# TEXTBOOK REVIEW FORM

# MATHEMATICS

# MATHEMATICAL MODELING

**Textbook/Series: _____**

**Edition: _____ Copyright: _____ Publisher: _____**

**Reviewed by: _____**

This form was based in part on:

A project of
**The Charles A. Dana Center**
At the University of Texas at Austin


*Adapted for Alabama State Department of Education*

## STANDARDS FOR MATHEMATICAL PRACTICE – MATHEMATICS – GRADE K-12 – OVERALL

Textbook/Series: _____

Edition: _____ Copyright: _____ Publisher: _____

| | | | |
|---|---|---|---|
| **OVERALL RATING**: | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | **Comments:** | |
| 1. Make sense of problems and preserve in solving them.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | 2. Reason abstractly and quantitatively.<br>**Summary/Justification/Evidence** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |
| 3. Construct viable arguments and critique the reasoning of others.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | 4. Model with mathematics.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |
| 5. Use appropriate tools strategically.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | 6. Attend to precision.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |
| 7. Look for and make use of structure.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | 8. Look for and express regularity in repeated reasoning.<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |

**Weak**: This is the lowest rating a book can receive. In general, a book that was rated as "weak" scored mostly 1s and 2s on a 4-point scale.

**Moderate**: This is the middle rating a book can receive. In general, a book that was rated as "moderate" scored mostly 2s and 3s on a 4-point scale.

S**trong**: This is the highest rating a book can receive. In general, a book that was rated as "strong" scored mostly 3s and 4s on a 4-point scale.

**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**1. Make sense of problems and persevere in solving them.**

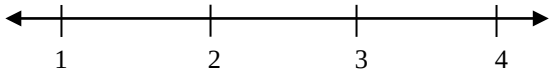
These students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. These students consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to obtain the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solve complex problems and identify correspondences between different approaches.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

**Portions of the mathematical practice that are missing or not well developed in the instructional materials (if any):**

**Summary/Justification/Evidence**

**Overall Rating**



**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**2. Reason abstractly and quantitatively.**

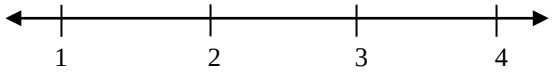
Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships. One is the ability to *decontextualize*, to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents. The second is the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

**Portions of the mathematical practice that are missing or not well developed in the instructional materials (if any):**

**Summary/Justification/Evidence**

**Overall Rating**



**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**3. Construct viable arguments and critique the reasoning of others.**

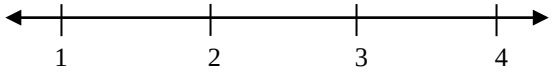
These students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. These students justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments; distinguish correct logic or reasoning from that which is flawed; and, if there is a flaw in an argument, explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until the middle or upper grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

**Portions of the mathematical practice that are missing or not well developed in the instructional materials (if any):**

**Summary/Justification/Evidence**

**Overall Rating**



**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**4. Model with mathematics.**

These students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, students might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, students might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and formulas and can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

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**Summary/Justification/Evidence**

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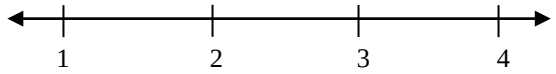


**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**5. Use appropriate tools strategically.**

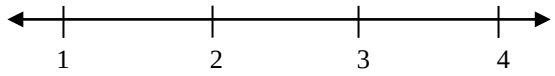
Mathematically proficient students consider available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a Web site, and use these to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

**Portions of the mathematical practice that are missing or not well developed in the instructional materials (if any):**

**Summary/Justification/Evidence**

**Overall Rating**



**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**6. Attend to precision.**

These students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. Mathematically proficient students are careful about specifying units of measure and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, and express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

**Portions of the mathematical practice that are missing or not well developed in the instructional materials (if any):**

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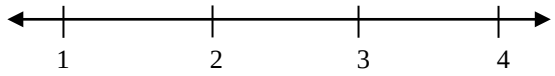

**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**7. Look for and make use of structure.**

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see $7 \times 8$ equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as $2 \times 7$ and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. These students also can pause and reflect for an overview and shift perspective. They can observe the complexities of mathematics, such as some algebraic expressions as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers $x$ and $y$.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

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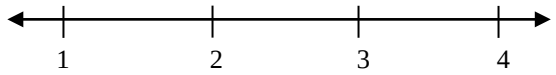
**Overall Rating**



**Documenting Alignment to the Standards for Mathematical Practice**

## Mathematically proficient students:

**8. Look for and express regularity in repeated reasoning.**

They notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y – 2)/(x – 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x – 1)(x + 1)$, $(x – 1)(x^2 + x + 1)$, and $(x – 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As students work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details and continually evaluate the reasonableness of their intermediate results.

**Indicate the chapter(s), sections, and/or page(s) reviewed.**

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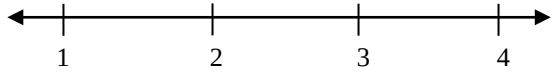

**TEXTBOOK REVIEW FORM – MATHEMATICS – OVERALL**
**MATHEMATICAL STANDARDS & OTHER CRITERIA – GEOMETRY**

Textbook/Series: _____

Edition: _____ Copyright: _____ Publisher: _____

| | | | |
|---|---|---|---|
| **OVERALL RATING**: | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | Important Mathematical Ideas:<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |
| Skills and Procedures:<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | Mathematical Relationships:<br>**Summary/Justification/Evidence** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |
| Content:<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | Instruction:<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |
| Assessment:<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) | Technology:<br>**Summary/Justification/Evidence:** | Weak (1-2)<br>Moderate (2-3)<br>Strong (3-4) |

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## Modeling

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>1. Use the full Mathematical Modeling Cycle or Statistical Problem-Solving Cycle to answer a real-world problem of particular student interest, incorporating standards from across the course. *Examples: Use a mathematical model to design a three-dimensional structure and determine whether particular design constraints are met; to decide under what conditions the purchase of an electric vehicle will save money; to predict the extent to which the level of the ocean will rise due to the melting polar ice caps; or to interpret the claims of a statistical study regarding the economy.* | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>2. Use elements of the Mathematical Modeling Cycle to solve real-world problems involving finances.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>3. Organize and display financial information using arithmetic sequences to represent simple interest and straight-line depreciation.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>4. Organize and display financial information using geometric sequences to represent compound interest and proportional depreciation, including periodic (yearly, monthly, weekly) and continuous compounding.<br>a. Explain the relationship between annual percentage yield (APY) and annual percentage rate (APR) as values for r in the formulas $A=P(1+r)^t$ and $A=Pe^{rt}$<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence**<br><br>**Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):**<br><br>**Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>5. Compare simple and compound interest, and straight-line and proportional depreciation.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>6. Investigate growth and reduction of credit card debt using spreadsheets, including variables such as beginning balance, payment structures, credits, interest rates, new purchases, finance charges, and fees.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>7. Compare and contrast housing finance options including renting, leasing to purchase, purchasing with a mortgage, and purchasing with cash.<br>a. Research and evaluate various mortgage products available to consumers.<br>b. Compare monthly mortgage payments for different terms, interest rates, and down payments.<br>c. Analyze the financial consequence of buying a home (mortgage payments vs. potentially increasing resale value) versus investing the money saved when renting, assuming that renting is the less expensive option.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence**<br><br>**Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):**<br><br>**Overall Rating**<br><br>1 2 3 4 |

## Financial Planning and Management

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>8. Investigate the advantages and disadvantages of various means of paying for an automobile, including leasing, purchasing by cash, and purchasing by loan.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Design in Three Dimensions

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>9. Use the Mathematical Modeling Cycle to solve real-world problems involving the design of three-dimensional objects.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Design in Three Dimensions

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>10. Construct a two-dimensional visual representation of a three-dimensional object or structure.<br>a. Determine the level of precision and the appropriate tools for taking the measurements in constructing a two-dimensional visual representation of a three-dimensional object or structure.<br>b. Create an elevation drawing to represent a given solid structure, using technology where appropriate.<br>c. Determine which measurements cannot be taken directly and must be calculated based on other measurements when constructing a two-dimensional visual representation of a three-dimensional object or structure.<br>d. Determine an appropriate means to visually represent an object or structure, such as drawings on paper or graphics on computer screens.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Design in Three Dimensions

<table>
<tr><td></td><td>Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.</td></tr>
<tr><td rowspan="3">Students will:<br><br>11. Plot coordinates on a three-dimensional Cartesian coordinate system and use relationships between coordinates to solve design problems.<br>a. Describe the features of a three-dimensional Cartesian coordinate system and use them to graph points.<br>b. Graph a point in space as the vertex of a right prism drawn in the appropriate octant with edges along the x, y, and z axes.<br>c. Find the distance between two objects in space given the coordinates of each.<br>Examples: Determine whether two aircraft are flying far enough apart to be safe; find how long a zipline cable would need to be to connect two platforms at different heights on two trees.<br>d. Find the midpoint between two objects in space given the coordinates of each.<br>Example: If two asteroids in space are traveling toward each other at the same speed, find where they will collide.<br><br>Indicate the chapter(s), sections, and/or page(s) reviewed.</td><td>Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>Summary/Justification/Evidence</td></tr>
<tr><td>Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):</td></tr>
<tr><td>Overall Rating<br><br>1 2 3 4</td></tr>
</table>

## Design in Three Dimensions

<table>
<tr><td></td><td colspan="5">Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.</td></tr>
<tr><td rowspan="3">Students will:<br><br>12. Use technology and other tools to explore the results of simple transformations using three dimensional coordinates, including translations in the x, y, and/or z directions; rotations of 90º, 180º, or 270º about the x, y, and z axes; reflections over the xy, yz, and xy planes; and dilations from the origin.<br>Example: Given the coordinates of the corners of a room in a house, find the coordinates of the same room facing a different direction.</td><td>Important Mathematical Ideas</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Skills and Procedures</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Mathematical Relationships<br><br>Summary/Justification/Evidence</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td rowspan="2">Indicate the chapter(s), sections, and/or page(s) reviewed.</td><td colspan="5">Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):</td></tr>
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## Design in Three Dimensions

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<tr><td rowspan="3">Students will:<br><br>13. Create a scale model of a complex three-dimensional structure based on observed measurements and indirect measurements, using translations, reflections, rotations, and dilations of its components. Example: Develop a plan for a bridge structure using geometric properties of its parts to determine unknown measures and represent the plan in three dimensions.<br><br>Indicate the chapter(s), sections, and/or page(s) reviewed.</td><td>Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>Summary/Justification/Evidence</td><td colspan="4"></td></tr>
<tr><td colspan="5">Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):</td></tr>
<tr><td colspan="5">Overall Rating<br><br>1 2 3 4</td></tr>
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## Creating Functions to Model Change in the Environment and Society

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>14. Use elements of the Mathematical Modeling Cycle to make predictions based on measurements that change over time, including motion, growth, decay, and cycling. | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Creating Functions to Model Change in the Environment and Society

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>15. Use regression with statistical graphing technology to determine an equation that best fits a set of bivariate data, including nonlinear patterns.<br>*Examples: global temperatures, stock market values, hours of daylight, animal population, carbon dating measurements, online streaming viewership*<br>a. Create a scatter plot with a sufficient number of data points to predict a pattern.<br>b. Describe the overall relationship between two quantitative variables (increase, decrease, linearity, concavity, extrema, inflection) or pattern of change.<br>c. Make a prediction based upon patterns. | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Creating Functions to Model Change in the Environment and Society

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>16. Create a linear representation of non-linear data and interpret solutions, using technology and the process of linearization with logarithms.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Modeling to Interpret Statistical Studies

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>17. Use the Statistical Problem-Solving Cycle to answer real-world questions.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Modeling to Interpret Statistical Studies

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>18. Construct a probability distribution based on empirical observations of a variable.<br>*Example: Record the number of student absences in class each day and find the probability that each number of students will be absent on any future day.*<br>a. Estimate the probability of each value for a random variable based on empirical observations or simulations, using technology.<br>b. Represent a probability distribution by a relative frequency histogram and/or a cumulative relative frequency graph.<br>c. Find the mean, standard deviation, median, and interquartile range of a probability distribution and make long-term predictions about future possibilities. Determine which measures are most appropriate based upon the shape of the distribution.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence**<br><br>**Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):**<br><br>**Overall Rating**<br><br>1 2 3 4 |

## Modeling to Interpret Statistical Studies

| | |
|---|---|
| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
| Students will:<br><br>19. Construct a sampling distribution for a random event or random sample. *Examples: How many times do we expect a fair coin to come up "heads" in 100 flips, and on average how far away from this expected value do we expect to be on a specific set of flips? What do we expect to be the average height for a random sample of students in a local high school given the mean and standard deviation of the heights of all students in the high school?*<br>a. Use the binomial theorem to construct the sampling distribution for the number of successes in a binary event or the number of positive responses to a yes/no question in a random sample.<br>b. Use the normal approximation of a proportion from a random event or sample when conditions are met.<br>c. Use the central limit theorem to construct a normal sampling distribution for the sample mean when conditions are met.<br>d. Find the long-term probability of a given range of outcomes from a random event or random sample.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence**<br><br>**Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):**<br><br>**Overall Rating**<br><br>1 2 3 4 |

## Modeling to Interpret Statistical Studies

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>20. Perform inference procedures based on the results of samples and experiments.<br>a. Use a point estimator and margin of error to construct a confidence interval for a proportion or mean.<br>b. Interpret a confidence interval in context and use it to make strategic decisions.<br>*Example: short-term and long-term budget projections for a business*<br>c. Perform a significance test for null and alternative hypotheses.<br>d. Interpret the significance level of a test in the context of error probabilities, and use the results to make strategic decisions. *Example: How do you reduce the rate of human error on the floor of a manufacturing plant?*<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence**<br><br>**Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):**<br><br>**Overall Rating**<br><br>1 2 3 4 |

## Modeling to Interpret Statistical Studies

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>21. Critique the validity of reported conclusions from statistical studies in terms of bias and random error probabilities.<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

## Modeling to Interpret Statistical Studies

| | **Summary and documentation of how the domain, cluster, and standard are met. Cite examples from the materials.** |
|---|---|
| Students will:<br><br>22. Conduct a randomized study on a topic of student interest (sample or experiment) and draw conclusions based upon the results. *Example: Record the heights of thirty randomly selected students at your high school. Construct a confidence interval to estimate the true average height of students at your high school. Question whether or not this data provides significant evidence that your school's average height is higher than the known national average, and discuss error probabilities.*<br><br>**Indicate the chapter(s), sections, and/or page(s) reviewed.** | Important Mathematical Ideas 1 2 3 4<br><br>Skills and Procedures 1 2 3 4<br><br>Mathematical Relationships 1 2 3 4<br><br>**Summary/Justification/Evidence** |
| | **Portions of the domain, cluster, and standard that are missing or not well developed in the instructional materials (if any):** |
| | **Overall Rating**<br><br>1 2 3 4 |

# TEXTBOOK REVIEW FORM – MATHEMATICS – ADDITIONAL CRITIERIA AND INDICATORS

**Documenting Alignment to**
**Additional Criteria and Indicators**

## Content

| **Criteria and Indicators** | **Summary and documentation of how the additional criteria and indicators are met. Cite examples from the materials.** |
|---|---|
| 1. Content is designed for students of varied abilities and understanding. | **Overall Rating** 1 2 3 4 |
| 2. Content is free of bias and/or controversial information. | **Overall Rating** 1 2 3 4 |
| 3. Content includes strategies for vocabulary instruction and graphic organizers. | **Overall Rating** 1 2 3 4 |
| 4. Content includes assignments that encourage integration of other content areas to support a math concept/skill. | **Overall Rating** 1 2 3 4 |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Summary/Justification/Evidence:** |

# TEXTBOOK REVIEW FORM – MATHEMATICS – ADDITIONAL CRITIERIA AND INDICATORS

**Documenting Alignment to**
**Additional Criteria and Indicators**

## Technology

| **Criteria and Indicators** | **Summary and documentation of how the additional criteria and indicators are met. Cite examples from the materials.** |
|---|---|
| 1. Technology support and suggestions for appropriate use of multimedia resources are provided. | **Overall Rating** 1 2 3 4 |
| 2. Technology is integrated with student activities so that students collect, organize, analyze, and present data. | **Overall Rating** 1 2 3 4 |
| 3. Textbook and supplemental Contents are available online and/or on CD-ROM. | **Overall Rating** 1 2 3 4 |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Summary/Justification/Evidence:** |

# TEXTBOOK REVIEW FORM – MATHEMATICS – ADDITIONAL CRITIERIA AND INDICATORS

**Documenting Alignment to**
**Additional Criteria and Indicators**

## Assessment

| **Criteria and Indicators** | **Summary and documentation of how the additional criteria and indicators are met. Cite examples from the materials.** |
|---|---|
| 1. Some assessments are designed to measure student understanding above the knowledge level. | **Overall Rating** 1 2 3 4 |
| 2. Guidance is provided to teacher regarding how assessment information can be used to inform instruction. | **Overall Rating** 1 2 3 4 |
| 3. Rubrics are provided for grading some assignments. | **Overall Rating** 1 2 3 4 |
| 4. Some opportunities are provided for students to check their own understanding. | **Overall Rating** 1 2 3 4 |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Summary/Justification/Evidence:** |

# TEXTBOOK REVIEW FORM – MATHEMATICS – ADDITIONAL CRITIERIA AND INDICATORS

**Documenting Alignment to**
**Additional Criteria and Indicators**

## Assessment (Continued)

| **Criteria and Indicators** | **Summary and documentation of how the additional criteria and indicators are met. Cite examples from the materials.** |
|---|---|
| 5. Assessment activities examine the extent to which students can apply information to situations that require reasoning and creative thinking. | **Overall Rating** 1 2 3 4 |
| 6. Multiple means of assessments are used, informal as well as formal. | **Overall Rating** 1 2 3 4 |
| 7. Conceptual understanding and procedural knowledge are frequently assessed through tasks that ask students to apply information about a given concept in novel situations. | **Overall Rating** 1 2 3 4 |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Summary/Justification/Evidence:** |

# TEXTBOOK REVIEW FORM – MATHEMATICS – ADDITIONAL CRITIERIA AND INDICATORS

**Documenting Alignment to**
**Additional Criteria and Indicators**

## Instruction

| **Criteria and Indicators** | **Summary and documentation of how the additional criteria and indicators are met. Cite examples from the materials.** |
|---|---|
| 1. Teacher guide provides suggestions for how to demonstrate/model skills or use of knowledge. | **Overall Rating** 1 2 3 4 |
| 2. Teacher guide offers alternative instructional strategies for advanced learners, struggling learners, ELL and Sp. Ed. | **Overall Rating** 1 2 3 4 |
| 3. Teacher guide suggests multiple opportunities for students to demonstrate understanding. | **Overall Rating** 1 2 3 4 |
| 4. Teacher guide provides opportunities for guided practice and scaffolded support. | **Overall Rating** 1 2 3 4 |
| 5. Teacher guide includes suggestions to diagnose student errors, explanations of how these errors may be corrected, and how to further develop student ideas. | **Overall Rating** 1 2 3 4 |
| **Indicate the chapter(s), sections, and/or page(s) reviewed.** | **Summary/Justification/Evidence:** |