	RL.2	RL.3				
<b>2</b>	RI.10	RL.1	RL.1	RL.2	RL.5	RL.5	RL.6		
<b>3</b>	RI.10	RL.1	RL.1	RL.1	RL.2	RL.2	RL.6		
<b>4</b>	RI.14	RI.15	RL.1	RL.2	RL.3	RL.4	RL.4		
<b>5</b>	RI.13	RL.4	RL.4	RL.4	RL.4	RL.4			
<b>6</b>	RI.13	RL.4	RL.4	RL.4	RL.4	RL.4			
<b>7</b>	RI.10	RL.1	RL.1	RL.1	RL.2	RL.3			
<b>8</b>	RI.10	RI.15	RL.1	RL.1	RL.1	RL.1	RL.2		
<b>9</b>	RI.10	RL.1	RL.1	RL.1	RL.1	RL.2			
<b>10</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>11</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12			
<b>12</b>	RI.12	RI.12	RI.12	RI.12	RI.14	RI.14	RI.14	RI.14	
<b>13</b>	RI.12	RI.12	RI.14	RI.14	RI.14	RI.14	RI.15		
<b>14</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.14			
<b>15</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11			
<b>16</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11			
<b>17</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>18</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>19</b>	RI.10	RI.10	RI.14	RI.14	RI.14	RI.15	RI.17		
<b>20</b>	RI.10	RI.11	RI.14	RI.14	RI.14	RI.14	RI.15	RI.17	RI.17
<b>21</b>	RI.10	RI.10	RI.10	RI.11	RI.11	RI.13			
<b>22</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12	RI.13	RI.14	
<b>23</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	RI.12		
<b>24</b>	RI.10	RI.10	RI.10	RI.11	RI.12	RI.14			
<b>25</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.11	RI.15		

**Reading PreACT Form 3: Standard Coded to Each Item by Reviewers**

<b>1</b>	RL.1	RL.1	RL.1	RL.1	RL.1	RL.2	RL.3		
<b>2</b>	RL.1	RL.1	RL.1	RL.1	RL.3	RL.3	RL.4	RL.4	
<b>3</b>	RL.1	RL.1	RL.4	RL.4	RL.4	RL.4	RL.4	RL.6	
<b>4</b>	RL.1	RL.1	RL.2	RL.3	RL.3	RL.3	RL.3	RL.3	
<b>5</b>	RL.4	RL.4	RL.4	RL.4	RL.4	RL.4			
<b>6</b>	RL.1	RL.1	RL.1	RL.3	RL.3	RL.5	RL.6		
<b>7</b>	RL.1	RL.1	RL.2	RL.3	RL.3	RL.4	RL.5	RL.5	RL.6
<b>8</b>	RL.1	RL.1	RL.2	RL.4	RL.5	RL.5			
<b>9</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.11	RI.11		
<b>10</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.13	RI.14		
<b>11</b>	RI.10	RI.10	RI.10	RI.12	RI.12	RI.14	RI.15		
<b>12</b>	RI.10	RI.10	RI.12	RI.13	RI.13	RI.15			
<b>13</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.11			
<b>14</b>	RI.10	RI.12	RI.13	RI.13	RI.13	RI.14	RI.14	RI.14	
<b>15</b>	RI.11	RI.11	RI.12	RI.16	RI.18				
<b>16</b>	RI.10	RI.10	RI.11	RI.12	RI.15	RI.15	RI.18		
<b>17</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.12	RI.13	RI.18	
<b>18</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.12	RI.14		
<b>19</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.11	RI.12	RI.14	
<b>20</b>	RI.10	RI.11	RI.12	RI.12	RI.14	RI.14	RI.14		
<b>21</b>	RI.10	RI.10	RI.10	RI.10	RI.10	RI.12			
<b>22</b>	RI.10	RI.10	RI.10	RI.10	RI.11	RI.14			
<b>23</b>	RI.13	RI.13	RI.13	RI.13	RI.13	RI.13			
<b>24</b>	RI.11	RI.14	RI.14	RI.15	RI.15	RI.15			
<b>25</b>	RI.12	RI.13	RI.13	RI.13	RI.13	RI.13			

**Writing ACT Form 1: Standard Coded to Each Item by Reviewers**

<b>Scoring Domain 1</b>	W.19	W.19	W.19	W.19	W.19	W.19	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 2</b>	W.19	W.19	W.19	W.19	W.19	W.19	W.22	W.22	W.22	W.22	W.23	W.22
<b>Scoring Domain 3</b>	W.19	W.19	W.19	W.19	W.20	W.21	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 4</b>	L.35	L.35	L.35	L.35	L.35	L.36	L.37	W.19	W.19	W.20	W.22	W.22

**Writing ACT Form 2: Standard Coded to Each Item by Reviewers**

<b>Scoring Domain 1</b>	W.19	W.19	W.19	W.19	W.19	W.19	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 2</b>	W.19	W.19	W.19	W.19	W.19	W.19	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 3</b>	W.19	W.19	W.19	W.19	W.20	W.22	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 4</b>	L.35	L.35	L.35	L.35	L.35	L.36	L.37	W.19	W.19	W.20	W.22	W.22

**Writing ACT Form 3: Standard Coded to Each Item by Reviewers**

<b>Scoring Domain 1</b>	W.19	W.19	W.19	W.19	W.19	W.19	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 2</b>	W.19	W.19	W.19	W.19	W.19	W.19	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 3</b>	W.19	W.19	W.19	W.19	W.20	W.22	W.22	W.22	W.22	W.22	W.22	W.23
<b>Scoring Domain 4</b>	L.35	L.35	L.35	L.35	L.35	L.36	L.37	W.19	W.19	W.20	W.22	W.22

**Mathematics ACT Form 1: Standard Coded to Each Item by Reviewers**

1	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG1.26				
2	ALG2.39	ALG2.39	ALG2.39	GEO.42	GEO.42					
3	ALG1.42	ALG1.42	ALG1.43							
4	ALG2.37	ALG2.37	GEO.42	GEO.42						
5	ALG1.12	ALG1.12	ALG1.34	ALG1.5	ALG2.20					
6	GEO.21	GEO.21	GEO.21	GEO.21	GEO.21					
7	ALG1.12	ALG1.13	ALG1.17	ALG1.7	ALG1.8	ALG2.21				
8	ALG1.12	ALG1.16	ALG1.17	ALG1.2	ALG1.26	ALG2.20				
9	GEO.1	GEO.32	GEO.32	GEO.32						
10	ALG2.9	ALG2.9	ALG2.9	ALG2.9	ALG2.9	ALG2.9				
11	ALG1.28	ALG1.46	ALG1.46							
12	GEO.10									
13	ALG1.13	ALG1.13	ALG1.13	ALG1.13	ALG1.19	ALG1.20	ALG1.20	ALG1.20	ALG1.20	ALG1.21
14	ALG1.12	ALG1.27	ALG1.27	ALG1.35	ALG1.35	ALG1.38				
15	ALG1.47	ALG2.38	GEO.43	GEO.43						
16	ALG1.17	ALG1.18	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG1.28			
17	ALG1.12	ALG1.27	ALG1.27	ALG1.34	ALG1.34	ALG1.34	ALG1.35			
18	ALG1.8	ALG1.8	ALG1.8	ALG1.8	ALG1.8	ALG1.9	ALG1.9	ALG2.13		
19	ALG1.12	ALG1.12	ALG1.14	ALG1.17	ALG1.17	ALG1.17				
20	ALG1.3	ALG1.3	ALG1.3	ALG1.3	ALG1.3	ALG1.3				
21	ALG1.13	ALG1.45	ALG1.45	ALG1.45	ALG1.45	ALG1.45	ALG1.46	ALG1.7		
22	GEO.32	GEO.32								
23	GEO.38	GEO.38	GEO.38							
24	ALG1.13	ALG1.13	ALG1.19	ALG1.20	ALG1.21	ALG1.21	ALG1.7	ALG2.21		
25	GEO.2	GEO.2	GEO.3							

**Mathematics ACT Form 1: Standard Coded to Each Item by Reviewers continued**

26	ALG2.28	GEO.1	GEO.1	GEO.4						
27	ALG1.12	ALG1.22	ALG1.28	ALG1.36	ALG1.37	GEO.31				
28	ALG1.12	ALG1.12	ALG1.4	ALG2.12	ALG2.20					
29	GEO.1	GEO.21	GEO.21	GEO.21						
30	ALG1.12	ALG1.17	ALG1.26	ALG1.27	ALG1.35	ALG2.20				
31	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG2.33					
32	ALG1.12	ALG1.17	GEO.4	GEO.9	GEO.9	GEO.9				
33	ALG1.10	ALG1.10	ALG1.2	ALG1.2	ALG1.3	ALG1.8	ALG2.15			
34	ALG2.1	ALG2.2	ALG2.2	ALG2.2	ALG2.2	ALG2.2	ALG2.2			
35	ALG1.44	ALG2.37	ALG2.41	ALG2.41	ALG2.41	GEO.42				
36	ALG1.25	ALG1.26	ALG1.29	ALG1.31	ALG1.31	ALG2.30	ALG2.30			
37	ALG1.44	ALG2.40	ALG2.41	ALG2.41	ALG2.43	GEO.40	GEO.43			
38	ALG1.1	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG1.2			
39	ALG2.38	ALG2.42	ALG2.46	ALG2.46	ALG2.46	ALG2.46	ALG2.46			
40	ALG1.11	ALG1.11	ALG2.12	ALG2.13	ALG2.13	ALG2.19	ALG2.19			
41	ALG2.37	ALG2.37	ALG2.38	ALG2.38	GEO.43					
42	GEO.21	GEO.21	GEO.34	GEO.34						
43	GEO.23	GEO.23	GEO.34							
44	ALG1.30	ALG1.38	ALG1.46							
45	ALG2.2	ALG2.4	ALG2.4	ALG2.4	ALG2.4	ALG2.4				
46	ALG1.12	ALG1.44	ALG2.37	GEO.42						
47	ALG1.12	ALG1.12	ALG1.12	ALG1.17	ALG1.17	ALG1.17	ALG1.44	ALG2.20		
48	ALG1.42	ALG1.42	ALG1.42	ALG1.43						
49	ALG1.20	ALG1.36	ALG1.36	ALG1.36	ALG1.36	ALG1.36	ALG2.34	ALG2.34		
50	ALG1.18	ALG1.18	ALG1.8	ALG2.25	ALG2.4	ALG2.4	ALG2.5	ALG2.5	ALG2.5	

**Mathematics ACT Form 1: Standard Coded to Each Item by Reviewers continued**

<b>51</b>	ALG1.12	ALG1.4	ALG1.4	ALG1.4	ALG1.4	ALG1.4				
<b>52</b>	ALG1.7	GEO.36								
<b>53</b>	ALG1.1	ALG1.1	ALG1.1	ALG1.1	ALG1.2	ALG1.2	ALG1.2			
<b>54</b>	ALG1.12	ALG1.16	ALG1.17	ALG1.5						
<b>55</b>	GEO.21	GEO.41								
<b>56</b>	GEO.25									
<b>57</b>	ALG1.41	ALG1.41	ALG1.41	ALG1.41	ALG1.41	ALG1.7				
<b>58</b>	ALG1.44	ALG2.38	ALG2.38							
<b>59</b>	ALG1.18	ALG2.4	GEO.22							
<b>60</b>	ALG1.34	GEO.13	GEO.26	GEO.34						



**Mathematics ACT Form 2: Standard Coded to Each Item by Reviewers**

1	ALG1.12	ALG1.12	ALG1.17	ALG2.20				
2	ALG1.43	ALG2.37	GEO.42					
3	ALG1.12	ALG1.12	ALG1.17	ALG1.30	ALG1.4	ALG2.20		
4	ALG2.37	ALG2.37	ALG2.38	GEO.42	GEO.43			
5	ALG1.25	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG1.26	
6	GEO.4	GEO.9	GEO.9					
7	ALG1.18	ALG1.18	ALG1.18	ALG1.18	ALG1.18	ALG1.32	ALG1.9	
8	ALG2.37	GEO.42	GEO.42					
9	ALG1.18	ALG1.18	ALG1.18	ALG1.18	ALG1.32	ALG1.9	ALG1.9	
10	ALG2.1	ALG2.1	ALG2.1	ALG2.2	ALG2.2	ALG2.2	ALG2.2	ALG2.5
11	ALG2.8	ALG2.8	ALG2.8	ALG2.8	ALG2.8	ALG2.8		
12	ALG1.42	ALG1.43						
13	ALG2.37	ALG2.38	ALG2.39	ALG2.39	ALG2.44	ALG2.44	GEO.42	
14	GEO.36							
15	ALG1.13	ALG1.13	ALG1.14	ALG1.19	ALG1.20	ALG1.20	ALG1.21	ALG2.21
16	ALG1.11	ALG1.14	ALG1.17	ALG2.19	GEO.41			
17	ALG1.8	ALG1.8	ALG1.9	ALG1.9	ALG1.10	ALG1.10	ALG1.10	ALG2.15
18	GEO.15	GEO.18	GEO.18	GEO.18	GEO.18	GEO.18		
19	ALG1.12	GEO.32	GEO.32	GEO.32				
20	ALG1.8	ALG1.12	ALG1.12					
21	ALG1.11	ALG1.14	ALG1.15	ALG1.16	ALG2.12	ALG2.12	ALG2.24	
22	GEO.2	GEO.2	GEO.5	GEO.6				
23	ALG2.36	ALG2.36	ALG2.36	ALG2.36	ALG2.36			
24	ALG1.14	ALG1.26	ALG1.26	ALG2.22	ALG2.24	ALG2.24	ALG2.29	
25	ALG1.13	ALG1.20	ALG2.20	ALG2.38	ALG2.38	GEO.43	GEO.43	GEO.43

**Mathematics ACT Form 2: Standard Coded to Each Item by Reviewers**

26	ALG1.22	ALG1.26	ALG1.28	ALG1.29	ALG1.41	ALG1.45	ALG1.46	ALG1.5
27	ALG1.2	ALG1.2	ALG1.2	ALG1.5	ALG1.8			
28	ALG2.21	GEO.15	GEO.18	GEO.18	GEO.18	GEO.18	GEO.18	
29	ALG1.5	ALG1.5	ALG1.12	ALG1.44				
30	ALG1.13	ALG1.46	GEO.31	GEO.31	GEO.31			
31	GEO.34	GEO.34	GEO.41					
32	GEO.21	GEO.21	GEO.23	GEO.32				
33	GEO.23	GEO.39	GEO.41					
34	ALG1.1	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG2.36
35	ALG1.3	ALG1.3	ALG1.3	ALG1.3	ALG1.3			
36	GEO.25	GEO.25	GEO.25	GEO.27	GEO.27	GEO.27		
37	ALG2.16	ALG2.16	ALG2.16	ALG2.16	ALG2.16	ALG2.16	ALG2.19	
38	ALG1.4	ALG1.4	ALG1.4	ALG1.4	ALG1.4	ALG1.4	ALG1.5	
39	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG2.46		
40	ALG1.13	ALG1.13	ALG1.20	ALG1.20	ALG1.20	ALG1.20	ALG1.20	ALG1.21
41	ALG1.42	ALG1.42	ALG1.43	ALG1.43	ALG1.43	ALG1.43		
42	ALG1.47	ALG2.41	ALG2.41	ALG2.41	ALG2.43	ALG2.43	ALG2.44	
43	ALG1.7	ALG1.12	ALG1.12	ALG1.17	ALG1.42	ALG1.43		
44	ALG1.8	ALG1.8	ALG1.11	ALG1.11	ALG2.13	ALG2.15		
45								
46	ALG1.12	ALG1.34	ALG1.34	ALG1.35	ALG1.37	ALG1.38	ALG1.38	ALG2.33
47	GEO.25	GEO.28	GEO.28	GEO.28	GEO.35			
48	ALG1.31	ALG1.32	ALG2.19	ALG2.19	ALG2.29	ALG2.31		
49	ALG1.12	ALG1.13	ALG1.22	ALG1.46	ALG1.46	GEO.31		
50	GEO.10	GEO.12	GEO.30					

**Mathematics ACT Form 2: Standard Coded to Each Item by Reviewers continued**

<b>51</b>	ALG1.12	ALG1.30	ALG1.30	ALG1.30	ALG1.46	ALG1.46	ALG1.46	
<b>52</b>	ALG1.5	ALG1.16	ALG1.25	ALG1.25	ALG1.25	ALG1.34	ALG2.35	
<b>53</b>	ALG1.18	ALG2.25	ALG2.4	ALG2.4	ALG2.4	ALG2.4	ALG2.4	ALG2.5
<b>54</b>	ALG1.44	ALG2.39	GEO.43					
<b>55</b>	ALG1.42	ALG1.42						
<b>56</b>	ALG1.17	ALG1.17	ALG1.3	ALG1.6	ALG1.7	ALG2.12	ALG2.27	
<b>57</b>	GEO.21	GEO.21						
<b>58</b>	ALG1.15	ALG1.17	ALG1.17	ALG1.17	ALG1.20	ALG1.5	ALG2.17	
<b>59</b>	GEO.18	GEO.30	GEO.30					
<b>60</b>	ALG1.12	ALG1.18	ALG1.18	ALG1.18	ALG1.20	ALG1.26	ALG2.29	

**Mathematics PreACT Form 1: Standard Coded to Each Item by Reviewers**

1	ALG1.12	ALG1.12	ALG1.12	ALG1.17	ALG1.17				
2	GEO.10	GEO.10	GEO.10	GEO.18					
3	ALG1.22	ALG1.22	ALG1.28	ALG1.30	ALG1.30	ALG1.33	ALG1.40	ALG1.46	
4	ALG1.16	GEO.14	GEO.15	GEO.16	GEO.18	GEO.18	GEO.18	GEO.18	GEO.41
	GEO.41								
5	ALG1.1	ALG1.1	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG1.2	
6	ALG1.2	ALG1.25	ALG1.26	ALG1.26	ALG1.26	ALG1.26	ALG1.26		
7	ALG1.12	GEO.33	GEO.34	GEO.34	GEO.34				
8	GEO.15	GEO.16	GEO.16	GEO.18	GEO.18	GEO.8	GEO.8	GEO.8	
9	ALG1.12	ALG1.15	ALG1.17	ALG1.42	ALG1.43				
10	ALG1.7	ALG1.9	ALG1.12	ALG1.13	ALG1.13	ALG1.15	ALG1.15		
11	ALG1.3	ALG1.6	ALG1.7	ALG1.9	ALG1.14	ALG1.16			
12	ALG1.42	ALG1.43							
13	GEO.30	GEO.30	GEO.30	GEO.32	GEO.32	GEO.32			
14	ALG1.12	ALG1.16	ALG1.16	ALG1.17	ALG1.17				
15	GEO.33	GEO.34	GEO.34	GEO.41					
16	ALG1.28	ALG1.29	ALG1.31	ALG1.31	ALG1.33	ALG1.39			
17	GEO.19	GEO.21	GEO.21	GEO.21	GEO.21	GEO.21			
18	ALG1.19	ALG1.19	ALG1.20	ALG1.20	ALG1.20	ALG1.20	ALG1.20	ALG1.20	
19	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG1.2			
20	GEO.2	GEO.2	GEO.2	GEO.2	GEO.4	GEO.5	GEO.5		
21	ALG1.8	ALG1.9	ALG1.9						
22	ALG1.47	ALG1.47	ALG1.47						
23	ALG1.5	ALG1.12	ALG1.17	GEO.34	GEO.34	GEO.41			
24	ALG1.12	ALG1.12	GEO.34	GEO.35	GEO.41				
25	ALG1.12	ALG1.36	ALG1.4	ALG1.4	ALG1.5	GEO.34	GEO.34	GEO.41	

**Mathematics PreACT Form 1: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	ALG1.47	ALG1.47	ALG1.47						
<b>27</b>	ALG1.9	ALG1.12	ALG1.12	ALG1.12	ALG1.12	ALG1.12	ALG1.12		
<b>28</b>	ALG1.44	ALG1.47							
<b>29</b>	ALG1.6	ALG1.6	ALG1.6	ALG1.9					
<b>30</b>	ALG1.11	ALG1.13	ALG1.15	ALG1.16	ALG1.20				
<b>31</b>	GEO.25	GEO.25	GEO.26	GEO.26	GEO.26	GEO.26	GEO.29		
<b>32</b>	ALG1.8	ALG1.9	ALG1.17						
<b>33</b>	GEO.9	GEO.9	GEO.9	GEO.9	GEO.11	GEO.41			
<b>34</b>	GEO.1	GEO.18	GEO.2	GEO.3	GEO.31	GEO.4	GEO.5	GEO.5	
<b>35</b>	ALG1.12	ALG1.12	ALG1.17	ALG1.17	ALG1.17				
<b>36</b>	GEO.20	GEO.20	GEO.20	GEO.20	GEO.20	GEO.21			

**Mathematics PreACT Form 2: Standard Coded to Each Item by Reviewers**

1	ALG1.1	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG1.2		
2	ALG1.6								
3	ALG1.12	ALG1.12	ALG1.17	ALG1.17	ALG1.17	ALG1.17			
4	GEO.10	GEO.17							
5	ALG1.2	ALG1.7	ALG1.7	ALG1.10	ALG1.16	ALG1.18			
6	ALG1.43	ALG2.37	GEO.42	GEO.42					
7	ALG1.28	ALG1.28	ALG1.31	ALG2.17	ALG2.17	ALG2.30	GEO.28		
8	ALG1.27	ALG1.34	ALG1.35	ALG1.35	ALG1.38	ALG2.14			
9	GEO.36	GEO.36	GEO.36						
10	ALG1.28	ALG1.30	ALG1.30	ALG1.30	ALG1.31	ALG1.40	ALG1.46		
11	ALG1.11	ALG1.14	ALG1.17						
12	ALG1.12	ALG1.13	ALG1.17	ALG1.17	ALG1.17	ALG1.17	ALG1.34		
13	GEO.30	GEO.30	GEO.32	GEO.32	GEO.32				
14	GEO.34	GEO.34	GEO.34						
15	ALG1.7	ALG1.12	ALG1.12	ALG1.16					
16	ALG1.30	ALG1.30	ALG1.30	ALG1.30	ALG1.30	ALG1.46			
17	ALG1.4	ALG1.9	ALG1.11	ALG1.12					
18	ALG1.12	ALG1.14	ALG1.16						
19	ALG1.4	GEO.34	GEO.34	GEO.41					
20	ALG1.12	ALG1.12	ALG1.17	ALG1.17	ALG1.17	ALG1.17			
21	ALG1.1	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG1.2	ALG2.24		
22	GEO.30	GEO.30	GEO.32	GEO.32	GEO.34				
23	ALG2.39	ALG2.39	ALG2.39	ALG2.40	ALG2.42	GEO.39	GEO.39	GEO.42	
24	ALG1.22	ALG1.28	ALG1.29	ALG1.30	ALG1.30	ALG1.39	ALG1.43	ALG1.46	
25	ALG1.2	ALG1.6	ALG1.6						

**Mathematics PreACT Form 2: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	GEO.10	GEO.15	GEO.18	GEO.18	GEO.18	GEO.32			
<b>27</b>	GEO.11	GEO.11	GEO.34						
<b>28</b>	GEO.14	GEO.17	GEO.18	GEO.18	GEO.18	GEO.18	GEO.30		
<b>29</b>	ALG1.30	ALG1.45	ALG1.45	ALG1.45	ALG1.46	ALG1.46	ALG1.46		
<b>30</b>	ALG1.3	ALG1.3	ALG1.3	ALG1.3	ALG1.3	ALG1.11			
<b>31</b>	GEO.22	GEO.23	GEO.23	GEO.23	GEO.23	GEO.23			
<b>32</b>	ALG1.15	ALG1.15	ALG1.15	ALG1.15	ALG2.23	ALG2.23	ALG2.23		
<b>33</b>	ALG1.7	ALG1.26	ALG1.26	ALG1.32	ALG1.38	ALG2.21	ALG2.24	ALG2.31	
<b>34</b>	ALG1.7	ALG1.32	ALG1.37	ALG1.38	ALG1.40	ALG2.31	ALG2.36	ALG2.36	ALG2.36
<b>35</b>	ALG1.3	ALG1.6							
<b>36</b>	GEO.25	GEO.25	GEO.25	GEO.25	GEO.25	GEO.25	GEO.26	GEO.28	

**Science ACT Form 1: Standard Coded to Each Item by Reviewers**

1	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	
2	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
4	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
5	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
6	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	
7	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	
8	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	
9	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	
10	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	
11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	
12	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	
13	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	BIO.11	
14	CHEM.9	PHY.2	PHY.2	PHY.2	PHY.2		
15	CHEM.9	PHY.2	PHY.2	PHY.2	PHY.2		
16	CHEM.9	PHY.2	PHY.2	PHY.2	PHY.2		
17	CHEM.9	PHY.2	PHY.2	PHY.2			
18	CHEM.9	PHY.2	PHY.2	PHY.2			
19	CHEM.9	PHY.2	PHY.2	PHY.2	PHY.2		
20	CHEM.9	PHY.2	PHY.2	PHY.2	PHY.2		
21	CHEM.4						
22	BIO.1	BIO.8	CHEM.4				
23	CHEM.4						
24	BIO.8	CHEM.4					
25	BIO.13	BIO.13	BIO.13	CHEM.4			



**Science ACT Form 1: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	BIO.8	CHEM.4					
<b>27</b>	BIO.8	CHEM.4					
<b>28</b>	BIO.6	BIO.8	BIO.8	CHEM.4	ESS.13		
<b>29</b>	BIO.6	BIO.8	CHEM.9	ESS.13			
<b>30</b>	BIO.6	BIO.8	BIO.8	CHEM.7	ESS.13		
<b>31</b>	BIO.6	BIO.8	CHEM.7	ESS.13			
<b>32</b>	BIO.6	BIO.8	CHEM.4	ESS.13			
<b>33</b>	BIO.6	BIO.8	CHEM.7	ESS.13			
<b>34</b>	BIO.6	BIO.8	CHEM.4	ESS.13			
<b>35</b>	PHY.1	PHY.1	PHY.1	PHY.1	PHY.1		
<b>36</b>	PHY.1	PHY.1	PHY.2	PHY.2	PHY.2	PHY.2	
<b>37</b>	PHY.1	PHY.1	PHY.1	PHY.1	PHY.1	PHY.2	
<b>38</b>	PHY.1	PHY.1	PHY.1	PHY.1	PHY.1	PHY.1	
<b>39</b>	PHY.1	PHY.1	PHY.1	PHY.1	PHY.1	PHY.1	PHY.2
<b>40</b>	PHY.1	PHY.1	PHY.1	PHY.1	PHY.2		

**Science ACT Form 2: Standard Coded to Each Item by Reviewers**

1	BIO.8	BIO.10						
2	BIO.8	BIO.10						
3	BIO.1	BIO.1	BIO.10	BIO.8				
4	BIO.8	BIO.10						
5	BIO.8	BIO.10						
6	BIO.8	BIO.10						
7	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4		
8	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4		
9	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4	
10	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4		
11	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4		
12	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4		
13	CHEM.2	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4	CHEM.4	
14	CHEM.6	CHEM.7	CHEM.7	CHEM.7	CHEM.7	CHEM.7		
15	CHEM.6	CHEM.7	CHEM.7	CHEM.7				
16	CHEM.6	CHEM.7	CHEM.7	CHEM.7				
17	CHEM.6	CHEM.7	CHEM.7	CHEM.7	CHEM.7			
18	CHEM.6	CHEM.6	CHEM.7	CHEM.7	CHEM.7	CHEM.7	CHEM.7	
19	CHEM.5	CHEM.5	CHEM.5	CHEM.5	CHEM.6	CHEM.7	CHEM.7	CHEM.7
20	CHEM.5	CHEM.6	CHEM.7	CHEM.7	CHEM.7	CHEM.7	CHEM.7	
21	PHY.11	PHY.12	PHY.12	PHY.12	PHY.12			
22	PHY.8	PHY.12	PHY.12	PHY.12	PHY.12			
23	PHY.11	PHY.12	PHY.12	PHY.12	PHY.12			
24	PHY.11	PHY.12	PHY.12	PHY.12	PHY.12			
25	PHY.11	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12	

**Science ACT Form 2: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	PHY.11	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12		
<b>27</b>	BIO.2	BIO.3	BIO.4	BIO.14	BIO.15			
<b>28</b>	BIO.2	BIO.3	BIO.4	BIO.14	BIO.15			
<b>29</b>	BIO.2	BIO.4	BIO.14	BIO.15				
<b>30</b>	BIO.2	BIO.3	BIO.4	BIO.14	BIO.15			
<b>31</b>	BIO.2	BIO.4	BIO.14	BIO.15				
<b>32</b>	BIO.2	BIO.3	BIO.4	BIO.14	BIO.15			
<b>33</b>	BIO.2	BIO.3	BIO.4	BIO.14	BIO.15			
<b>34</b>	ESS.9	PHY.9	ESS.13	ESS.15				
<b>35</b>	ESS.9	ESS.9	ESS.13	ESS.13	ESS.15			
<b>36</b>	ESS.9	ESS.9	ESS.13	ESS.15				
<b>37</b>	ESS.9	ESS.9	ESS.13	ESS.15				
<b>38</b>	ESS.9	ESS.9	ESS.13	ESS.15				
<b>39</b>	ESS.9	ESS.9	ESS.15					
<b>40</b>	ESS.9	ESS.9	ESS.13	ESS.15				

**Science ACT Form 3: Standard Coded to Each Item by Reviewers**

<b>1</b>	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
<b>2</b>	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
<b>3</b>	CHEM.3	CHEM.3	CHEM.3	CHEM.3			
<b>4</b>	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
<b>5</b>	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3		
<b>6</b>	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.3	CHEM.5	
<b>7</b>	BIO.6	BIO.8	BIO.10				
<b>8</b>	BIO.6	BIO.8	BIO.10				
<b>9</b>	BIO.6	BIO.8	BIO.10				
<b>10</b>	BIO.6	BIO.8	BIO.10				
<b>11</b>	BIO.6	BIO.8	BIO.10				
<b>12</b>	BIO.6	BIO.8	BIO.10				
<b>13</b>	BIO.6	BIO.8	BIO.10				
<b>14</b>	BIO.13	BIO.16	BIO.16	BIO.16	BIO.16		
<b>15</b>	BIO.13	BIO.14	BIO.16	BIO.16	BIO.16	BIO.16	
<b>16</b>	BIO.13	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16
<b>17</b>	BIO.13	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	
<b>18</b>	BIO.13	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16
<b>19</b>	BIO.13	BIO.14	BIO.16	BIO.16	BIO.16	BIO.16	
<b>20</b>	BIO.13	BIO.13	BIO.14	BIO.16	BIO.16	BIO.16	BIO.16
<b>21</b>	CHEM.4	CHEM.5					
<b>22</b>	CHEM.4	CHEM.5					
<b>23</b>	CHEM.4	CHEM.5					
<b>24</b>	CHEM.4	CHEM.4	CHEM.5	CHEM.6			
<b>25</b>	CHEM.4	CHEM.5					

**Science ACT Form 3: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	CHEM.4	CHEM.4	CHEM.6	CHEM.7			
<b>27</b>	CHEM.4	CHEM.4	CHEM.7				
<b>28</b>	ESS.9	ESS.13	ESS.13	ESS.13	ESS.13		
<b>29</b>	ESS.13	ESS.13	ESS.13				
<b>30</b>	ESS.13	ESS.13					
<b>31</b>	ESS.13	ESS.13	ESS.13				
<b>32</b>	ESS.13	ESS.13	ESS.13				
<b>33</b>	ESS.13	ESS.13					
<b>34</b>	ESS.13	ESS.13	ESS.13				
<b>35</b>	CHEM.3	PHY.11					
<b>36</b>	CHEM.3	PHY.11	PHY.11	PHY.11			
<b>37</b>	CHEM.3	PHY.11	PHY.11	PHY.11			
<b>38</b>	CHEM.3	PHY.11	PHY.11	PHY.11			
<b>39</b>	CHEM.1	CHEM.3	PHY.11	PHY.11	PHY.11		
<b>40</b>	CHEM.3	PHY.11	PHY.11	PHY.11			

**Science PreACT Form 1: Standard Coded to Each Item by Reviewers**

<b>1</b>	BIO.6	BIO.6			
<b>2</b>	BIO.6	BIO.6			
<b>3</b>	BIO.6	BIO.6			
<b>4</b>	BIO.6	BIO.6			
<b>5</b>	BIO.6	BIO.6			
<b>6</b>	BIO.6	BIO.6			
<b>7</b>	BIO.6	BIO.6			
<b>8</b>	BIO.8				
<b>9</b>	BIO.8				
<b>10</b>	BIO.8				
<b>11</b>	BIO.8				
<b>12</b>	BIO.8				
<b>13</b>	BIO.8				
<b>14</b>	PHY.12	PHY.12	PHY.12	PHY.12	
<b>15</b>	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12
<b>16</b>	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12
<b>17</b>	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12
<b>18</b>	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12
<b>19</b>	PHY.12	PHY.12	PHY.12	PHY.12	PHY.12
<b>20</b>	CHEM.6	CHEM.6	CHEM.6	CHEM.6	
<b>21</b>	CHEM.6	CHEM.6	CHEM.6	CHEM.6	
<b>22</b>	CHEM.6	CHEM.6	CHEM.6	CHEM.6	
<b>23</b>	CHEM.6	CHEM.6	CHEM.6	CHEM.6	
<b>24</b>	CHEM.6	CHEM.6	CHEM.6	CHEM.6	
<b>25</b>	ESS.9	ESS.13	ESS.13		

**Science PreACT Form 1: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	ESS.9	ESS.13	ESS.13		
<b>27</b>	ESS.9	ESS.13	ESS.13		
<b>28</b>	ESS.9	ESS.13	ESS.13		
<b>29</b>	ESS.9	ESS.13			
<b>30</b>	ESS.9	ESS.13	ESS.13		

**Science PreACT Form 2: Standard Coded to Each Item by Reviewers**

<b>1</b>	BIO.8	BIO.8				
<b>2</b>	BIO.8	BIO.8				
<b>3</b>	BIO.8					
<b>4</b>						
<b>5</b>	BIO.8	BIO.8				
<b>6</b>	BIO.8	BIO.8				
<b>7</b>	ESS.14	ESS.14	ESS.15			
<b>8</b>	ESS.14	ESS.14	ESS.15			
<b>9</b>	ESS.14	ESS.14	ESS.15			
<b>10</b>	ESS.14	ESS.14	ESS.14	ESS.15		
<b>11</b>	ESS.14	ESS.14	ESS.14	ESS.14	ESS.15	
<b>12</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.2
<b>13</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.1
<b>14</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.1
<b>15</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.2
<b>16</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.2
<b>17</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.2
<b>18</b>	ESS.1	ESS.2	PHY.1	PHY.1	PHY.1	PHY.1
<b>19</b>	BIO.8	BIO.8	BIO.10			
<b>20</b>	BIO.8	BIO.10				
<b>21</b>	BIO.8	BIO.8	BIO.10			
<b>22</b>	BIO.10					
<b>23</b>	BIO.8	BIO.8	BIO.10			
<b>24</b>	BIO.10	BIO.13	BIO.13	BIO.8		
<b>25</b>	CHEM.6					



**Science PreACT Form 2: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	CHEM.4	CHEM.6				
<b>27</b>	CHEM.6					
<b>28</b>	CHEM.6					
<b>29</b>						
<b>30</b>	CHEM.6					

**Science PreACT Form 3: Standard Coded to Each Item by Reviewers**

<b>1</b>	BIO.8					
<b>2</b>	BIO.8					
<b>3</b>	BIO.8					
<b>4</b>	BIO.8					
<b>5</b>	BIO.8					
<b>6</b>	BIO.8					
<b>7</b>	ESS.9	ESS.13	ESS.13	ESS.13		
<b>8</b>	ESS.9	ESS.13	ESS.13	ESS.13	ESS.13	
<b>9</b>	ESS.9	ESS.13	ESS.13	ESS.13	ESS.14	
<b>10</b>	ESS.9	ESS.13	ESS.13	ESS.13		
<b>11</b>	ESS.9	ESS.13	ESS.13	ESS.13	ESS.13	
<b>12</b>	ESS.9	ESS.13	ESS.13	ESS.13	ESS.13	
<b>13</b>	PHY.1	PHY.1	PHY.2	PHY.2		
<b>14</b>	PHY.1	PHY.1	PHY.2	PHY.2		
<b>15</b>	PHY.1	PHY.1	PHY.2	PHY.2		
<b>16</b>	PHY.1	PHY.2	PHY.2			
<b>17</b>	PHY.1	PHY.1	PHY.2	PHY.2	PHY.2	
<b>18</b>	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16
<b>19</b>	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	
<b>20</b>	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16
<b>21</b>	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	
<b>22</b>	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16
<b>23</b>	BIO.16	BIO.16	BIO.16	BIO.16	BIO.16	
<b>24</b>	BIO.13	BIO.16	BIO.16	BIO.16	BIO.16	
<b>25</b>	CHEM.6	CHEM.6	CHEM.6			

**Science PreACT Form 3: Standard Coded to Each Item by Reviewers continued**

<b>26</b>	CHEM.6	CHEM.6	CHEM.6			
<b>27</b>	CHEM.6	CHEM.6	CHEM.6			
<b>28</b>	CHEM.6	CHEM.6	CHEM.6			
<b>29</b>	CHEM.5	CHEM.6	CHEM.6	CHEM.6		
<b>30</b>	CHEM.6	CHEM.6	CHEM.6			



**English ACT Form 1: Items Coded by Reviewers to Each Standard**

W.19									
W.20	1	3	4	4	5	5	6	7	7
	11	11	12	12	13	13	16	16	19
	19	20	20	23	23	24	24	26	29
	29	30	38	39	46	46	47	47	48
	49	49	56	56	59	59	59	60	64
	64	66	66	67	67	70	70	72	72
	74	75	75						
W.21	32	34	34	39	41	41	42	43	43
	44	44	45	45					
W.22	1	1	1	8	9	12	12	12	15
	15	15	15	16	16	24	29	30	30
	30	30	36	37	41	41	45	45	45
	46	46	46	47	47	49	49	49	56
	56	59	59	59	59	60	60	60	60
	60	64	64	64	64	66	67	67	69
	70	72	75	75					
W.23	1	1	1	3	4	5	7	8	9
	9	11	12	12	12	13	15	15	15
	15	16	16	16	19	20	20	23	24
	29	29	29	29	29	30	30	32	34
	34	37	38	38	39	39	39	41	41
	41	41	42	43	43	44	45	45	45
	46	46	47	47	47	47	48	49	49
	49	52	59	59	60	64	64	66	66
	66	67	67	69	70	72	72	72	72
	74	75	75	75					
W.24									
W.25									

**English ACT Form 1: Items Coded by Reviewers to Each Standard continued**

W.26									
W.27									
W.28									
L.35	2	2	2	2	2	2	3	3	3
	4	4	4	6	7	7	7	7	8
	8	8	10	10	10	10	10	11	11
	14	14	14	17	17	18	18	18	18
	18	18	19	20	20	20	21	21	21
	21	21	21	22	22	23	23	25	25
	26	26	26	27	27	27	27	27	27
	28	28	31	31	31	31	31	32	33
	33	35	35	36	36	36	37	37	38
	40	40	43	44	48	50	50	50	50
	50	50	51	51	51	52	52	52	53
	53	54	54	55	55	55	56	57	57
	58	58	58	61	61	61	61	61	61
	62	63	65	66	68	68	68	69	69
71	71	71	73	73	74				
L.36	3	6	6	6	6	6	11	11	13
	14	14	14	14	17	17	17	17	19
	22	22	22	22	25	25	25	25	28
	28	28	28	33	33	33	33	34	35
	35	35	39	40	40	40	40	42	51
	51	51	51	53	53	53	53	54	54
	54	54	57	57	57	57	58	58	58
	61	61	61	61	61	61	62	63	65
	66	68	68	68	69	69	71	71	71
73	73	74							

**English ACT Form 1: Items Coded by Reviewers to Each Standard continued**

L.37	1	1	4	5	5	9	10	12	13
	19	23	23	24	24	26	26	29	32
	34	36	36	37	37	38	38	38	39
	42	42	42	42	43	44	47	49	56
	66	66	67	67	69	69	69	70	70
	74	75							
L.38	3	4	5	5	5	7	8	8	9
	13	13	13	19	23	24	24	26	31
	32	32	32	32	34	35	36	37	38
	42	43	44	46	48	48	48	52	52
	55	55	55	56	66	68	70	71	71
	74								
L.39	5	9	9	23	34	35	39	43	44
	48	55	71						
L.40									

**English ACT Form 2: Items Coded by Reviewers to Each Standard**

W.19									
W.20	2	3	4	6	12	14	14	15	18
	21	23	24	27	27	29	29	30	30
	41	41	41	42	42	44	44	45	45
	46	46	47	47	49	49	51	52	52
	52	53	53	54	59	59	60	60	66
	67	67	69	70	70	70	72	72	74
	74	75	75						
W.21	2	3	4	6	7	12	13	14	15
	23	24							
W.22	2	2	3	9	12	12	12	13	14
	14	15	15	15	15	30	30	30	30
	30	41	41	41	44	44	44	45	45
	45	45	46	46	47	51	52	52	55
	59	59	60	60	60	60	64	67	67
	67	69	72	74	74				
W.23	2	3	4	6	6	7	9	12	12
	13	13	14	14	14	15	17	18	18
	21	21	21	22	23	24	24	27	28
	29	36	37	41	41	42	44	44	44
	45	46	46	46	47	49	52	52	53
	53	54	54	59	59	59	60	61	66
	67	70	70	70	70	72	74	74	74
	75	75	75	75	75				
W.24									
W.25									
W.26									
W.27									
W.28									



**English ACT Form 2: Items Coded by Reviewers to Each Standard continued**

L.35	1	3	3	4	7	8	8	8	8
	8	9	9	9	9	10	11	13	13
	13	13	16	16	17	17	18	18	19
	20	20	20	20	21	22	22	22	23
	25	25	25	25	25	26	26	26	26
	27	28	28	28	28	28	31	32	32
	32	32	32	32	33	33	33	33	33
	33	34	34	35	35	36	36	36	37
	37	37	37	38	38	38	38	38	39
	40	40	40	43	43	43	47	48	48
	48	48	48	49	50	50	50	50	51
	51	51	53	54	55	55	55	56	57
	57	57	57	58	58	58	58	58	61
	61	62	62	63	63	64	64	64	64
	64	64	65	65	65	65	65	65	66
	68	68	68	68	69	69	71	71	71
71	71	72	72	73	73				
L.36	1	1	1	1	1	5	5	5	5
	5	5	8	10	10	10	10	10	11
	11	11	11	11	16	16	16	16	17
	17	17	17	19	19	19	19	22	23
	31	31	31	31	31	34	34	34	34
	35	35	35	35	36	39	39	43	43
	43	48	48	50	55	56	56	56	56
	56	57	57	57	58	62	62	62	63
63	63	63	65	71	73	73			

**English ACT Form 2: Items Coded by Reviewers to Each Standard continued**

L.37	2	2	2	4	6	6	6	6	7
	7	7	9	18	18	19	20	21	21
	22	23	24	27	28	29	36	36	37
	37	39	40	42	50	51	52	53	53
	54	54	55	55	61	61	62	66	66
	67	69	69	73					
L.38	3	4	4	8	20	24	24	25	26
	27	27	29	29	29	38	39	39	40
	40	42	42	47	47	49	49	49	58
	61	64	66	68	68	72	73		
L.39	23	26	27	29	54	66	70		
L.40	4	4	27	39	42	47	49	52	66
	72								

**English ACT Form 3: Items Coded by Reviewers to Each Standard**

W.19	14	75							
W.20	5	5	10	10	10	13	13	14	15
	15	15	30	33	33	34	38	38	39
	41	41	44	44	45	45	45	46	46
	49	54	57	57	58	58	59	59	61
	61	62	66	66	67	67	75	75	
W.21	17	17	22	22	24	25	25	26	26
	28	28	29	29	29	30	30		
W.22	5	5	10	10	13	14	14	15	15
	15	15	18	20	21	22	22	26	26
	28	29	29	30	30	30	38	41	41
	44	44	45	46	54	57	57	57	58
	58	58	59	61	66	66	67	67	71
	75								
W.23	2	2	4	5	5	5	5	6	8
	10	10	10	11	12	12	13	13	13
	13	14	14	14	15	17	20	21	21
	22	23	24	25	26	26	26	27	27
	28	29	29	29	29	30	30	33	33
	33	33	33	34	38	38	38	38	38
	39	39	41	41	41	42	44	44	44
	45	45	45	46	53	53	53	54	54
	56	57	57	57	58	58	59	59	59
	59	59	61	61	61	61	66	66	66
	66	67	67	67	74	75	75	75	75
W.24									
W.25									
W.26									
W.27									

**English ACT Form 3: Items Coded by Reviewers to Each Standard continued**

W.28									
L.35	1	1	2	2	2	2	3	3	3
	3	4	4	4	6	6	6	6	7
	7	7	7	8	8	8	8	9	11
	11	11	11	12	18	18	18	18	18
	19	19	19	19	19	19	20	21	21
	21	23	23	27	27	31	32	32	34
	35	35	35	36	36	36	37	37	37
	37	37	40	40	40	40	40	40	42
	42	43	43	43	47	47	47	47	48
	48	48	48	48	48	49	49	50	50
	51	51	51	51	52	52	53	53	55
	55	56	56	56	56	60	60	62	63
	63	64	64	64	64	65	68	68	68
	68	68	69	69	70	70	70	70	70
	71	71	72	72	72	72	72	73	73
73	73	73	74	74					
L.36	1	1	1	1	4	7	7	9	9
	9	9	9	16	16	16	16	16	16
	27	31	31	31	31	32	32	32	32
	35	35	35	36	36	36	37	42	42
	42	42	43	43	43	47	50	50	50
	50	51	51	51	51	52	52	52	52
	54	55	55	55	56	58	60	60	60
	60	63	63	63	63	63	64	64	64
	65	65	65	65	65	69	69	69	69
72									

**English ACT Form 3: Items Coded by Reviewers to Each Standard continued**

L.37	2	2	3	4	4	6	7	11	12
	12	12	17	17	20	20	20	21	22
	23	23	24	25	27	28	28	31	34
	34	34	34	35	35	35	39	39	39
	46	46	46	47	49	49	54	54	55
	62	62	68	70	71	71	71	73	74
	74	74							
L.38	3	8	17	17	18	20	22	23	24
	24	24	25	25	25	27	28	47	48
	49	49	53	62	62	62			
L.39	6	17	22	24	25	39	73		
L.40	3	8	11	12	17	19	20	23	24
	25	25	27	28	34	37	39	40	46
	48	51	54	55	56	62	62	64	68
	70	71	74						

**English PreACT Form 1: Items Coded by Reviewers to Each Standard**

W.21									
W.22	1	5	5	10	10	10	13	13	13
	15	15	16	17	17	18	18	19	19
	19	23	23	23	30	30	30	32	33
	33	33	36	36	36	41	41	41	43
	43	44	44	44					
W.23	17								
W.24	5	5	6	9	9	10	11	14	14
	17	17	18	18	18	19	23	23	23
	24	24	30	30	31	31	32	32	33
	33	34	35	36	36	38	38	44	44
W.25	5	5	6	10	10	10	11	11	11
	13	13	13	13	15	15	15	15	15
	17	17	18	19	19	19	19	23	23
	23	23	24	30	30	30	36	36	36
	36	41	41	41	41	41	41	43	43
	43	43	43	43	44	44	44	44	
W.26									
W.27									
W.28									
W.29	24								
W.30									

**English PreACT Form 1: Items Coded by Reviewers to Each Standard continued**

L.37	2	2	4	4	4	4	4	4	5
	6	6	6	7	7	7	7	7	7
	8	8	8	8	9	11	11	11	12
	12	12	12	12	12	14	14	14	18
	20	20	20	20	20	20	21	22	22
	22	22	22	22	25	25	26	26	26
	26	26	26	27	28	28	28	28	28
	28	29	29	29	29	31	31	31	31
	32	32	32	34	34	34	35	35	35
	37	37	37	37	37	37	38	38	38
38	39	42	45	45	45				
L.38	2	2	2	2	3	3	3	3	3
	3	21	21	21	21	21	25	25	25
	25	27	27	27	27	27	29	31	34
	34	35	39	39	39	39	39	40	40
	40	40	40	45	45	45			
L.39	1	5	6	6	8	8	9	9	9
	9	9	10	13	14	14	16	16	16
	17	17	18	18	19	19	24	24	29
	32	32	33	34	35	37	38	42	44
L.40	1	1	1	1	1	5	6	14	16
	16	18	24	31	33	34	35	36	38
	40	42	42	42					
L.41	16	42							
L.42	1	1	16	16	33	42	42		

**English PreACT Form 2: Items Coded by Reviewers to Each Standard**

W.21									
W.22	1	1	1	9	9	9	14	14	14
	15	15	16	16	16	20	20	20	26
	26	28	28	29	29	29	29	30	30
	30	36	36	38	39	41	41	41	44
	44	45	45						
W.23									
W.24	1	1	3	3	5	5	6	9	9
	9	10	12	13	15	15	15	16	16
	18	20	21	21	22	22	23	25	25
	26	26	26	28	28	28	29	29	29
	29	30	30	30	30	36	36	38	38
	39	39	39	41	41	44	44	44	45
	45	45							
W.25	1	1	1	1	1	9	9	9	9
	14	14	14	14	15	16	16	16	20
	20	20	20	20	21	21	26	26	26
	28	28	38	39	39	39	41	41	41
	43	44	44	44	45				
W.26									
W.27									
W.28									
W.29									
W.30									



**English PreACT Form 2: Items Coded by Reviewers to Each Standard continued**

L.37	2	2	2	2	2	2	3	3	5
	5	6	6	6	6	6	7	7	7
	7	7	7	10	10	12	12	12	12
	17	17	18	21	21	22	23	23	27
	27	31	31	32	33	33	33	33	33
	34	34	34	34	34	34	37	37	37
	37	37	37	38	40	40	40	40	40
	40	42	43	43	43	43	43	43	
L.38	3	8	8	8	8	8	8	11	11
	11	11	11	11	12	17	17	17	17
	18	18	18	19	19	19	19	19	24
	24	24	24	24	24	27	27	27	27
	31	31	31	31	33	35	35	35	35
	35	35	42	42	42	42	42		
L.39	2	3	4	5	5	6	10	13	13
	13	13	13	14	15	16	19	22	22
	22	22	23	23	25	25	25	25	26
	28	29	30	32	32	36	36	38	38
	39	41	44	45					
L.40	3	4	4	4	5	10	10	10	12
	18	18	21	22	23	25	32	32	36
	38								
L.41	4	12	32						
L.42	4	4	4	5	13	23	25	32	36
	38								

**English PreACT Form 3: Items Coded by Reviewers to Each Standard**

W.21									
W.22	1	3	4	8	12	12	12	15	15
	15	17	17	19	19	20	20	20	26
	30	30	30	33	33	42	42	44	44
	44	45	45	45					
W.23	12								
W.24	1	1	3	3	4	4	4	4	4
	8	12	12	12	15	15	18	19	19
	19	20	26	27	27	28	28	30	30
	30	32	33	33	33	34	37	39	39
	40	40	42	42	42	44	44	44	45
	45	45							
W.25	1	3	3	3	3	4	4	12	12
	12	15	15	15	19	19	19	20	20
	20	20	20	30	33	33	33	42	42
	42	44	44	45					
W.26									
W.27									
W.28									
W.29									
W.30	26								
L.37	2	3	5	6	7	7	8	10	10
	10	10	10	11	11	13	16	16	16
	16	16	16	17	17	18	21	21	21
	21	21	21	22	22	22	22	22	22
	24	24	24	24	25	25	26	28	28
	28	29	31	31	31	31	31	32	32
	32	35	35	35	35	35	35	37	37
	37	38	38	38	38	38	38	40	41
	41	41	41	41	41	43			

**English PreACT Form 3: Items Coded by Reviewers to Each Standard continued**

L.38	2	2	2	2	2	5	5	5	5
	5	6	6	6	6	6	7	7	7
	7	7	7	9	9	9	9	10	10
	10	11	11	11	11	13	13	13	23
	23	23	23	23	23	24	24	24	25
	29	29	29	29	29	29	31	31	32
	36	36	36	36	36	36	43	43	43
	43	43							
L.39	1	1	3	4	4	8	8	8	8
	9	13	13	14	14	14	14	15	17
	17	18	18	18	18	19	19	20	22
	25	26	26	27	27	27	27	28	28
	32	33	34	34	34	34	37	37	39
	39	39	40	40	40	41	42	44	45
L.40	1	8	14	14	18	25	25	26	27
	28	32	34	37	39	39	40		
L.41	14	39							
L.42	1	14	25	34	39				

**Reading ACT Form 1: Items Coded by Reviewers to Each Standard**

RL.1	1	1	1	1	1	1	2	2	3
	3	3	3	4	5	9	9	9	9
	10	10	10						
RL.2	2	2	2	7	7	7	7	10	10
RL.3	3	5	7	8	8	8	8	9	
RL.4	4	4	4	5	5	5	6	6	6
	6	8							
RL.5	6	7	8	8	9	10			
RL.6	3	4	5	6					
RL.7									
RL.8	7	8	9	10					
RL.9	1								
RI.10	12	13	15	15	16	16	16	16	18
	18	18	18	19	19	19	19	19	20
	20	20	20	20	20	22	22	22	22
	22	22	23	23	24	25	25	25	25
	25	25	27	27	27	27	27	27	29
	29	29	30	31	31	32	32	32	33
	33	33	34	34	34	34	37	37	37
RI.11	37	37	38	39	39	39	39		
	11	11	15	15	15	23	31	31	31
RI.12	37	38	39						
	12	12	12	12	12	13	13	13	16
	16	19	21	23	23	24	29	33	33
RI.13	33	37	39						
	13	14	14	14	17	17	17	17	17
	17	24	26	28	28	28	28	28	28
	35	35	35	35	35	35	36	36	36
	36	38							

**Reading ACT Form 1: Items Coded by Reviewers to Each Standard continued**

RI.14	13	14	14	14	18	18	24	26	26
	29	32	34	36	38	38	38	39	40
	40								
RI.15	11	11	11	11	15	18	21	21	21
	21	21	24	25	26	26	26	26	30
	30	30	30	30	32	32	36	40	40
	40	40							
RI.16	23	29							
RI.17									
RI.18									

**Reading ACT Form 2: Items Coded by Reviewers to Each Standard**

RL.1	1	2	3	3	9	10	10	10	10
RL.2	1	1	1	2	2	2	6	6	6
	6	6	6	8	9	9	9	10	
RL.3	3	3	5	7	8	8	9	9	10
RL.4	3	4	4	4	4	4	4	5	5
	5	5	5						
RL.5	1	3	3	3	8	8	9		
RL.6	2	7	7	7					
RL.7									
RL.8	6	8	9						
RL.9	1	2	6						
RI.10	12	13	13	13	14	14	14	14	14
	14	15	16	16	16	16	16	16	18
	18	18	18	18	19	19	19	19	19
	19	20	20	20	20	20	21	22	22
	22	23	23	23	23	24	24	24	24
	26	27	27	29	29	29	29	29	29
	31	31	31	31	31	37	37	37	37
	37	37	39	39	39	39	39	40	40
RI.11	40	40							
	12	12	12	12	13	15	15	15	15
	18	20	21	26	26	26	26	32	32
RI.12	32	34	40	40					
	14	22	22	22	23	24	24	27	35
RI.13	35	35	35						
	17	17	17	17	17	17	25	25	25
	25	27	28	28	28	28	28	28	30
	30	30	30	30	30	31	34	34	36
	36	36	36	36	36	38	38	38	38
	38	38							

**Reading ACT Form 2: Items Coded by Reviewers to Each Standard continued**

RI.14	11	13	23	23	24	27	27	32	33
	34	34	37	38					
RI.15	11	11	11	11	11	13	13	21	21
	21	21	21	25	25	27	33	33	33
	33	34	39	39					
RI.16	27								
RI.17									
RI.18									

**Reading ACT Form 3: Items Coded by Reviewers to Each Standard**

RL.1	2	2	2	2	3	4	4	6	6
	6	6	8	8	8	9	9	9	
RL.2	1	1	2	3	3	3	3	6	9
	10								
RL.3	4	7	8	8					
RL.4	5	5	5	5	5	7	7	7	7
	10	10	10						
RL.5	1	1	4	4	8	9			
RL.6	4	9	10						
RL.7									
RL.8									
RL.9									
RI.10	2	4	6	15	15	15	15	16	17
	17	17	17	17	17	20	20	20	20
	20	20	22	22	22	24	24	24	25
	27	27	27	27	27	28	28	28	29
	30	30	30	31	31	31	32	32	32
	33	33	33	33	34	34	34	34	34
	35	35	35	35	35	36	36	36	37
RI.11	37	37	37	37	38	39	39		
	12	15	16	16	18	21	24	25	25
	25	25	26	28	28	29	29	32	33
RI.12	34	35	36	37	38	39	40		
	8	9	12	12	15	24	26	31	32
	32	33	36	38	38	38	38	39	39
RI.13	39	40	40						
	5	7	10	13	13	13	13	13	13
	14	14	14	14	16	19	19	19	19
	19	23	23	23	23	23	23	31	40
	40	40							



**Reading ACT Form 3: Items Coded by Reviewers to Each Standard continued**

RI.14	11	12	12	12	14	16	18	18	19
	20	21	21	21	21	22	24	26	26
	26	27	27	30	30	30	31	32	36
	38								
RI.15	1	11	11	11	14	18	18	21	21
	22	22	24	26	29	29	30	30	31
	31	36	38						
RI.16									
RI.17	26	28	29	30					
RI.18									

**Reading PreACT Form 1: Items Coded by Reviewers to Each Standard**

RL.1	2	2	2	4	4	4	4	5	5
	6	6	7	7	7	7	8	8	
RL.2	1	3	3	3	2	2	8	8	
RL.3	3	4	7						
RL.4	2	2	6	6	6				
RL.5	1	3	3	5	6	8			
RL.6	1	1	1	1	2	8			
RL.7									
RL.8									
RL.9	3	5	8						
RI.10	2	4	5	7	8	9	9	9	9
	9	11	11	11	11	13	13	13	13
	13	14	14	14	14	14	14	15	15
	15	15	15	16	16	16	16	16	17
	17	18	19	19	19	20	21	22	22
	22	22	23	23	23	25	25	25	25
RI.11	9	11	13	14	15	16	18	18	18
	20	21	21	22					
RI.12	5	11	11	12	18	20	20	21	22
RI.13	2	10	10	10	10	10	12	12	12
	12	17	17	17	24	24	24	24	24
	24								
RI.14	3	6	12	17	20	20	21	21	21
	23	25	25						
RI.15	1	19	19	19	23	23			
RI.16	19	20	22	23					
RI.17									
RI.18									
RI.19									
RI.20	9	15	16	18					

**Reading PreACT Form 2: Items Coded by Reviewers to Each Standard**

RL.1	2	2	3	3	3	4	7	7	7
	8	8	8	8	9	9	9	9	
RL.2	1	1	1	1	2	3	3	4	7
	7	7	8	8	8	8	9	9	9
	9								
RL.3	1	4	7						
RL.4	4	4	5	5	5	5	5	6	6
	6	6	6						
RL.5	2	2							
RL.6	2	3							
RL.7									
RL.8									
RL.9									
RI.10	2	3	7	8	9	11	11	11	11
	14	14	14	14	14	15	15	15	15
	15	16	16	16	16	16	19	19	20
	21	21	21	22	22	22	22	22	23
	23	23	23	23	24	24	24	24	25
	25	25							
RI.11	11	15	16	20	21	21	22	23	24
	25	25							
RI.12	11	12	12	12	12	13	13	22	23
	24								
RI.13	5	6	10	10	10	10	10	10	17
	17	17	17	17	17	18	18	18	18
	18	18	21	22					
RI.14	4	12	12	12	12	13	13	13	13
	14	19	19	19	20	20	20	20	22
	24								

**Reading PreACT Form 2: Items Coded by Reviewers to Each Standard continued**

RI.15	4	8	13	19	20	25			
RI.16									
RI.17	19	20	20						
RI.18									
RI.19									
RI.20									

**Reading PreACT Form 3: Items Coded by Reviewers to Each Standard**

RL.1	1	1	1	1	1	2	2	2	2
	3	3	4	4	6	6	6	7	7
	8	8							
RL.2	1	4	7	8					
RL.3	1	2	2	4	4	4	4	4	6
	6	7	7						
RL.4	2	2	3	3	3	3	3	6	6
	6	6	6	6	7	8			
RL.5	6	7	7	8	8				
RL.6	3	6	7						
RL.7									
RL.8									
RL.9									
RI.10	9	9	9	9	9	10	10	10	10
	10	11	11	11	12	12	13	13	13
	13	15	16	16	17	17	17	17	17
	18	18	18	18	18	19	19	19	19
	20	21	21	21	21	21	22	22	22
	22								
RI.11	9	9	13	13	15	15	16	19	19
	20	22	24						
RI.12	11	11	12	14	15	16	17	18	19
	20	20	21	25					
RI.13	10	12	12	14	14	14	17	23	23
	23	23	23	23	25	25	25	25	25
RI.14	10	11	14	14	14	18	19	20	20
	20	22	24	24					
RI.15	11	12	16	16	24	24	24		
RI.16	15								

**Reading PreACT Form 3: Items Coded by Reviewers to Each Standard continued**

RI.17									
RI.18	15	16	17						
RI.19									
RI.20									

**Writing ACT Form 1: Items Coded by Reviewers to Each Standard**

W.19	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1
	Scoring Domain 1	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2
	Scoring Domain 2	Scoring Domain 2	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3
	Scoring Domain 3	Scoring Domain 4	Scoring Domain 4		
W.20	Scoring Domain 3	Scoring Domain 4			
W.21	Scoring Domain 3				
W.22	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1
	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2
	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3
	Scoring Domain 4	Scoring Domain 4			
W.23	Scoring Domain 1	Scoring Domain 2	Scoring Domain 3		
W.24					
W.25					
W.26					
W.27					
W.28					
L.35	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4
L.36	Scoring Domain 4				
L.37	Scoring Domain 4				
L.38					
L.39					
L.40					

**Writing ACT Form 2: Items Coded by Reviewers to Each Standard**

W.19	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1
	Scoring Domain 1	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2
	Scoring Domain 2	Scoring Domain 2	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3
	Scoring Domain 3	Scoring Domain 4	Scoring Domain 4		
W.20	Scoring Domain 3	Scoring Domain 4			
W.21					
W.22	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1
	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2
	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3
	Scoring Domain 3	Scoring Domain 4	Scoring Domain 4		
W.23	Scoring Domain 1	Scoring Domain 2	Scoring Domain 3		
W.24					
W.25					
W.26					
W.27					
W.28					
L.35	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4
L.36	Scoring Domain 4				
L.37	Scoring Domain 4				
L.38					
L.39					
L.40					



**Writing ACT Form 3: Items Coded by Reviewers to Each Standard**

W.19	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1
	Scoring Domain 1	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2
	Scoring Domain 2	Scoring Domain 2	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3
	Scoring Domain 3	Scoring Domain 4	Scoring Domain 4		
W.20	Scoring Domain 3	Scoring Domain 4			
W.21					
W.22	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1	Scoring Domain 1
	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2	Scoring Domain 2
	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3	Scoring Domain 3
	Scoring Domain 3	Scoring Domain 4	Scoring Domain 4		
W.23	Scoring Domain 1	Scoring Domain 2	Scoring Domain 3		
W.24					
W.25					
W.26					
W.27					
W.28					
L.35	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4	Scoring Domain 4
L.36	Scoring Domain 4				
L.37	Scoring Domain 4				
L.38					
L.39					
L.40					

**Mathematics ACT Form 1: Items Coded by Reviewers to Each Standard**

ALG1.1	38	38	53	53	53	53			
ALG1.2	8	33	33	38	38	38	38	38	53
	53	53							
ALG1.3	20	20	20	20	20	20	33		
ALG1.4	28	51	51	51	51	51			
ALG1.5	5	54							
ALG1.6									
ALG1.7	7	21	24	52	57				
ALG1.8	7	18	18	18	18	18	33	50	
ALG1.9	18	18							
ALG1.10	33	33							
ALG1.11	40	40							
ALG1.12	5	5	7	8	14	17	19	19	27
	28	28	30	32	46	47	47	47	51
	54								
ALG1.13	7	13	13	13	13	21	24	24	
ALG1.14	19								
ALG1.15									
ALG1.16	8	54							
ALG1.17	7	8	16	19	19	19	30	32	47
	47	47	54						
ALG1.18	16	50	50	59					
ALG1.19	13	24							
ALG1.20	13	13	13	13	24	49			
ALG1.21	13	24	24						
ALG1.22	27								
ALG1.23									
ALG1.24									
ALG1.25	36								

**Mathematics ACT Form 1: Items Coded by Reviewers to Each Standard continued**

ALG1.26	1	1	1	1	1	1	8	16	16
	16	16	30	31	31	31	31	36	
ALG1.27	14	14	17	17	30				
ALG1.28	11	16	27						
ALG1.29	36								
ALG1.30	44								
ALG1.31	36	36							
ALG1.32									
ALG1.33									
ALG1.34	5	17	17	17	60				
ALG1.35	14	14	17	30					
ALG1.36	27	49	49	49	49	49			
ALG1.37	27								
ALG1.38	14	44							
ALG1.39									
ALG1.40									
ALG2.1	34								
ALG2.2	34	34	34	34	34	34	45		
ALG2.3									
ALG2.4	45	45	45	45	45	50	50	59	
ALG2.5	50	50	50						
ALG2.6									
ALG2.7									
ALG2.8									
ALG2.9	10	10	10	10	10	10			
ALG2.10									
ALG2.11									
ALG2.12	28	40							
ALG2.13	18	40	40						

**Mathematics ACT Form 1: Items Coded by Reviewers to Each Standard continued**

ALG2.14									
ALG2.15	33								
ALG2.16									
ALG2.17									
ALG2.18									
ALG2.19	40	40							
ALG2.20	5	8	28	30	47				
ALG2.21	7	24							
ALG2.22									
ALG2.23									
ALG2.24									
ALG2.25	50								
ALG2.26									
ALG2.27									
ALG2.28	26								
ALG2.29									
ALG2.30	36	36							
ALG2.31									
ALG2.32									
ALG2.33	31								
ALG2.34	49	49							
ALG2.35									
ALG2.36									
GEO.1	9	26	26	29					
GEO.2	25	25							
GEO.3	25								
GEO.4	26	32							
GEO.5									
GEO.6									

**Mathematics ACT Form 1: Items Coded by Reviewers to Each Standard continued**

GEO.7									
GEO.8									
GEO.9	32	32	32						
GEO.10	12								
GEO.11									
GEO.12									
GEO.13	60								
GEO.14									
GEO.15									
GEO.16									
GEO.17									
GEO.18									
GEO.19									
GEO.20									
GEO.21	6	6	6	6	6	29	29	29	42
	42	55							
GEO.22	59								
GEO.23	43	43							
GEO.24									
GEO.25	56								
GEO.26	60								
GEO.27									
GEO.28									
GEO.29									
GEO.30									
GEO.31	27								
GEO.32	9	9	9	22	22				

**Mathematics ACT Form 1: Items Coded by Reviewers to Each Standard continued**

GEO.33									
GEO.34	42	42	43	60					
GEO.35									
GEO.36	52								
GEO.37									
GEO.38	23	23	23						
GEO.39									
GEO.40	37								
GEO.41	55								
GEO.42	2	2	4	4	35	46			
GEO.43	15	15	37	41					

**Mathematics ACT Form 2: Items Coded by Reviewers to Each Standard**

ALG1.1	34	34	39						
ALG1.2	27	27	27	34	34	34	34	34	39
	39	39	39						
ALG1.3	35	35	35	35	35	56			
ALG1.4	3	38	38	38	38	38	38		
ALG1.5	26	27	29	29	38	52	58		
ALG1.6	56								
ALG1.7	43	56							
ALG1.8	17	17	20	27	44	44			
ALG1.9	7	9	9	17	17				
ALG1.10	17	17	17						
ALG1.11	16	21	44	44					
ALG1.12	1	1	3	3	19	20	20	29	43
	43	46	49	51	60				
ALG1.13	15	15	25	30	40	40	49		
ALG1.14	15	16	21	24					
ALG1.15	21	58							
ALG1.16	21	52							
ALG1.17	1	3	16	43	56	56	58	58	58
ALG1.18	7	7	7	7	7	9	9	9	9
	53	60	60	60					
ALG1.19	15								
ALG1.20	15	15	25	40	40	40	40	40	58
	60								
ALG1.21	15	40							
ALG1.22	26	49							
ALG1.23									
ALG1.24									
ALG1.25	5	52	52	52					

**Mathematics ACT Form 2: Items Coded by Reviewers to Each Standard continued**

ALG1.26	5 60	5	5	5	5	5	24	24	26
ALG1.27									
ALG1.28	26								
ALG1.29	26								
ALG1.30	3	51	51	51					
ALG1.31	48								
ALG1.32	7	9	48						
ALG1.33									
ALG1.34	46	46	52						
ALG1.35	46								
ALG1.36									
ALG1.37	46								
ALG1.38	46	46							
ALG1.39									
ALG1.40									
ALG2.1	10	10	10						
ALG2.2	10	10	10	10					
ALG2.3									
ALG2.4	53	53	53	53	53				
ALG2.5	10	53							
ALG2.6									
ALG2.7									
ALG2.8	11	11	11	11	11	11			
ALG2.9									
ALG2.10									
ALG2.11									
ALG2.12	21	21	56						
ALG2.13	44								



**Mathematics ACT Form 2: Items Coded by Reviewers to Each Standard continued**

ALG2.14									
ALG2.15	17	44							
ALG2.16	37	37	37	37	37	37			
ALG2.17	58								
ALG2.18									
ALG2.19	16	37	48	48					
ALG2.20	1	3	25	28					
ALG2.21	15								
ALG2.22	24								
ALG2.23									
ALG2.24	21	24	24						
ALG2.25	53								
ALG2.26									
ALG2.27	56								
ALG2.28									
ALG2.29	24	48	60						
ALG2.30									
ALG2.31	48								
ALG2.32									
ALG2.33	46								
ALG2.34									
ALG2.35	52								
ALG2.36	23	23	23	23	23	34			
GEO.1									
GEO.2	22	22							
GEO.3									
GEO.4	6								
GEO.5	22								
GEO.6	22								

**Mathematics ACT Form 2: Items Coded by Reviewers to Each Standard continued**

GEO.7									
GEO.8									
GEO.9	6	6							
GEO.10	50								
GEO.11									
GEO.12	50								
GEO.13									
GEO.14									
GEO.15	18	28							
GEO.16									
GEO.17									
GEO.18	18	18	18	18	18	28	28	28	28
	28	59							
GEO.19									
GEO.20									
GEO.21	32	32	57	57					
GEO.22									
GEO.23	32	33							
GEO.24									
GEO.25	36	36	36	47					
GEO.26									
GEO.27	36	36	36						
GEO.28	47	47	47						
GEO.29									
GEO.30	50	59	59						
GEO.31	30	30	30	49					
GEO.32	19	19	19	32					
GEO.33									
GEO.34	31	31							

**Mathematics ACT Form 2: Items Coded by Reviewers to Each Standard continued**

GEO.35	47								
GEO.36	14								
GEO.37									
GEO.38									
GEO.39	33								
GEO.40									
GEO.41	16	31	33						
GEO.42	2	4	8	8	13				
GEO.43	4	25	25	25	54				

**Mathematics PreACT Form 1: Items Coded by Reviewers to Each Standard**

ALG1.1	5	5	5	19					
ALG1.2	5	5	5	5	5	6	19	19	19
	19	19							
ALG1.3	11								
ALG1.4	25	25							
ALG1.5	23	25							
ALG1.6	11	29	29	29					
ALG1.7	10	11							
ALG1.8	21	32							
ALG1.9	10	11	21	21	27	29	32		
ALG1.10									
ALG1.11	30								
ALG1.12	1	1	1	7	9	10	14	23	24
	24	25	27	27	27	27	27	27	35
	35								
ALG1.13	10	10	30						
ALG1.14	11								
ALG1.15	9	10	10	30					
ALG1.16	4	11	14	14	30				
ALG1.17	1	1	9	14	14	23	32	35	35
	35								
ALG1.18									
ALG1.19	18	18							
ALG1.20	18	18	18	18	18	18	30		
ALG1.21									
ALG1.22	3	3							
ALG1.23									
ALG1.24									
ALG1.25	6								

**Mathematics PreACT Form 1: Items Coded by Reviewers to Each Standard continued**

ALG1.26	6	6	6	6	6				
ALG1.27									
ALG1.28	3	16							
ALG1.29	16								
ALG1.30	3	3							
ALG1.31	16	16							
ALG1.32									
ALG1.33	3	16							
ALG1.34									
ALG1.35									
ALG1.36	25								
ALG1.37									
ALG1.38									
ALG1.39	16								
ALG1.40	3								
ALG1.41									
ALG1.42	9	12							
ALG1.43	9	12							
ALG1.44	28								
ALG1.45									
ALG1.46	3								
ALG1.47	22	22	22	26	26	26	28		
GEO.1	34								
GEO.2	20	20	20	20	34				
GEO.3	34								
GEO.4	20	34							
GEO.5	20	20	34	34					
GEO.6									
GEO.7									

**Mathematics PreACT Form 1: Items Coded by Reviewers to Each Standard continued**

GEO.8	8	8	8						
GEO.9	33	33	33	33					
GEO.10	2	2	2						
GEO.11	33								
GEO.12									
GEO.13									
GEO.14	4								
GEO.15	4	8							
GEO.16	4	8	8						
GEO.17									
GEO.18	1	4	4	4	4	8	8	34	
GEO.19	17								
GEO.20	36	36	36	36	36				
GEO.21	17	17	17	17	17	36			
GEO.22									
GEO.23									
GEO.24									
GEO.25	31	31							
GEO.26	31	31	31	31					
GEO.27									
GEO.28									
GEO.29	31								
GEO.30	13	13	13						
GEO.31	34								
GEO.32	13	13							
GEO.33	7	15							
GEO.34	7	7	7	15	15	23	23	24	25
	25								
GEO.35	24								

**Mathematics PreACT Form 1: Items Coded by Reviewers to Each Standard continued**

GEO.36									
GEO.37									
GEO.38									
GEO.39									
GEO.40									
GEO.41	4	4	15	23	24	25	33		
GEO.42									
GEO.43									

**Mathematics PreACT Form 2: Items Coded by Reviewers to Each Standard**

ALG1.1	1	1	21						
ALG1.2	1	1	1	1	1	5	21	21	21
	21	21	25						
ALG1.3	30	30	30	30	30	35			
ALG1.4	17	19							
ALG1.5									
ALG1.6	2	25	25	35					
ALG1.7	5	5	15	33	34				
ALG1.8									
ALG1.9	17								
ALG1.10	5								
ALG1.11	11	17	30						
ALG1.12	3	3	12	15	15	17	18	20	20
ALG1.13	12								
ALG1.14	11	18							
ALG1.15	32	32	32	32					
ALG1.16	5	15	18						
ALG1.17	3	3	3	3	11	12	12	12	12
	20	20	20	20					
ALG1.18	5								
ALG1.19									
ALG1.20									
ALG1.21									
ALG1.22	24								
ALG1.23									
ALG1.24									
ALG1.25									
ALG1.26	33	33							
ALG1.27	8								



**Mathematics PreACT Form 2: Items Coded by Reviewers to Each Standard continued**

ALG1.28	7	7	10	24					
ALG1.29	24								
ALG1.30	10	10	10	16	16	16	16	16	24
	24	29							
ALG1.31	7	10							
ALG1.32	33	34							
ALG1.33	8	12							
ALG1.34									
ALG1.35	8	8							
ALG1.36									
ALG1.37	34								
ALG1.38	8	33	34						
ALG1.39	24								
ALG1.40	10	34							
ALG1.41									
ALG1.42									
ALG1.43	6	24							
ALG1.44									
ALG1.45	29	29	29						
ALG1.46	10	16	24	29	29	29			
ALG1.47									
GEO.1									
GEO.2									
GEO.3									
GEO.4									
GEO.5									
GEO.6									
GEO.7									
GEO.8									

**Mathematics PreACT Form 2: Items Coded by Reviewers to Each Standard continued**

GEO.9									
GEO.10	4	26							
GEO.11	27	27							
GEO.12									
GEO.13									
GEO.14	28								
GEO.15	26								
GEO.16									
GEO.17	4	28							
GEO.18	26	26	26	28	28	28			
GEO.19									
GEO.20									
GEO.21									
GEO.22	31								
GEO.23	31	31	31	31	31				
GEO.24									
GEO.25	36	36	36	36	36	36			
GEO.26	36								
GEO.27									
GEO.28	7	36							
GEO.29									
GEO.30	13	13	22	22	28				
GEO.31									
GEO.32	13	13	13	22	22	26			
GEO.33									
GEO.34	14	14	14	19	19	22	27		
GEO.35									
GEO.36	9	9	9						
GEO.37									

**Mathematics PreACT Form 2: Items Coded by Reviewers to Each Standard continued**

GEO.38									
GEO.39	23	23							
GEO.40									
GEO.41	19								
GEO.42	6	6	23						
GEO.43									

**Science ACT Form 1: Items Coded by Reviewers to Each Standard**

BIO.1	22							
BIO.2								
BIO.3								
BIO.4								
BIO.5								
BIO.6	28	29	30	31	32	33	34	
BIO.7								
BIO.8	22	24	26	27	28	28	29	30
	30	31	32	33	34			
BIO.9								
BIO.10								
BIO.11	8	8	8	8	8	8	9	9
	9	9	9	9	10	10	10	10
	10	10	11	11	11	11	11	11
	12	12	12	12	12	12	13	13
	13	13	13	13				
BIO.12								
BIO.13	25	25	25					
BIO.14								
BIO.15								
BIO.16								
CHEM.1								
CHEM.2								
CHEM.3	1	1	1	1	1	1	2	2
	2	2	2	3	3	3	3	3
	4	4	4	4	4	5	5	5
	5	5	6	6	6	6	6	6
	7	7	7	7	7	7		

**Science ACT Form 1: Items Coded by Reviewers to Each Standard continued**

CHEM.4	21	22	23	24	25	26	27	28
	32	34						
CHEM.5								
CHEM.6								
CHEM.7	30	31	33					
CHEM.8								
CHEM.9	14	15	16	17	18	19	20	29
CHEM.10								
CHEM.11								
PHY.1	35	35	35	35	35	36	36	37
	37	37	37	37	38	38	38	38
	38	38	39	39	39	39	39	39
	40	40	40	40				
PHY.2	14	14	14	14	15	15	15	15
	16	16	16	16	17	17	17	18
	18	18	19	19	19	19	20	20
	20	20	36	36	36	36	37	39
	40							
PHY.3								
PHY.4								
PHY.5								
PHY.6								
PHY.7								
PHY.8								
PHY.9								
PHY.10								
PHY.11								
PHY.12								

**Science ACT Form 1: Items Coded by Reviewers to Each Standard continued**

ESS.1								
ESS.2								
ESS.3								
ESS.4								
ESS.5								
ESS.6								
ESS.7								
ESS.8								
ESS.9								
ESS.10								
ESS.11								
ESS.12								
ESS.13	28	29	30	31	32	33	34	
ESS.14								
ESS.15								

**Science ACT Form 2: Items Coded by Reviewers to Each Standard**

BIO.1	3	3							
BIO.2	27	28	29	30	31	32	33		
BIO.3	27	28	30	32	33				
BIO.4	27	28	29	30	31	32	33		
BIO.5									
BIO.6									
BIO.7									
BIO.8	1	2	3	4	5	6			
BIO.9									
BIO.10	1	2	3	4	5	6			
BIO.11									
BIO.12									
BIO.13									
BIO.14	27	28	29	30	31	32	33		
BIO.15	27	28	29	30	31	32	33		
BIO.16									
CHEM.1									
CHEM.2	7	8	9	10	11	12	13		
CHEM.3									
CHEM.4	7	7	7	7	7	8	8	8	8
	8	9	9	9	9	9	9	10	10
	10	10	10	11	11	11	11	11	12
	12	12	12	12	13	13	13	13	13
	13								
CHEM.5	19	19	19	19	20				
CHEM.6	14	15	16	17	18	18	19	20	

**Science ACT Form 2: Items Coded by Reviewers to Each Standard continued**

CHEM.7	14	14	14	14	14	15	15	15	16
	16	16	17	17	17	17	18	18	18
	18	18	19	19	19	20	20	20	20
	20								
CHEM.8									
CHEM.9									
CHEM.10									
CHEM.11									
PHY.1									
PHY.2									
PHY.3									
PHY.4									
PHY.5									
PHY.6									
PHY.7									
PHY.8	22								
PHY.9	34								
PHY.10									
PHY.11	21	23	24	25	26				
PHY.12	21	21	21	21	22	22	22	22	23
	23	23	23	24	24	24	24	25	25
	25	25							
ESS.1									
ESS.2									
ESS.3									
ESS.4									
ESS.5									
ESS.6									
ESS.7									



**Science ACT Form 2: Items Coded by Reviewers to Each Standard continued**

ESS.8									
ESS.9	34	35	35	36	36	37	37	38	38
	39	39	40	40					
ESS.10									
ESS.11									
ESS.12									
ESS.13	34	35	35	36	37	38	40		
ESS.14									
ESS.15	34	35	36	37	38	39	40		

**Science ACT Form 3: Items Coded by Reviewers to Each Standard**

BIO.1								
BIO.2								
BIO.3								
BIO.4								
BIO.5								
BIO.6	7	8	9	10	11	12	13	
BIO.7								
BIO.8	7	8	9	10	11	12	13	
BIO.9								
BIO.10	7	8	9	10	11	12	13	
BIO.11								
BIO.12								
BIO.13	14	15	16	17	18	19	20	20
BIO.14	15	19	20					
BIO.15								
BIO.16	14	14	14	14	15	15	15	15
	16	16	16	16	16	16	17	17
	17	17	17	18	18	18	18	18
	18	19	19	19	19	20	20	20
	20							
CHEM.1	39							
CHEM.2								
CHEM.3	1	1	1	1	1	2	2	2
	2	2	3	3	3	3	4	4
	4	4	4	5	5	5	5	5
	6	6	6	6	6	35	36	37
	38	39	40					
CHEM.4	21	22	23	24	24	25	26	26
	27	27						

**Science ACT Form 3: Items Coded by Reviewers to Each Standard continued**

CHEM.5	6	21	22	23	24	25		
CHEM.6	24	26						
CHEM.7	26	27						
CHEM.8								
CHEM.9								
CHEM.10								
CHEM.11								
PHY.1								
PHY.2								
PHY.3								
PHY.4								
PHY.5								
PHY.6								
PHY.7								
PHY.8								
PHY.9								
PHY.10								
PHY.11	35	36	36	36	37	37	37	38
	38	38	39	39	39	40	40	40
PHY.12								
ESS.1								
ESS.2								
ESS.3								
ESS.4								
ESS.5								
ESS.6								
ESS.7								
ESS.8								
ESS.9	28							

**Science ACT Form 3: Items Coded by Reviewers to Each Standard continued**

ESS.10								
ESS.11								
ESS.12								
ESS.13	28	28	28	28	29	29	29	30
	30	31	31	31	32	32	32	33
	33	34	34	34				
ESS.14								
ESS.15								

**Science PreACT Form 1: Items Coded by Reviewers to Each Standard**

BIO.1									
BIO.2									
BIO.3									
BIO.4									
BIO.5									
BIO.6	1	1	2	2	3	3	4	4	5
	5	6	6	7	7				
BIO.7									
BIO.8	8	9	10	11	12	13			
BIO.9									
BIO.10									
BIO.11									
BIO.12									
BIO.13									
BIO.14									
BIO.15									
BIO.16									
CHEM.1									
CHEM.2									
CHEM.3									
CHEM.4									
CHEM.5									
CHEM.6	20	20	20	20	21	21	21	21	22
	22	22	22	23	23	23	23	24	24
	24	24							
CHEM.7									
CHEM.8									
CHEM.9									
CHEM.10									

**Science PreACT Form 1: Items Coded by Reviewers to Each Standard continued**

CHEM.11									
PHY.1									
PHY.2									
PHY.3									
PHY.4									
PHY.5									
PHY.6									
PHY.7									
PHY.8									
PHY.9									
PHY.10									
PHY.11									
PHY.12	14	14	14	14	15	15	15	15	15
	16	16	16	16	16	17	17	17	17
	17	18	18	18	18				
ESS.1									
ESS.2									
ESS.3									
ESS.4									
ESS.5									
ESS.6									
ESS.7									
ESS.8									
ESS.9	25	26	27	28	29	30			
ESS.10									
ESS.11									
ESS.12									
ESS.13	25	25	26	26	27	27	28	28	29
	30	30							

**Science PreACT Form 1: Items Coded by Reviewers to Each Standard continued**

ESS.14									
ESS.15									

**Science PreACT Form 2: Items Coded by Reviewers to Each Standard**

BIO.1									
BIO.2									
BIO.3									
BIO.4									
BIO.5									
BIO.6									
BIO.7									
BIO.8	1	1	2	2	3	5	5	6	6
	19	19	20	21	21	23	23	24	
BIO.9									
BIO.10	19	20	21	22	23	24			
BIO.11									
BIO.12									
BIO.13	24	24							
BIO.14									
BIO.15									
BIO.16									
CHEM.1									
CHEM.2									
CHEM.3									
CHEM.4	26								
CHEM.5									
CHEM.6	25	26	27	28	30				
CHEM.7									
CHEM.8									
CHEM.9									
CHEM.10									
CHEM.11									



**Science PreACT Form 2: Items Coded by Reviewers to Each Standard continued**

PHY.1	12	12	12	13	13	13	13	14	14
	14	14	15	15	15	16	16	16	17
	17	17	18	18					
PHY.2	12	15	16	17					
PHY.3									
PHY.4									
PHY.5									
PHY.6									
PHY.7									
PHY.8									
PHY.9									
PHY.10									
PHY.11									
PHY.12									
ESS.1	12	13	14	15	16	17	18		
ESS.2	12	13	14	15	16	17	18		
ESS.3									
ESS.4									
ESS.5									
ESS.6									
ESS.7									
ESS.8									
ESS.9									
ESS.10									
ESS.11									
ESS.12									
ESS.13									
ESS.14	7	7	8	8	9	9	10	10	10
ESS.15	11	11	11	11					
	7	8	9	10	11				

**Science PreACT Form 3: Items Coded by Reviewers to Each Standard**

BIO.1									
BIO.2									
BIO.3									
BIO.4									
BIO.5									
BIO.6									
BIO.7									
BIO.8	1	2	3	4	5	6			
BIO.9									
BIO.10									
BIO.11									
BIO.12									
BIO.13	24								
BIO.14									
BIO.15									
BIO.16	18	18	18	18	18	18	19	19	19
	19	19	20	20	20	20	20	20	21
	21	21	21	21	22	22	22	22	22
	22	23	23						
CHEM.1									
CHEM.2									
CHEM.3									
CHEM.4									
CHEM.5	29								
CHEM.6	25	25	25	26	26	26	27	27	27
	28	28	28	29	29	29	30	30	30
CHEM.7									
CHEM.8									
CHEM.9									

**Science PreACT Form 3: Items Coded by Reviewers to Each Standard continued**

CHEM.10									
CHEM.11									
PHY.1	13	13	14	14	15	15	16	17	17
PHY.2	13	13	14	14	15	15	16	16	17
	17	17							
PHY.3									
PHY.4									
PHY.5									
PHY.6									
PHY.7									
PHY.8									
PHY.9									
PHY.10									
PHY.11									
PHY.12									
ESS.1									
ESS.2									
ESS.3									
ESS.4									
ESS.5									
ESS.6									
ESS.7									
ESS.8									
ESS.9	7	8	9	10	11	12			
ESS.10									
ESS.11									
ESS.12									

**Science PreACT Form 3: Items Coded by Reviewers to Each Standard continued**

ESS.13	7	7	7	8	8	8	8	9	9
	9	10	10	10	11	11	11	11	12
	12	12	12						
ESS.14	9								
ESS.15									

**English ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

W.19									
W.20	1:1	3:1	4:2	5:2	6:1	7:2	11:2	12:2	13:2
	16:2	19:2	20:2	23:2	24:2	26:1	29:2	30:1	38:1
	39:1	46:2	47:2	48:1	49:2	56:2	59:3	60:1	64:1
	74:1	75:2							
W.21	32:1	34:2	39:1	41:2	42:1	43:2	44:2	45:2	
W.22	1:3	8:1	9:1	12:3	15:4	16:2	24:1	29:1	30:2
	46:3	47:2	49:3	56:2	59:4	60:5	64:4	66:1	67:2
	69:1	70:1	72:1	75:2					
W.23	1:3	3:1	4:1	5:1	7:1	8:1	9:2	11:1	12:3
	13:1	15:4	16:3	19:1	20:2	23:1	24:1	29:5	30:2
	32:1	34:2	37:1	38:2	39:3	41:4	42:1	43:2	44:1
	45:3	46:2	47:4	48:1	49:3	52:1	59:2	60:1	64:2
	66:3	67:2	69:1	70:1	72:4	74:1	75:3		
W.24									
W.25									
W.26									
W.27									
W.28									
L.35	2:6	3:3	4:3	6:1	7:4	8:1	14:3	17:2	18:4
	21:3	22:2	23:2	25:2	26:3	27:6	28:2	31:5	32:1
	33:2	35:2	36:3	37:2	38:1	40:2	43:1	44:1	48:1
	50:6	51:3	52:3	53:2	54:2	55:3	56:1	57:2	58:3
	61:6	62:1	63:1	65:1	66:1	68:3	69:2	71:3	73:2
	74:1								

**English ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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L.36	3:1	6:5	11:2	13:1	14:4	17:4	19:1	22:4	25:4
	28:4	33:4	34:1	35:3	39:1	40:4	42:1	51:4	53:4
	54:4	57:4	58:3	61:6	62:1	63:1	65:1	66:1	68:3
	69:2	71:3	73:2	74:1					
L.37	1:2	4:1	5:2	9:1	10:1	12:1	13:1	19:1	23:2
	24:2	26:2	29:1	32:1	34:1	36:2	37:2	38:3	39:1
	42:4	43:1	44:1	47:1	49:1	56:1	66:2	67:2	69:3
	70:2	74:1	75:1						
L.38	3:1	4:1	5:3	7:1	8:2	9:1	13:3	19:1	23:1
	24:2	26:1	31:1	32:4	34:1	35:1	36:1	37:1	38:1
	42:1	43:1	44:1	46:1	48:3	52:2	55:3	56:1	66:1
	68:1	70:1	71:2	74:1					
L.39	5:1	9:2	23:1	34:1	35:1	39:1	43:1	44:1	48:1
	55:1	71:1							
L.40									

**English ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

W.19									
W.20	2:1	3:1	4:1	6:1	12:1	14:2	14:	15:1	18:1
	21:1	23:1	24:1	27:2	29:2	30:2	41:3	42:2	44:2
	45:2	46:2	47:2	49:2	51:1	52:3	53:2	54:1	59:2
	60:2	66:1	67:2	69:1	70:3	72:2	74:2	75:2	
W.21	2:1	3:1	4:1	6:1	7:1	12:1	13:1	14:1	15:1
	23:1	24:1							
W.22	2:2	3:1	9:1	12:3	13:1	14:2	15:4	30:5	41:3
	44:3	45:4	46:2	47:1	51:1	52:2	55:1	59:2	60:4
	64:1	67:3	69:1	72:1	74:2				
W.23	2:1	3:1	4:1	6:2	7:1	9:1	12:2	13:2	14:3
	15:1	17:1	18:2	21:3	22:1	23:1	24:2	27:1	28:1
	29:1	36:1	37:1	41:2	42:1	44:3	45:1	46:3	47:1
	49:1	52:2	53:2	54:2	59:3	60:1	61:1	66:1	67:1
	70:4	72:1	74:3	75:5					
W.24									
W.25									
W.26									
W.27									
W.28									
L.35	1:1	3:2	4:1	7:1	8:5	9:4	10:1	11:1	13:4
	16:2	17:2	18:2	19:1	20:4	21:1	22:3	23:1	25:5
	26:4	27:1	28:5	31:1	32:6	33:6	34:2	35:2	36:3
	37:4	38:5	39:1	40:3	43:3	47:1	48:5	49:1	50:4
	51:3	53:1	54:1	55:3	56:1	57:4	58:5	61:2	62:2
	63:2	64:6	65:6	66:1	68:4	69:2	71:5	72:2	73:2

**English ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

1 Hit	2-3 Hits	4-5 Hits	6 Hits
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L.36	1:5	5:6	8:1	10:5	11:5	16:4	17:4	19:4	22:1
	23:1	31:5	34:4	35:4	36:1	39:2	43:3	48:2	50:1
	55:1	56:5	57:3	58:1	62:3	63:4	65:1	71:1	73:2
L.37	2:3	6:4	7:3	9:1	18:2	19:1	20:1	21:2	22:1
	23:1	24:1	27:1	28:1	29:1	36:2	37:2	39:1	40:1
	42:1	50:1	51:1	52:1	53:2	54:2	55:2	61:2	62:1
	66:2	67:1	69:2	73:1					
L.38	3:1	4:2	8:1	20:1	24:2	25:1	26:1	27:2	29:3
	38:1	39:2	40:2	42:2	47:2	49:3	58:1	61:1	64:1
	66:1	68:2	72:1	73:1					
L.39	23:1	26:1	27:1	29:1	54:1	66:1	70:1		
L.40	4:2	27:1	39:1	42:1	47:1	49:1	52:1	66:1	72:1



**English ACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

W.19	14:1	75:1							
W.20	5:2	10:3	13:2	14:1	15:3	30:1	33:2	34:1	38:2
	39:1	41:2	44:2	45:3	46:2	49:1	54:1	57:2	58:2
	59:2	61:2	62:1	66:2	67:2	75:2			
W.21	17:2	22:2	25:2	26:2	28:2	29:3	30:2		
W.22	5:2	10:2	13:1	14:2	15:4	18:1	20:1	21:1	22:2
	26:2	28:1	29:2	30:3	38:1	41:2	44:2	45:1	46:1
	54:1	57:3	58:3	59:1	61:1	66:2	67:2	71:1	75:1
W.23	2:2	4:1	5:4	6:1	8:1	10:3	11:1	12:2	13:4
	14:3	15:1	17:1	20:1	21:2	22:1	23:1	24:1	25:1
	26:3	27:2	28:1	29:4	30:2	33:5	34:1	38:5	39:2
	41:3	42:1	44:3	45:3	46:1	53:3	54:2	56:1	57:3
	58:2	59:5	61:4	66:4	67:3	74:1	75:4		
W.24									
W.25									
W.26									
W.27									
W.28									
L.35	1:2	2:4	3:4	4:3	6:4	7:4	8:4	9:1	11:4
	12:1	18:5	19:6	20:1	21:3	23:2	27:2	31:1	32:2
	34:1	35:3	36:3	37:5	40:6	42:2	43:3	47:4	48:6
	49:2	50:2	51:4	52:2	53:2	55:2	56:4	60:2	62:1
	63:2	64:4	65:1	68:5	69:2	70:5	71:2	72:5	73:5
	74:2								

**English ACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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L.36	1:4	4:1	7:2	9:5	16:6	27:1	31:4	32:4	35:3
	36:3	37:1	42:4	43:3	47:1	50:4	51:4	52:4	54:1
	55:3	56:1	58:1	60:4	63:5	64:3	65:5	69:4	72:1
L.37	2:2	3:1	4:2	6:1	7:1	11:1	12:3	17:2	20:3
	21:1	22:1	23:2	23:1	24:1	25:1	27:1	28:2	31:1
	34:4	35:3	39:3	46:3	47:1	49:2	54:2	55:1	62:2
	68:1	70:1	71:3	73:1	74:3				
L.38	3:1	8:1	17:2	18:1	20:1	22:1	23:1	24:3	25:3
	27:1	28:1	47:1	48:1	49:2	53:1	62:3		
L.39	6:1	17:1	22:1	24:1	25:1	39:1	73:1		
L.40	3:1	8:1	11:1	12:1	17:1	19:1	20:1	23:1	24:1
	25:2	27:1	28:1	34:1	37:1	39:1	40:1	46:1	48:1
	51:1	54:1	55:1	56:1	62:2	64:1	68:1	70:1	71:1
	74:1								

**English PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

W.21									
W.22	1:1	5:2	10:3	13:3	15:2	16:1	17:2	18:2	19:3
	23:3	30:3	32:1	33:3	36:3	41:3	43:2	44:3	
W.23	17:1								
W.24	5:2	6:1	9:2	10:1	11:1	14:2	17:2	18:3	19:1
	23:3	24:2	30:2	31:2	32:2	33:2	33:1	34:1	35:1
	36:2	38:2	44:2						
W.25	5:2	6:1	10:3	11:3	13:4	15:5	17:2	18:1	19:4
	23:4	24:1	30:3	36:4	41:6	43:6	44:4		
W.26									
W.27									
W.28									
W.29	24:1								
W.30									
L.37	2:2	4:6	5:1	6:3	7:6	8:4	9:1	11:3	12:6
	14:3	18:1	20:6	21:1	22:6	25:2	26:6	27:1	28:6
	29:4	31:4	32:3	34:3	35:3	37:6	38:4	39:1	42:1
	45:3								
L.38	2:4	3:6	21:5	25:4	27:5	29:1	31:1	34:2	35:1
	39:5	40:5	45:3						
L.39	1:1	5:1	6:2	8:2	9:5	10:1	13:1	14:2	16:3
	17:2	18:2	19:2	24:2	29:1	32:2	33:1	34:1	35:1
	37:1	38:1	42:1	44:1					
L.40	1:5	5:1	6:1	14:1	16:2	18:1	24:1	31:1	33:1
	34:1	35:1	36:1	38:1	40:1	42:3			
L.41	16:1	42:1							
L.42	1:2	16:2	33:1	42:2					

**English PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

W.21									
W.22	1:3	9:3	14:3	15:2	16:3	20:3	26:2	28:2	29:4
	30:3	36:2	38:1	39:1	41:3	44:2	45:2		
W.23									
W.24	1:2	3:2	5:2	6:1	9:3	10:1	12:1	13:1	15:3
	16:2	18:1	20:1	21:2	22:2	23:1	25:2	26:3	28:3
	29:4	30:4	36:2	38:2	39:3	41:2	44:3	45:3	
W.25	1:5	9:4	14:4	15:1	16:3	20:5	21:2	26:3	28:2
	38:1	39:3	41:3	43:1	44:3	45:1			
W.26									
W.27									
W.28									
W.29									
W.30									
L.37	2:6	3:2	5:2	6:5	7:6	10:2	12:4	17:2	18:1
	21:2	22:1	23:2	27:2	31:2	32:1	33:5	34:6	37:6
	38:1	40:6	42:1	43:6					
L.38	3:1	8:6	11:6	12:1	17:4	18:3	19:5	24:6	27:4
	31:4	33:1	35:6	42:5					
L.39	2:1	3:1	4:1	5:2	6:1	10:1	13:5	14:1	15:1
	16:1	19:1	22:4	23:2	25:4	26:1	28:1	29:1	30:1
	32:2	36:2	38:2	39:1	41:1	44:1	45:1		
L.40	3:1	4:3	5:1	10:3	12:1	18:2	21:1	22:1	23:1
	25:1	32:2	36:1	38:1					
L.41	4:1	12:1	32:1						
L.42	4:3	5:1	13:1	23:1	25:1	32:1	36:1	38:1	

**English PreACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

W.21									
W.22	1:1	3:1	4:1	8:1	12:3	15:3	17:2	19:2	20:3
	26:1	30:3	33:2	42:2	44:3	45:3			
W.23	12:1								
W.24	1:2	3:2	4:5	8:1	12:3	15:2	18:1	19:3	20:1
	26:1	27:2	28:2	30:3	32:1	33:3	34:1	37:1	39:2
	40:2	42:3	44:3	45:3					
W.25	1:1	3:4	4:2	12:3	15:3	19:3	20:5	30:1	33:3
	42:3	44:2	45:1						
W.26									
W.27									
W.28									
W.29									
W.30	26:1								
L.37	2:1	3:1	5:1	6:1	7:2	8:1	10:5	11:2	13:1
	16:6	17:2	18:1	21:6	22:6	24:4	25:2	26:1	28:3
	29:1	31:5	32:3	35:6	37:3	38:6	40:1	41:6	43:1
L.38	2:5	5:5	6:5	7:6	9:4	11:4	13:3	23:6	24:3
	25:1	29:6	31:2	32:1	36:6	43:5			
L.39	1:2	3:1	4:2	8:4	9:1	13:2	14:4	15:1	17:2
	18:4	19:2	20:1	22:1	25:1	26:2	27:4	28:2	32:1
	33:1	34:4	37:2	39:3	40:3	41:1	42:1	44:1	45:1
L.40	1:1	8:1	14:2	18:1	25:2	26:1	27:1	28:1	32:1
	34:1	37:1	39:2	40:1					
L.41	14:1	39:1							
L.42	1:1	14:1	25:1	34:1	39:1				

**Reading ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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RL.1	1:6	2:2	3:4	4:1	5:1	9:4	10:3		
RL.2	2:3	7:4	10:2						
RL.3	3:1	5:1	7:1	8:4	9:1				
RL.4	4:3	5:3	6:4	8:1					
RL.5	6:1	7:1	8:2	9:1	10:1				
RL.6	3:1	4:1	5:1	6:1					
RL.7									
RL.8	7:1	8:1	9:1	10:1					
RL.9	1:1								
RI.10	12:1	13:1	15:2	16:4	18:4	19:5	20:6	22:6	23:2
	24:1	25:6	27:6	29:3	30:1	31:2	32:3	33:3	34:4
	37:5	38:1	39:4						
RI.11	11:2	15:3	23:1	31:3	37:1	38:1	39:1		
RI.12	12:5	13:3	16:2	19:1	21:1	23:2	24:1	29:1	33:3
	37:1	39:1							
RI.13	13:1	14:3	17:6	24:1	26:1	28:6	35:6	36:4	38:1
RI.14	13:1	14:3	18:2	24:1	26:2	29:1	32:1	34:1	36:1
	38:3	39:1	40:2						
RI.15	11:4	15:1	18:1	21:5	24:1	25:1	26:4	30:5	32:2
	36:1	40:4							
RI.16	23:1	29:1							
RI.17									
RI.18									

**Reading ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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RL.1	1:1	2:1	3:2	9:1	10:4				
RL.2	1:3	2:3	6:6	8:1	9:3	10:1			
RL.3	3:2	5:1	7:1	8:2	9:2	10:1			
RL.4	3:1	4:6	5:5						
RL.5	1:1	3:3	8:2	9:1					
RL.6	2:1	7:3							
RL.7									
RL.8	6:1	8:1	9:1						
RL.9	1:1	2:1	6:1						
RI.10	12:1	13:3	14:6	15:1	16:6	18:5	19:6	20:5	21:1
	22:3	23:4	24:4	26:1	27:2	29:6	31:5	37:6	39:5
	40:4								
RI.11	12:4	13:1	15:4	18:1	20:1	21:1	26:4	32:3	34:1
	40:2								
RI.12	14:1	22:3	23:1	24:2	27:1	35:4			
RI.13	17:6	25:4	27:1	28:6	30:6	31:1	34:2	36:6	38:6
RI.14	11:1	13:1	23:2	24:1	27:2	32:1	33:1	34:2	37:1
	38:1								
RI.15	11:5	13:2	21:5	25:2	27:1	33:4	34:1	39:2	
RI.16	27:1								
RI.17									
RI.18									

**Reading ACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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RL.1	2:4	3:1	4:2	6:4	8:3	9:3			
RL.2	1:2	3:4	6:1	9:1	10:1				
RL.3	4:1	7:1	8:2						
RL.4	5:5	7:4	10:3						
RL.5	1:2	4:2	8:1	9:1					
RL.6	4:1	9:1	10:1						
RL.7									
RL.8									
RL.9									
RI.10	2:1	4:1	6:1	15:4	16:1	17:6	20:6	22:3	24:3
	25:1	27:5	28:3	29:1	30:3	31:3	32:3	33:4	34:5
	35:5	36:3	37:5	38:1	39:2				
RI.11	12:1	15:1	16:2	18:1	21:1	24:1	25:4	26:1	28:2
	29:2	32:1	33:1	34:1	35:1	36:1	37:1	38:1	39:1
	40:1								
RI.12	8:1	9:1	12:2	15:1	24:1	26:1	31:1	32:2	33:1
	36:1	38:4	39:3	40:2					
RI.13	5:1	7:1	10:1	13:6	14:4	16:1	19:5	23:6	31:1
	40:3								
RI.14	11:1	12:3	14:1	16:1	18:2	19:1	20:1	21:4	22:1
	24:1	26:3	27:2	30:3	31:1	32:1	36:1	38:1	
RI.15	1:1	11:3	14:1	18:2	21:2	22:2	24:1	26:1	29:2
	30:2	31:2	36:1	38:1					
RI.16									
RI.17	26:1	28:1	29:1	30:1					
RI.18									



**Reading PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit | 2-3 Hits | 4-5 Hits | 6 Hits**

RL.1	2:3	4:4	5:2	6:2	7:4	8:2			
RL.2	1:1	3:3	2:2	8:2					
RL.3	3:1	4:1	7:1						
RL.4	2:2	6:3							
RL.5	1:1	3:2	5:1	6:1	8:1				
RL.6	1:4	2:1	8:1						
RL.7									
RL.8									
RL.9	3:1	5:1	8:1						
RI.10	2:1	4:1	5:1	7:1	8:1	9:5	11:4	13:5	14:6
	15:5	16:5	17:2	18:1	19:3	20:1	21:1	22:4	23:3
	25:4								
RI.11	9:1	11:1	13:1	14:1	15:1	16:1	18:3	20:1	21:2
	22:1								
RI.12	5:1	11:2	12:1	18:1	20:2	21:1	22:1		
RI.13	2:1	10:5	12:4	17:3	24:6				
RI.14	3:1	6:1	12:1	17:1	20:2	21:3	23:1	25:2	
RI.15	1:1	19:3	23:2						
RI.16	19:1	20:1	22:1	23:1					
RI.17									
RI.18									
RI.19									
RI.20	9:1	15:1	16:1	18:1					

**Reading PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

RL.1	2:2	3:3	4:1	7:3	8:4	9:4			
RL.2	1:4	2:1	3:2	4:1	7:3	8:4	9:4		
RL.3	1:1	4:1	7:1						
RL.4	4:2	5:5	6:5						
RL.5	2:2								
RL.6	2:1	3:1							
RL.7									
RL.8									
RL.9									
RI.10	2:1	3:1	7:1	8:1	9:1	11:4	14:5	15:5	16:5
	19:2	20:1	21:3	22:5	23:5	24:3	25:4		
RI.11	11:1	15:1	16:1	20:1	21:2	22:1	23:1	24:1	25:2
RI.12	11:1	12:4	13:2	22:1	23:1	24:1			
RI.13	5:1	6:1	10:6	17:6	18:6	21:1	22:1		
RI.14	4:1	12:4	13:4	14:1	19:3	20:4	22:1	24:1	
RI.15	4:1	8:1	13:1	19:1	20:1	25:1			
RI.16									
RI.17	19:1	20:2							
RI.18									
RI.19									
RI.20									

**Reading PreACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

RL.1	1:5	2:4	3:2	4:2	6:3	7:2	8:2		
RL.2	1:1	4:1	7:1	8:1					
RL.3	1:1	2:2	4:5	6:2	7:2				
RL.4	2:2	3:5	6:6	7:1	8:1				
RL.5	6:1	7:2	8:2						
RL.6	3:1	6:1	7:1						
RL.7									
RL.8									
RL.9									
RI.10	9:5	10:5	11:3	12:2	13:4	15:1	16:2	17:5	18:5
	19:4	20:1	21:5	22:4					
RI.11	9:2	13:2	15:2	16:1	19:2	20:1	22:1	24:1	
RI.12	11:2	12:1	14:1	15:1	16:1	17:1	18:1	19:1	20:2
	21:1	25:1							
RI.13	10:1	12:2	14:3	17:1	23:6	25:5			
RI.14	10:1	11:1	14:3	18:1	19:1	20:3	22:1	24:2	
RI.15	11:1	12:1	16:2	24:3					
RI.16	15:1								
RI.17									
RI.18	15:1	16:1	17:1						
RI.19									
RI.20									

**Writing ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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W.19	Scoring Domain 1:6	Scoring Domain 2:6	Scoring Domain 3:4	Scoring Domain 4:2
W.20	Scoring Domain 3:1	Scoring Domain 4:1		
W.21	Scoring Domain 3:1	:		
W.22	Scoring Domain 1:5	Scoring Domain 2:5	Scoring Domain 3:5	Scoring Domain 4:2
W.23	Scoring Domain 1:1	Scoring Domain 2:1	Scoring Domain 3:1	
W.24				
W.25				
W.26				
W.27				
W.28				
L.35	Scoring Domain 4:5			
L.36	Scoring Domain 4:1			
L.37	Scoring Domain 4:1			
L.38				
L.39				
L.40				

**Writing ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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W.19	<b>Scoring Domain 1:6</b>	<b>Scoring Domain 2:6</b>	Scoring Domain 3:4	Scoring Domain 4:2
W.20	Scoring Domain 3:1	Scoring Domain 4:1		
W.21				
W.22	<b>Scoring Domain 1:5</b>	<b>Scoring Domain 2:5</b>	<b>Scoring Domain 3:6</b>	Scoring Domain 4:2
W.23	Scoring Domain 1:1	Scoring Domain 2:1	Scoring Domain 3:1	
W.24				
W.25				
W.26				
W.27				
W.28				
L.35	<b>Scoring Domain 4:5</b>			
L.36	Scoring Domain 4:1			
L.37	Scoring Domain 4:1			
L.38				
L.39				
L.40				

**Writing ACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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W.19	Scoring Domain 1:6	Scoring Domain 2:6	Scoring Domain 3:4	Scoring Domain 4:2
W.20	Scoring Domain 3:1	Scoring Domain 4:1		
W.21				
W.22	Scoring Domain 1:5	Scoring Domain 2:5	Scoring Domain 3:6	Scoring Domain 4:2
W.23	Scoring Domain 1:1	Scoring Domain 2:1	Scoring Domain 3:1	
W.24				
W.25				
W.26				
W.27				
W.28				
L.35	Scoring Domain 4:5			
L.36	Scoring Domain 4:1			
L.37	Scoring Domain 4:1			
L.38				
L.39				
L.40				

**Mathematics ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG1.1	38:2	53:4							
ALG1.2	8:1	33:2	38:5	53:3					
ALG1.3	20:6	33:1							
ALG1.4	28:1	51:5							
ALG1.5	5:1	54:1							
ALG1.6									
ALG1.7	7:1	21:1	24:1	52:1	57:1				
ALG1.8	7:1	18:5	33:1	50:1					
ALG1.9	18:2								
ALG1.10	33:2								
ALG1.11	40:2								
ALG1.12	5:2	7:1	8:1	14:1	17:1	19:2	27:1	28:2	30:1
	32:1	46:1	47:3	51:1	54:1				
ALG1.13	7:1	13:4	21:1	24:2					
ALG1.14	19:1								
ALG1.15									
ALG1.16	8:1	54:1							
ALG1.17	7:1	8:1	16:1	19:3	30:1	32:1	47:3	54:1	
ALG1.18	16:1	50:2	59:1						
ALG1.19	13:1	24:1							
ALG1.20	13:4	24:1	49:1						
ALG1.21	13:1	24:2							
ALG1.22	27:1								
ALG1.23									
ALG1.24									
ALG1.25	36:1								
ALG1.26	1:5	8:1	16:4	30:1	31:4	36:1			
ALG1.27	14:2	17:2	30:1						

**Mathematics ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG1.28	11:1	16:1	27:1						
ALG1.29	36:1								
ALG1.30	44:1								
ALG1.31	36:2								
ALG1.32									
ALG1.33									
ALG1.34	5:1	17:3	60:1						
ALG1.35	14:2	17:1	30:1						
ALG1.36	27:1	49:5							
ALG1.37	27:1								
ALG1.38	14:1	44:1							
ALG1.39									
ALG1.40									
ALG2.1	34:1								
ALG2.2	34:6	45:1							
ALG2.3									
ALG2.4	45:5	50:2	59:1						
ALG2.5	50:3								
ALG2.6									
ALG2.7									
ALG2.8									
ALG2.9	10:6								
ALG2.10									
ALG2.11									
ALG2.12	28:1	40:1							
ALG2.13	18:1	40:2							
ALG2.14									



**Mathematics ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG2.15	33:1								
ALG2.16									
ALG2.17									
ALG2.18									
ALG2.19	40:2								
ALG2.20	5:1	8:1	28:1	30:1	47:1				
ALG2.21	7:1	24:1							
ALG2.22									
ALG2.23									
ALG2.24									
ALG2.25	50:1								
ALG2.26									
ALG2.27									
ALG2.28	26:1								
ALG2.29									
ALG2.30	36:2								
ALG2.31									
ALG2.32									
ALG2.33	31:1								
ALG2.34	49:2								
ALG2.35									
ALG2.36									
GEO.1	9:1	26:2	29:1						
GEO.2	25:2	25:							
GEO.3	25:1								
GEO.4	26:1	32:1							

**Mathematics ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit | 2-3 Hits | 4-5 Hits | 6 Hits**

GEO.5									
GEO.6									
GEO.7									
GEO.8									
GEO.9	32:3								
GEO.10	12:1								
GEO.11									
GEO.12									
GEO.13	60:1								
GEO.14									
GEO.15									
GEO.16									
GEO.17									
GEO.18									
GEO.19									
GEO.20									
GEO.21	6:5	29:1							
GEO.22	59:1								
GEO.23	43:2								
GEO.24									
GEO.25	56:1								
GEO.26	60:1								
GEO.27									
GEO.28									

**Mathematics ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

GEO.29									
GEO.30									
GEO.31	27:1								
GEO.32	9:3	22:2							
GEO.33									
GEO.34	42:2	43:1	60:1						
GEO.35									
GEO.36	52:1								
GEO.37									
GEO.38	23:3								
GEO.39									
GEO.40	37:1								
GEO.41	55:1								
GEO.42	2:2	4:2	35:1	46:1					
GEO.43	15:2	37:1	41:1						

**Mathematics ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG1.1	34:2	39:1							
ALG1.2	27:3	34:5	39:4						
ALG1.3	35:5	56:1							
ALG1.4	3:1	38:6							
ALG1.5	26:1	27:1	29:2	38:1	52:1	58:1			
ALG1.6	56:1								
ALG1.7	43:1	56:1							
ALG1.8	17:2	20:1	27:1	44:2					
ALG1.9	7:1	9:2	17:2						
ALG1.10	17:3								
ALG1.11	16:1	21:1	44:2						
ALG1.12	1:2	3:2	19:1	20:2	29:1	43:2	46:1	49:1	51:1
	60:1								
ALG1.13	15:2	25:1	30:1	40:2	49:1				
ALG1.14	15:1	16:1	21:1	24:1					
ALG1.15	21:1	58:1							
ALG1.16	21:1	52:1							
ALG1.17	1:1	3:1	16:1	43:1	56:2	58:3			
ALG1.18	7:5	9:4	53:1	60:3					
ALG1.19	15:1								
ALG1.20	15:2	25:1	40:5	58:1	60:1				
ALG1.21	15:1	40:1							
ALG1.22	26:1	49:1							
ALG1.23									
ALG1.24									
ALG1.25	5:1	52:3							
ALG1.26	5:6	24:2	26:1	60:1					
ALG1.27									

**Mathematics ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG1.28	26:1								
ALG1.29	26:1								
ALG1.30	3:1	51:3							
ALG1.31	48:1								
ALG1.32	7:1	9:1	48:1						
ALG1.33									
ALG1.34	46:2	52:1							
ALG1.35	46:1								
ALG1.36									
ALG1.37	46:1								
ALG1.38	46:2								
ALG1.39									
ALG1.40									
ALG2.1	10:3								
ALG2.2	10:4								
ALG2.3									
ALG2.4	53:5								
ALG2.5	10:1	53:1							
ALG2.6									
ALG2.7									
ALG2.8	11:6								
ALG2.9									
ALG2.10									
ALG2.11									
ALG2.12	21:2	56:1							
ALG2.13	44:1								
ALG2.14									

**Mathematics ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG2.15	17:1	44:1							
ALG2.16	37:6								
ALG2.17	58:1								
ALG2.18									
ALG2.19	16:1	37:1	48:2						
ALG2.20	1:1	3:1	25:1	28:1					
ALG2.21	15:1								
ALG2.22	24:1								
ALG2.23									
ALG2.24	21:1	24:2							
ALG2.25	53:1								
ALG2.26									
ALG2.27	56:1								
ALG2.28									
ALG2.29	24:1	48:1	60:1						
ALG2.30									
ALG2.31	48:1								
ALG2.32									
ALG2.33	46:1								
ALG2.34									
ALG2.35	52:1								
ALG2.36	23:5	34:1							
GEO.1									
GEO.2	22:2								
GEO.3									
GEO.4	6:1								
GEO.5	22:1								

**Mathematics ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

GEO.6	22:1								
GEO.7									
GEO.8									
GEO.9	6:2								
GEO.10	50:1								
GEO.11									
GEO.12	50:1								
GEO.13									
GEO.14									
GEO.15	18:1	28:1							
GEO.16									
GEO.17									
GEO.18	18:5	28:5	59:1						
GEO.19									
GEO.20									
GEO.21	32:2	57:2							
GEO.22									
GEO.23	32:1	33:1							
GEO.24									
GEO.25	36:3	47:1							
GEO.26									
GEO.27	36:3								
GEO.28	47:3								
GEO.29									
GEO.30	50:1	59:2							
GEO.31	30:3	49:1							
GEO.32	19:3	32:1							

**Mathematics ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

GEO.33									
GEO.34	31:2								
GEO.35	47:1								
GEO.36	14:1								
GEO.37									
GEO.38									
GEO.39	33:1								
GEO.40									
GEO.41	16:1	31:1	33:1						
GEO.42	2:1	4:1	8:2	13:1					
GEO.43	4:1	25:3	54:1						



**Mathematics PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG1.1	5:3	19:1							
ALG1.2	5:5	6:1	19:5						
ALG1.3	11:1								
ALG1.4	25:2								
ALG1.5	23:1	25:1							
ALG1.6	11:1	29:3							
ALG1.7	10:1	11:1							
ALG1.8	21:1	32:1							
ALG1.9	10:1	11:1	21:2	27:1	29:1	32:1			
ALG1.10									
ALG1.11	30:1								
ALG1.12	1:3	7:1	9:1	10:1	14:1	23:1	24:2	25:1	27:6
	35:2								
ALG1.13	10:2	30:1							
ALG1.14	11:1								
ALG1.15	9:1	10:2	30:1						
ALG1.16	4:1	11:1	14:2	30:1					
ALG1.17	1:2	9:1	14:2	23:1	32:1	35:3			
ALG1.18									
ALG1.19	18:2								
ALG1.20	18:6	30:1							
ALG1.21									
ALG1.22	3:2								
ALG1.23									
ALG1.24									
ALG1.25	6:1								
ALG1.26	6:5								

**Mathematics PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**  
**continued**

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

ALG1.27									
ALG1.28	3:1	16:1							
ALG1.29	16:1								
ALG1.30	3:2								
ALG1.31	16:2								
ALG1.32									
ALG1.33	3:1	16:1							
ALG1.34									
ALG1.35									
ALG1.36	25:1								
ALG1.37									
ALG1.38									
ALG1.39	16:1								
ALG1.40	3:1								
ALG1.41									
ALG1.42	9:1	12:1							
ALG1.43	9:1	12:1							
ALG1.44	28:1								
ALG1.45									
ALG1.46	3:1								
ALG1.47	22:3	26:3	28:1						
GEO.1	34:1								
GEO.2	20:4	34:1							
GEO.3	34:1								
GEO.4	20:1	34:1							
GEO.5	20:2	34:2							
GEO.6									

**Mathematics PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**  
**continued**

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

GEO.7									
GEO.8	8:3								
GEO.9	33:4								
GEO.10	2:3								
GEO.11	33:1								
GEO.12									
GEO.13									
GEO.14	4:1								
GEO.15	4:1	8:1							
GEO.16	4:1	8:2							
GEO.17									
GEO.18	1:1	4:4	8:2	34:1					
GEO.19	17:1								
GEO.20	36:5								
GEO.21	17:5	36:1							
GEO.22									
GEO.23									
GEO.24									
GEO.25	31:2								
GEO.26	31:4								
GEO.27									
GEO.28									
GEO.29	31:1								
GEO.30	13:3								
GEO.31	34:1								
GEO.32	13:2								
GEO.33	7:1	15:1							

**Mathematics PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**  
**continued**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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GEO.34	7:3	15:2	23:2	24:1	25:2				
GEO.35	24:1								
GEO.36									
GEO.37									
GEO.38									
GEO.39									
GEO.40									
GEO.41	4:2	15:1	23:1	24:1	25:1	33:1			
GEO.42									
GEO.43									

**Mathematics PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

ALG1.1	1:2	21:1				
ALG1.2	1:5	5:1	21:5	25:1		
ALG1.3	30:5	35:1				
ALG1.4	17:1	19:1				
ALG1.5						
ALG1.6	2:1	25:2	35:1			
ALG1.7	5:2	15:1	33:1	34:1		
ALG1.8						
ALG1.9	17:1					
ALG1.10	5:1					
ALG1.11	11:1	17:1	30:1			
ALG1.12	3:2	12:1	15:2	17:1	18:1	20:2
ALG1.13	12:1					
ALG1.14	11:1	18:1				
ALG1.15	32:4	:	:	:		
ALG1.16	5:1	15:1	18:1			
ALG1.17	3:4	11:1	12:4	20:4		
ALG1.18	5:1					
ALG1.19						
ALG1.20						
ALG1.21						
ALG1.22	24:1					
ALG1.23						
ALG1.24						
ALG1.25						
ALG1.26	33:2					
ALG1.27	8:1					

**Mathematics PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**  
**continued**

1 Hit	2-3 Hits	4-5 Hits	6 Hits
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ALG1.28	7:2	10:1	24:1			
ALG1.29	24:1					
ALG1.30	10:3	16:5	24:2	29:1		
ALG1.31	7:1	10:1				
ALG1.32	33:1	34:1				
ALG1.33	8:1	12:1				
ALG1.34						
ALG1.35	8:2					
ALG1.36						
ALG1.37	34:1					
ALG1.38	8:1	33:1	34:1			
ALG1.39	24:1					
ALG1.40	10:1	34:1				
ALG1.41						
ALG1.42						
ALG1.43	6:1	24:1				
ALG1.44						
ALG1.45	29:3					
ALG1.46	10:1	16:1	24:1	29:3		
ALG1.47						
GEO.1						
GEO.2						
GEO.3						
GEO.4						
GEO.5						
GEO.6						
GEO.7						

**Mathematics PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**  
 continued

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

GEO.8						
GEO.9						
GEO.10	4:1	26:1				
GEO.11	27:2					
GEO.12						
GEO.13						
GEO.14	4:1	26:1				
GEO.15	26:1					
GEO.16						
GEO.17	4:1	28:1				
GEO.18	26:3	28:3				
GEO.19						
GEO.20						
GEO.21						
GEO.22	31:1					
GEO.23	31:5					
GEO.24						
GEO.25	36:6					
GEO.26	36:1					
GEO.27						
GEO.28	7:1	36:1				
GEO.29						
GEO.30	13:2	22:2	28:1			
GEO.31						
GEO.32	13:3	22:2	26:1			
GEO.33						
GEO.34	14:3	19:2	22:1	27:1		

**Mathematics PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**  
**continued**

<b>1 Hit</b>	<b>2-3 Hits</b>	<b>4-5 Hits</b>	<b>6 Hits</b>
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GEO.35						
GEO.36	9:3					
GEO.37						
GEO.38						
GEO.39	23:2					
GEO.40						
GEO.41	19:1					
GEO.42	6:2	23:1				
GEO.43						



**Science ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

BIO.1	22:1							
BIO.2								
BIO.3								
BIO.4								
BIO.5								
BIO.6	28:1	29:1	30:1	31:1	32:1	33:1	34:1	
BIO.7								
BIO.8	22:1	24:1	26:1	27:1	28:2	29:1	30:2	31:1
	32:1	33:1	34:1					
BIO.9								
BIO.10								
BIO.11	8:6	9:6	10:6	11:6	12:6	13:6		
BIO.12								
BIO.13	25:3							
BIO.14								
BIO.15								
BIO.16								
CHEM.1								
CHEM.2								
CHEM.3	1:6	2:5	3:5	4:5	5:5	6:6	7:6	
CHEM.4	21:1	22:1	23:1	24:1	25:1	26:1	27:1	28:1
	32:1	34:1						
CHEM.5								
CHEM.6								
CHEM.7	30:1	31:1	33:1					
CHEM.8								
CHEM.9	14:1	15:1	16:1	17:1	18:1	19:1	20:1	29:1
CHEM.10								

**Science ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

CHEM.11								
PHY.1	35:5	36:2	37:5	38:6	39:6	40:4		
PHY.2	14:4	15:4	16:4	17:3	18:3	19:4	20:4	36:4
	37:1	39:1	40:1					
PHY.3								
PHY.4								
PHY.5								
PHY.6								
PHY.7								
PHY.8								
PHY.9								
PHY.10								
PHY.11								
PHY.12								
ESS.1								
ESS.2								
ESS.3								
ESS.4								
ESS.5								
ESS.6								
ESS.7								
ESS.8								
ESS.9								
ESS.10								
ESS.11								
ESS.12								

**Science ACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

	28:1	29:1	30:1	31:1	32:1	33:1	34:1	
ESS.13								
ESS.14								
ESS.15								

**Science ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

BIO.1	3:2						
BIO.2	27:1	28:1	29:1	30:1	31:1	32:1	33:1
BIO.3	27:1	28:1	30:1	32:1	33:1		
BIO.4	27:1	28:1	29:1	30:1	31:1	32:1	33:1
BIO.5							
BIO.6							
BIO.7							
BIO.8	1:1	2:1	3:1	4:1	5:1	6:1	
BIO.9							
BIO.10	1:1	2:1	3:1	4:1	5:1	6:1	
BIO.11							
BIO.12							
BIO.13							
BIO.14	27:1	28:1	29:1	30:1	31:1	32:1	33:1
BIO.15	27:1	28:1	29:1	30:1	31:1	32:1	33:1
BIO.16							
CHEM.1							
CHEM.2	7:1	8:1	9:1	10:1	11:1	12:1	13:1
CHEM.3							
CHEM.4	7:5	8:5	9:6	10:5	11:5	12:5	13:6
CHEM.5	19:3	20:1					
CHEM.6	14:1	15:1	16:1	17:1	18:2	19:1	20:1
CHEM.7	14:5	15:3	16:3	17:4	18:5	19:3	20:5
CHEM.8							
CHEM.9							
CHEM.10							
CHEM.11							

**Science ACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

PHY.1							
PHY.2							
PHY.3							
PHY.4							
PHY.5							
PHY.6							
PHY.7							
PHY.8	22:1						
PHY.9	34:1						
PHY.10							
PHY.11	21:1	23:1	24:1	25:1	26:1		
PHY.12	21:4	22:4	23:4	24:4	25:4		
ESS.1							
ESS.2							
ESS.3							
ESS.4							
ESS.5							
ESS.6							
ESS.7							
ESS.8							
ESS.9	34:1	35:2	36:2	37:2	38:2	39:2	40:2
ESS.10							
ESS.11							
ESS.12							
ESS.13	34:1	35:2	36:1	37:1	38:1	40:1	
ESS.14							
ESS.15	34:1	35:1	36:1	37:1	38:1	39:1	40:1

**Science ACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

BIO.1									
BIO.2									
BIO.3									
BIO.4									
BIO.5									
BIO.6	7:1	8:1	9:1	10:1	11:1	12:1	13:1		
BIO.7									
BIO.8	7:1	8:1	9:1	10:1	11:1	12:1	13:1		
BIO.9									
BIO.10	7:1	8:1	9:1	10:1	11:1	12:1	13:1		
BIO.11									
BIO.12									
BIO.13	14:1	15:1	16:1	17:1	18:1	19:1	20:2		
BIO.14	15:1	19:1	20:1						
BIO.15									
BIO.16	14:4	15:4	16:6	17:5	18:6	19:4	20:4		
CHEM.1	39:1								
CHEM.2									
CHEM.3	1:5	2:5	3:4	4:5	5:5	6:5	35:1	36:1	37:1
	38:1	39:1	40:1						
CHEM.4	21:1	22:1	23:1	24:2	25:1	26:2	27:2		
CHEM.5	6:1	21:1	22:1	23:1	24:1	25:1			
CHEM.6	24:1	26:1							
CHEM.7	26:1	27:1							
CHEM.8									
CHEM.9									
CHEM.10									
CHEM.11									

**Science ACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

PHY.1									
PHY.2									
PHY.3									
PHY.4									
PHY.5									
PHY.6									
PHY.7									
PHY.8									
PHY.9									
PHY.10									
PHY.11	35:1	36:3	37:3	38:3	39:3	40:3			
PHY.12									
ESS.1									
ESS.2									
ESS.3									
ESS.4									
ESS.5									
ESS.6									
ESS.7									
ESS.8									
ESS.9	28:1								
ESS.10									
ESS.11									
ESS.12									
ESS.13	28:4	29:3	30:2	31:3	32:3	33:2	34:3		
ESS.14									
ESS.15									

**Science PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

BIO.1							
BIO.2							
BIO.3							
BIO.4							
BIO.5							
BIO.6	1:2	2:2	3:2	4:2	5:2	6:2	7:2
BIO.7							
BIO.8	8:1	9:1	10:1	11:1	12:1	13:1	
BIO.9							
BIO.10							
BIO.11							
BIO.12							
BIO.13							
BIO.14							
BIO.15							
BIO.16							
CHEM.1							
CHEM.2							
CHEM.3							
CHEM.4							
CHEM.5							
CHEM.6	20:4	21:4	22:4	23:4	24:4		
CHEM.7							
CHEM.8							
CHEM.9							
CHEM.10							
CHEM.11							



**Science PreACT Form 1: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

PHY.1							
PHY.2							
PHY.3							
PHY.4							
PHY.5							
PHY.6							
PHY.7							
PHY.8							
PHY.9							
PHY.10							
PHY.11							
PHY.12	14:4	15:5	16:5	17:5	18:4		
ESS.1							
ESS.2							
ESS.3							
ESS.4							
ESS.5							
ESS.6							
ESS.7							
ESS.8							
ESS.9	25:1	26:1	27:1	28:1	29:1	30:1	
ESS.10							
ESS.11							
ESS.12							
ESS.13	25:2	26:2	27:2	28:2	29:1	30:2	
ESS.14							
ESS.15							

**Science PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

BIO.1									
BIO.2									
BIO.3									
BIO.4									
BIO.5									
BIO.6									
BIO.7									
BIO.8	1:2 24:1	2:2	3:1	5:2	6:2	19:2	20:1	21:2	23:2
BIO.9									
BIO.10	19:1	20:1	21:1	22:1	23:1	24:1			
BIO.11									
BIO.12									
BIO.13	24:2								
BIO.14									
BIO.15									
BIO.16									
CHEM.1									
CHEM.2									
CHEM.3									
CHEM.4	26:1								
CHEM.5									
CHEM.6	25:1	26:1	27:1	28:1	30:1				
CHEM.7									
CHEM.8									
CHEM.9									
CHEM.10									
CHEM.11									

**Science PreACT Form 2: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

PHY.1	12:3	13:4	14:4	15:3	16:3	17:3	18:4		
PHY.2	12:1	15:1	16:1	17:1					
PHY.3									
PHY.4									
PHY.5									
PHY.6									
PHY.7									
PHY.8									
PHY.9									
PHY.10									
PHY.11									
PHY.12									
ESS.1	12:1	13:1	14:1	15:1	16:1	17:1	18:1		
ESS.2	12:1	13:1	14:1	15:1	16:1	17:1	18:1		
ESS.3									
ESS.4									
ESS.5									
ESS.6									
ESS.7									
ESS.8									
ESS.9									
ESS.10									
ESS.11									
ESS.12									
ESS.13									
ESS.14	7:2	8:2	9:2	10:3	11:4				
ESS.15	7:1	8:1	9:1	10:1	11:1				

**Science PreACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers)**

**1 Hit** **2-3 Hits** **4-5 Hits** **6 Hits**

BIO.1							
BIO.2							
BIO.3							
BIO.4							
BIO.5							
BIO.6							
BIO.7							
BIO.8	1:1	2:1	3:1	4:1	5:1	6:1	
BIO.9							
BIO.10							
BIO.11							
BIO.12							
BIO.13	24:1						
BIO.14							
BIO.15							
BIO.16	18:6	19:5	20:6	21:5	22:6	23:5	24:4
CHEM.1							
CHEM.2							
CHEM.3							
CHEM.4							
CHEM.5	29:1						
CHEM.6	25:3	26:3	27:3	28:3	29:3	30:3	
CHEM.7							
CHEM.8							
CHEM.9							
CHEM.10							
CHEM.11							

**Science PreACT Form 3: Number of Reviewers Coding Item by Standard (Item Number: Number of Reviewers) continued**

**1 Hit   2-3 Hits   4-5 Hits   6 Hits**

PHY.1	13:2	14:2	15:2	16:1	17:2		
PHY.2	13:2	14:2	15:2	16:2	17:3		
PHY.3							
PHY.4							
PHY.5							
PHY.6							
PHY.7							
PHY.8							
PHY.9							
PHY.10							
PHY.11							
PHY.12							
ESS.1							
ESS.2							
ESS.3							
ESS.4							
ESS.5							
ESS.6							
ESS.7							
ESS.8							
ESS.9	7:1	8:1	9:1	10:1	11:1	12:1	
ESS.10							
ESS.11							
ESS.12							
ESS.13	7:3	8:4	9:3	10:3	11:4	12:4	
ESS.14	9:1						
ESS.15							



## **Appendix E**

### **Results of Intra-Class Correlation**

Reliability can be increased by adding more training to reduce the One-Judge Reliability or by adding more judges to reduce the variability of the mean.

Notes: The minimum number of judge's calculation is based on the Spearman Browne Prophecy

formula,  $m = \left\{ \frac{\rho^*}{1 - \rho^*} \middle/ \frac{\rho_L}{1 - \rho_L} \right\} = \frac{\rho^* \langle 1 - \rho_L \rangle}{\rho_L \langle 1 - \rho^* \rangle}$ , where  $\rho^*$  is the reliability aspired to and  $\rho_L$  is the reliability

estimate for a single judge.

The two-way analysis assuming both random items and fixed judges gives a result for the mean

correlation identical to Cronbach's alpha, i.e.,  $\alpha = \frac{\sigma_{Bet}^2 - \sigma_e^2}{\sigma_{Bet}^2}$ . While SPSS allows the user to

select between the random and mixed models, the calculations come out the same with either model. Assuming the judges are fixed would imply these are the only judges that would ever be used, so there is no component of variance associated with them. *Random judges* assume the judges used are one of many possible selections of judges; then the variability among judges must be taken into account, which will result in a lower value for the intra-class correlation (or any other measure of reliability).

For the mixed model (i.e., fixed judges), the intra-class correlation would be calculated identically to Alpha.

$$ICC_{FixedJudges} = \frac{ItemMS - EMS}{ItemMS}$$

For the random model, the correct calculation is:

$$ICC_{RandomJudges} = \frac{ItemMS - EMS}{ItemMS + \frac{\langle JudgeMS - EMS \rangle}{n}}$$



## Calculation Modes

Calculation for two-way model with both questions and judges random.

<b>English ACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	74	3.11
Judges	5	4.50
Error	370	0.23
<b>Intra-Class Correlation</b>		0.91
Cronbach's Alpha		0.93

<b>English ACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	74	2.83
Judges	5	3.09
Error	370	0.23
<b>Intra-Class Correlation</b>		0.91
Cronbach's Alpha		0.92

<b>English ACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	74	3.43
Judges	5	1.92
Error	370	0.18
<b>Intra-Class Correlation</b>		0.94
Cronbach's Alpha		0.95

<b>English PreACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	44	3.47
Judges	5	1.64
Error	220	0.15
<b>Intra-Class Correlation</b>		<b>0.95</b>
Cronbach's Alpha		0.96

<b>English PreACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	44	3.81
Judges	5	0.59
Error	220	0.10
<b>Intra-Class Correlation</b>		<b>0.97</b>
Cronbach's Alpha		0.97

<b>English PreACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	44	3.18
Judges	5	0.77
Error	220	0.13
<b>Intra-Class Correlation</b>		<b>0.95</b>
Cronbach's Alpha		0.96

<b>Reading ACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	39	1.41
Judges	5	0.76
Error	195	0.27
<b>Intra-Class Correlation</b>		<b>0.81</b>
Cronbach's Alpha		0.81

<b>Reading ACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	39	1.60
Judges	5	0.78
Error	195	0.26
<b>Intra-Class Correlation</b>		<b>0.83</b>
Cronbach's Alpha		0.84

<b>Reading ACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	39	1.81
Judges	5	1.39
Error	195	0.28
<b>Intra-Class Correlation</b>		<b>0.83</b>
Cronbach's Alpha		0.85

<b>Reading PreACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	24	1.69
Judges	5	0.78
Error	120	0.34
<b>Intra-Class Correlation</b>		<b>0.79</b>
Cronbach's Alpha		0.80

<b>Reading PreACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	24	1.08
Judges	5	0.36
Error	120	0.28
<b>Intra-Class Correlation</b>		<b>0.74</b>
Cronbach's Alpha		0.74

<b>Reading PreACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	24	1.00
Judges	5	0.43
Error	120	0.27
<b>Intra-Class Correlation</b>		<b>0.73</b>
Cronbach's Alpha		0.73

<b>Writing ACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	3	0.93
Judges	5	0.54
Error	15	0.23
<b>Intra-Class Correlation</b>		<b>0.69</b>
Cronbach's Alpha		0.75

<b>Writing ACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	3	0.93
Judges	5	0.54
Error	15	0.23
<b>Intra-Class Correlation</b>		<b>0.69</b>
Cronbach's Alpha		0.75

<b>Writing ACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	0.93	4.04
Judges	0.54	2.35
Error	0.23	0.00
<b>Intra-Class Correlation</b>		<b>0.77</b>
Cronbach's Alpha		0.75

<b>ACT Math Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	59	0.48
Judges	5	0.97
Error	295	0.16
<b>Intra-Class Correlation</b>		<b>0.64</b>
Cronbach's Alpha		0.66

<b>ACT Math Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	59	0.60
Judges	5	1.25
Error	295	0.16
<b>Intra-Class Correlation</b>		<b>0.72</b>
Cronbach's Alpha		0.74

<b>PreACT Math Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	35	0.66
Judges	5	0.77
Error	175	0.18
<b>Intra-Class Correlation</b>		<b>0.72</b>
Cronbach's Alpha		0.73

<b>Math PreACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	35	0.72
Judges	5	1.16
Error	175	0.15
<b>Intra-Class Correlation</b>		<b>0.76</b>
Cronbach's Alpha		0.79

<b>Science ACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	39	0.94
Judges	5	3.90
Error	195	0.26
<b>Intra-Class Correlation</b>		<b>0.66</b>
Cronbach's Alpha		0.72

<b>Science ACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	39	0.98
Judges	5	0.79
Error	195	0.25
<b>Intra-Class Correlation</b>		<b>0.73</b>
Cronbach's Alpha		0.74

<b>Science ACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	39	1.15
Judges	5	1.50
Error	195	0.30
<b>Intra-Class Correlation</b>		<b>0.72</b>
Cronbach's Alpha		0.74

<b>Science PreACT Form 1</b>		
	<i>dF</i>	<i>MS</i>
Questions	29	0.48
Judges	5	0.81
Error	145	0.22
<b>Intra-Class Correlation</b>		<b>0.51</b>
Cronbach's Alpha		0.54

<b>Science PreACT Form 2</b>		
	<i>dF</i>	<i>MS</i>
Questions	29	1.65
Judges	5	0.68
Error	145	0.25
<b>Intra-Class Correlation</b>		<b>0.84</b>
Cronbach's Alpha		0.85

<b>Science PreACT Form 3</b>		
	<i>dF</i>	<i>MS</i>
Questions	29	0.87
Judges	5	0.28
Error	145	0.28
<b>Intra-Class Correlation</b>		<b>0.68</b>
Cronbach's Alpha		0.68



# **Appendix F**

## **PowerPoint Training Presentations**

**The ACT Assessment**  
 Test Design: ELA, Math, and Science  
 Alabama ACT Alignment Study, 2019

ACT

**Overview**

The ACT is...

- a curriculum-based test that assesses student mastery of both college and career readiness standards and many state learning standards
- designed to measure knowledge and skills in four core academic content areas: English, mathematics, reading, and science, with an optional writing (essay) test
- typically taken in the 11<sup>th</sup> or 12<sup>th</sup> grade
- a comprehensive system designed to help high school students develop postsecondary educational plans, and postsecondary educational institutions meet the needs of their students

ACT

**ACT Assessment Design: Data-Driven Process**

- The ACT is developed through a research and data collection process to ensure that items elicit the necessary evidence
- Several sources of data are used:
  - Subject-matter experts (SMEs)
  - Academic research on skill targets, sequencing of skills, and grade placement
  - Analysis of decades of test data
  - The ACT National Curriculum Survey<sup>®</sup>
  - Alignment to state achievement standards

ACT

**ACT Assessment Design: Scores**

- Composite Score: 1-36
- Subject-test Scores: 1-36
  - English
  - Mathematics
  - Reading
  - Science
- Writing (optional): 2-12
- STEM: 1-36 (Science and Math tests)
- ELA: 1-36 (English, reading, and writing tests)

ACT

**ACT Assessment Design: Item Types**

- The ACT uses MC and CR item types to collect evidence from the student
  - Multiple choice (MC): English, mathematics, reading, science tests
    - Stand-alone and passage-based items
  - Constructed response (CR): writing test

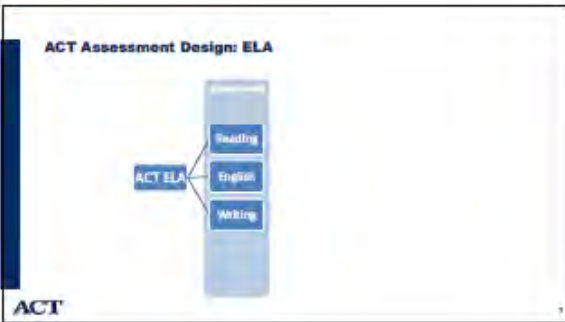
**ACT**

**English Language Arts**

Purpose of ACT ELA component: Identify student readiness for college-level reading and writing tasks  
 Measure key components of AL Course of Study standards:

- Reading complex literary and informational texts
- Writing to develop an argument using claims and evidence
- Using language skills in context to support reading and writing

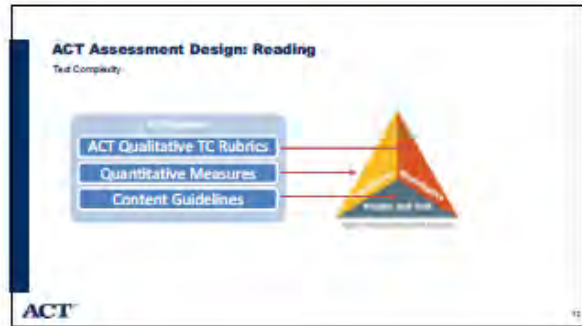
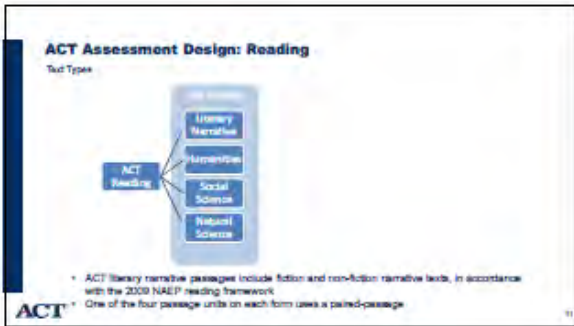
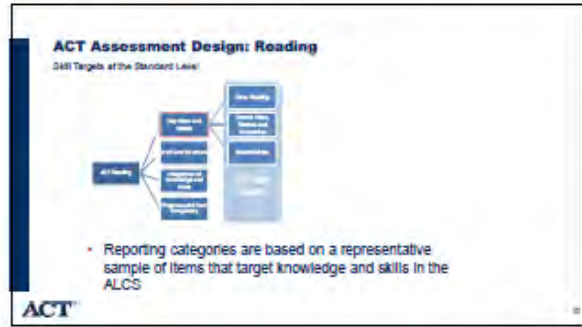
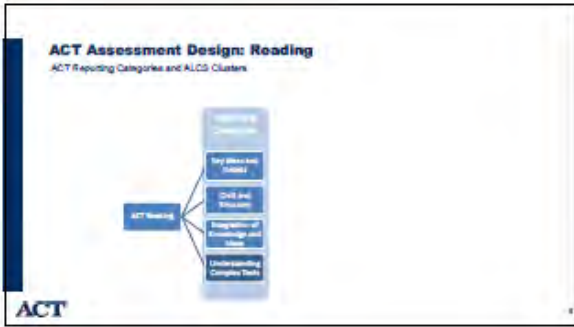
**ACT**

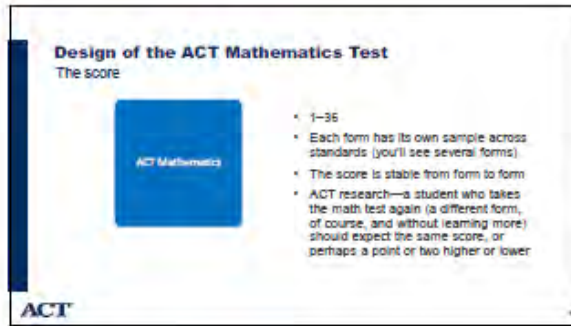
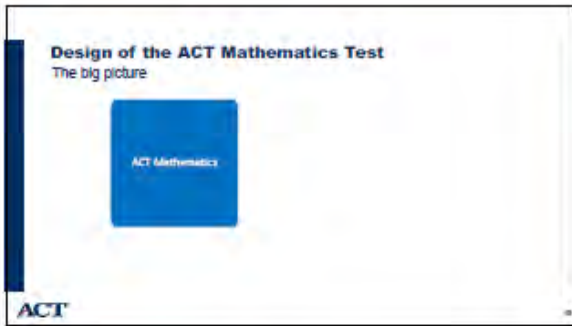
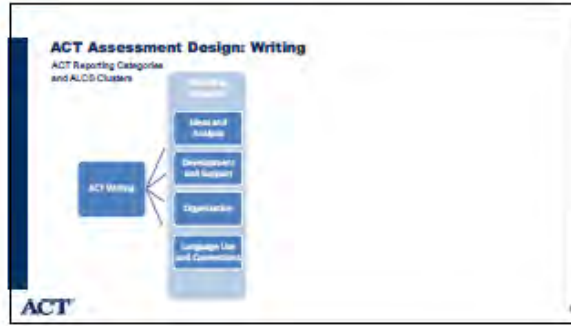
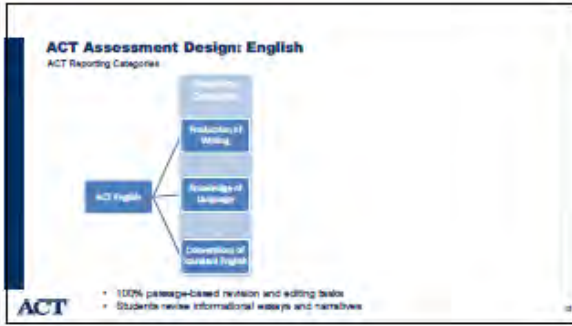


**ACT Assessment Design: ELA Scores and Benchmarks**

Score	Scale	ACT CCR Benchmark
Reading	1-36	22
English	1-36	18
Writing (optional)	2-12	—
ELA Combined Score (English, reading, and writing)	1-36	20
Understanding Complex Texts Indicator	Below Proficient / Proficient / Above Proficient	—

**ACT**





**Design of the ACT Mathematics Test**  
Score Interpretation

- The math benchmark score is 22
- Of the students who score 22 and take a typical college algebra course, 50% are likely to get a B or better
- About 75% are likely to get a C or better

ACT

**Design of the ACT Mathematics Test**  
Reporting Categories

ACT

**Design of the ACT Mathematics Test**  
Reporting Categories

ACT

**Design of the ACT Mathematics Test**  
Reporting Categories

ACT

### Design of the ACT Mathematics Test

#### The questions

- Practicing mathematics teachers write items, review items, and review forms
- ACT math staff has teaching experience across the grades
- Questions span a range of difficulty and complexity
- Easy questions tend to be near the beginning of the test and hard questions at the end
- Questions represent a sophisticated sampling of mathematics present in state standards and important for college and career readiness.

ACT

21

### Design of the ACT Mathematics Test

#### Calculators

- Calculators are encouraged.
- Most any 4-function, scientific, or graphing calculator is allowed.
- Calculators with built-in computer algebra systems are not allowed.
- Test questions are crafted carefully with the goal that advanced calculators do not give significant advantage over a 4-function calculator.
- All questions are designed so they can be reasonably done in about a minute without a calculator.

ACT

22

### Design of the PreACT Mathematics Test

#### Not quite a mini-ACT

- Same domain
- Less emphasis on advanced topics, but still some presence
- Similar reporting categories to show a profile of strengths
- Predicts how the student will score on the ACT mathematics test in 12–18 months, assuming typical learning goes on
- Benchmark score 19

ACT

23

## SCIENCE

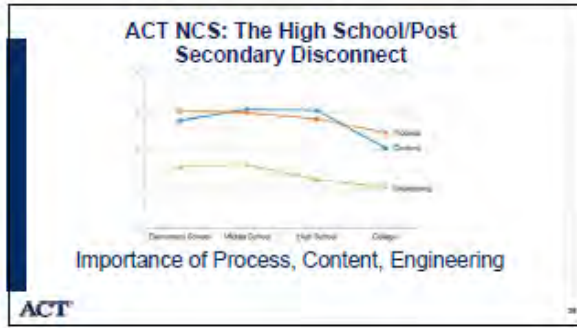
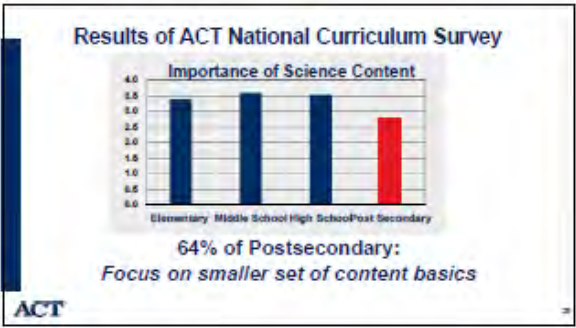
### Purpose of ACT Science Test: Measure college and career readiness in science for all students and readiness for STEM career path

- assumes students bring basic science content knowledge (think *Disciplinary Core Ideas*), but only from introductory courses, so largely **curricula/course sequence neutral**
- focuses on practices and crosscutting concepts, which should accompany any content sequence
- focuses on the science knowledge, skills, and practices that research shows are most **indicative of college and career readiness**

ACT

24

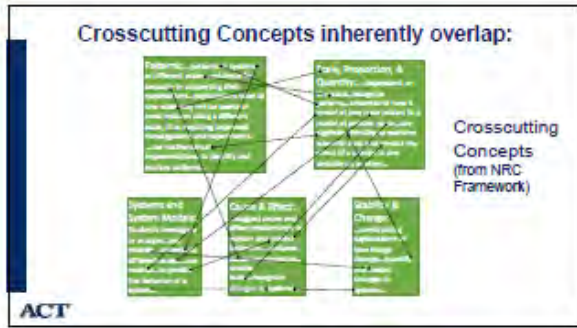




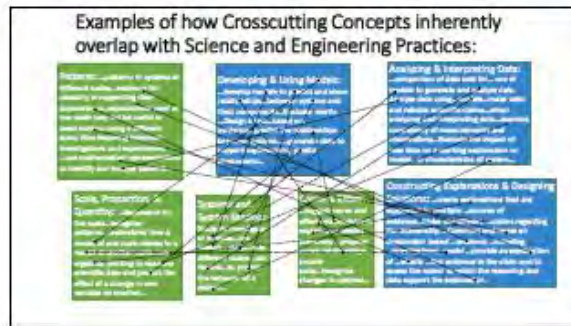
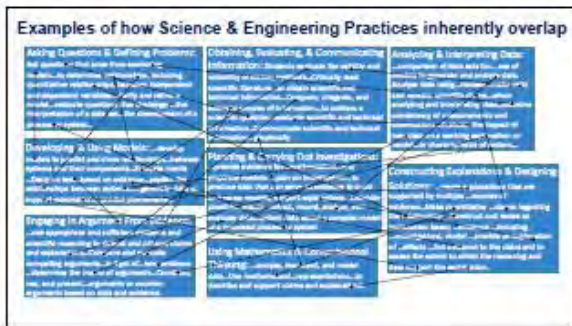
**There are 7 CCCs, 8 SEPs, and many more DCIs... Can we assess them all?**

- The domain for the high school standards is vast. Emphasizing those standards that most strongly tie to college and career readiness provides a stronger indicator while maintaining a *shorter testing time*
- ACT research shows that science process/practices are more strongly tied to college and career readiness than is content mastery
- **Many standards overlap**, which makes sense for instruction, but for assessment, results in repetition in domain sampling

ACT





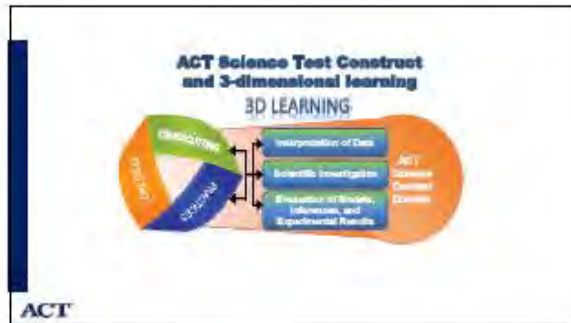


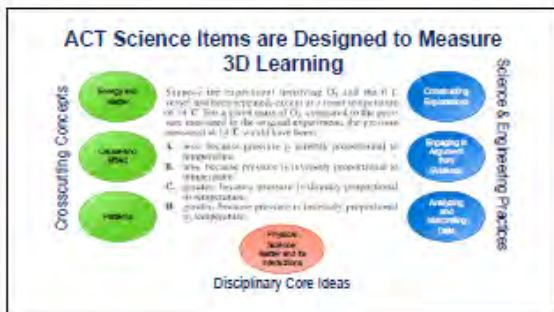
### What are the ACT Science Test Reporting Categories?

Three overarching domains of science skills and knowledge for which students receive performance indicators and that make up the construct of Alabama State Science Assessment. They are:

- Interpretation of Data:** Students manipulate/analyze scientific data presented in tables, graphs, and diagrams (recognize trends in data, translate data into graphs, interpolate and extrapolate, mathematical reasoning)
- Scientific Investigation:** Students understand experimental tools, procedures, and design (methods, tools, variables, controls) and compare, extend, modify experiments (e.g., predict the results of additional trials).
- Evaluation of Models, Inferences, and Experimental Results:** Students judge the validity of scientific information and formulate conclusions and predictions based on that information (e.g., determine which explanation for a scientific phenomenon is supported by new findings).

ACT







**ACT & PreACT to Alabama Standards  
Independent Alignment Study:  
English Language Arts,  
Mathematics, Science  
July 2019**

Alabama State Department of Education



**This Study**

- ACT Tests
  - Mathematics
  - Science
  - Reading, English, Writing
- PreACT Tests
  - Mathematics
  - Science
  - Reading, English
- Based on the Webb methodology



**Participants & Roles**

Participants	Roles
Trainer	Alignment training & facilitation
Auditor	Ensure alignment process implemented with fidelity
National Content Reviewers	Review tests for alignment to standards
Alabama Content Reviewers	Review tests for alignment to standards
ACT Staff	Ensure security of test books and answer keys



**Security**

- Security of the ACT tests is extremely important.
- Test materials must remain in the committee rooms at all times.
- Test materials must be signed in and out.
- Use of phones and any personal electronic devices is not permitted in the committee rooms.
- Phones and any personal electronic devices must be secured in large envelope to be provided.



### Security (cont.)

- All personal items must be under the table.
- No scratch paper is allowed (you may write in the test books).
- No outside conversations about test content.



### Alignment Study Key Points

- Definition of alignment
- Alignment criteria
- Depth-of-Knowledge (DOK) levels
  - Definitions and examples of each level
- Alignment process



### Alignment

“The degree to which expectations and assessments are in agreement and serve in conjunction with one another to guide the system toward students learning what is expected.”

(Webb,1999)



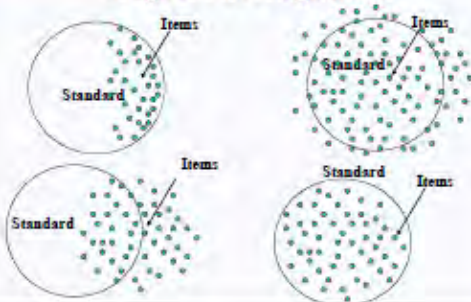
### Main Concepts in Alignment

- Match—How well the assessment matches content expectations
- Depth—The degree of complexity within content expectations that reside in the assessment
- Coverage—How well tests cover content expectations





### Degrees of Alignment



### Test Item Match to Content Standard(s)

- Which content standard does the test item best (primarily) measure?
- Is there a second content standard that the test item also measures?



### Match of Depth-of-Knowledge Level and the Level of Performance

“Depth-of-Knowledge between standards and assessments indicates alignment if what is elicited from students on the assessment is as demanding cognitively as what students are expected to know and do as stated in the standards.” (Webb 1999)



### Coding Depth of Knowledge (DOK)

- ▶ Level 1: Recall of Information
  - Recall of a fact, information, or procedure
- ▶ Level 2: Skill/Concept
  - Use information or conceptual knowledge, two or more steps, etc.
- ▶ Level 3: Strategic Thinking
  - Requires reasoning, developing a plan or a sequence of steps, some complexity, more than one possible answer



### Level 1 Recall of Information

Key words found in standards and questions at Level 1 may include the following:

- ▶ Identify
- ▶ Recall
- ▶ Recognize
- ▶ Use



### Level 1 Mathematics Example

Bill lives on the side of the street with even-numbered addresses. Which addresses below would be found on Bill's side of the street?

- A. 1020, 1022, 1024
- B. 2021, 2023, 2025
- C. 3168, 3169, 3179
- D. 4167, 4168, 4170



### Level 1 ELA Example

Which is the meaning of 'crouched'?

- A. squatted
- B. searched
- C. leaped
- D. accepted



### Level 1 Science Example

Which group of organisms would all be found living in a tropical rainforest?

- A) Lizards, insects, cacti, kangaroos
- B) Vines, palm trees, tree frogs, monkeys
- C) Evergreens, moose, weasels, mink
- D) Lichens, mosses, caribou, polar bears



## Level 2 Skill/Concept

Key words found in standards and questions at Level 2 may include the following:

- ▶ interpret
- ▶ infer
- ▶ analyze
- ▶ compare



## Level 2 Mathematics Example

A triangle has 0 diagonals, a quadrilateral has 2 diagonals, a pentagon has 5 diagonals, and a hexagon has 9 diagonals. If the pattern continues, how many diagonals will an octagon have?

Sides	3	4	5	6
Diagonals	0	2	5	9

- A. 11
- B. 14
- C. 18
- D. 20



## Level 2 ELA Example

What was the main problem Cory faced?

- A. convincing Elisa to keep her coat on
- B. finding a good hiding place from Minnie
- C. getting across the ice with Elisa before dark
- D. pulling Minnie out of the icy waters



## Level 2 Science Example

A scientist synthesizes a new drug. She wants to test its effectiveness in stopping the growth of cancerous tumors. She decides to conduct a series of experiments on laboratory mice to test her hypothesis.

What should she do?

- A) Give half the mice the drug, the other half none, and compare their tumor rates.
- B) Give the drug to all mice, but only to half every other day, and record tumor rates.
- C) Double the dosage to all mice each day until tumors start to disappear.
- D) Give the drug only to those mice who have tumors and record their weights.



### Level 3 Strategic Thinking

Requires students to justify their response to a question that has more than one possible answer

Activities may include the following:

- ▶ Experimental designs that involve more than one dependent variable
- ▶ Drawing conclusions from observations
- ▶ Citing evidence and developing a logical argument for concepts
- ▶ Explaining phenomena in terms of concepts
- ▶ Using concepts to solve nonroutine problems



### Level 3 Mathematics Example

Look at the diagram. The numbers alongside each column and row indicate the total of the values of the symbols within each column and row.



What should replace the question mark?

- A. 23      B. 25      C. 28      D. 30      E. 32



### Level 3 ELA Example

With which statement would the author most likely agree?

- A. He who fears something gives it power over him.  
 B. Two minds are better than one.  
 C. Older means wiser.  
 D. Great minds think alike.



### Level 3 Science Example

In a laboratory experiment using spectrophotometry, an enzyme is combined with its substrate at time zero. The absorbance of the resulting solution is measured at five-minute intervals. In this procedure, an increase in absorbance is related to the amount of product formed during the reaction. The experiment is conducted using three preparations as show in the table below.

Enzyme preparation	Absorbance				
	0 min	5 min	10 min	15 min	20 min
I. 3 mL enzyme, 2 mL substrate, pH 5	0.0	0.22	0.33	0.38	0.37
II. 3 mL boiled enzyme, 2 mL substrate, pH 5	0.0	0.06	0.04	0.03	0.04
III. 3 mL enzyme, 2 mL substrate, pH 6	0.0	0.32	0.37	0.36	0.38

The most likely reason for the failure of the absorbance to increase significantly after 10 minutes in preparation III is that

- A) the reaction is thermodynamically impossible at pH 6.  
 B) the enzyme is not active at this pH.  
 C) a pH of 6 prevents color development beyond an absorbance of 0.38.  
 D) the enzyme is degraded more rapidly at pH 6 than it is at pH 5.  
 E) most of the substrate was digested during the first 10 minutes.









### Room Assignments

- ELA: Montgomery 1
- Math: Montgomery 4
- Science: Montgomery 9



### Bibliography

Webb, N. L. (1999). *Alignment of science and mathematics standards and assessments in four states* (Monograph). Council of Chief State School Officers, 18.

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