Forestry

Forestry is a course designed to enable students to become knowledgeable of forestry and wood technology. Students acquire an appreciation for increased emphasis on managing and conserving forests for the future. Topics include career opportunities, safety, history, dendrology, tree measurement, mapping, silviculture, forest products, and forest protection.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond the limits of these content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

This course may be taught as a one-credit or half-credit instructional-hour course. For a half-credit course, standards 1, 2, 3, 4, 5, 6, 8, 9, 11, and 13 must be included.

Career and technical student organizations are integral, co-curricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Career Opportunities

Students will:

1. List employment opportunities in forestry.

Safety

2. Identify potential hazards in Alabama forests, including topographical hazards, stinging insects, venomous spiders and snakes, and poisonous plants.

History

3. Describe historical events that have influenced forestry in Alabama and the United States.
   • Comparing roles of Alabama forestry agencies

Dendrology

4. Describe major parts of a tree and their functions.

5. Identify common forest trees of Alabama.
   • Comparing hardwood and softwood trees
   • Comparing gymnosperms and angiosperms
Tree Measurement

6. Demonstrate the use of tree measurement tools.
   Examples: Biltmore stick, hypsometer, clinometer, tree calipers, tree diameter tape
   - Describing techniques for measuring diameter at breast height (DBH)
   - Describing techniques for measuring total tree height
   - Describing techniques for measuring pulpwood at marketable height
   - Describing techniques for measuring sawlogs

7. Determine the volume of standing timber.
   Examples: using Doyle Log Rule, Scribner Log Rule, and International Log Rule
   - Calculating forest product value using cords, board feet, and cubic feet

8. Describe various methods for cruising timber.
   Examples: line plot, strip, total
   - Grading a tree for defects, size, and type to determine possible products
   - Determining techniques for timber stand improvement (TSI)

Mapping

9. Interpret map characteristics and features.
   - Locating various positions on a map
   - Using a scale to determine distance on maps
   - Identifying markings on a map
     Examples: colors, symbols, contour lines

10. Demonstrate the use of mapping tools, including direction, elevation, and distance-reading tools.
    - Locating land corners and boundaries
    - Determining acreage using a legal land description, topographic map, and a hand compass
    - Describing how topographical maps combined with aerial photographs are used to identify the location of specific property
    - Describing uses of a global positional system (GPS) in forestry
    - Describing a legal land description, including townships, ranges, and sections
    - Comparing systems of land surveying
      Examples: rectangular, metes and bounds

Silviculture

11. Compare methods of harvesting timber, including seed tree cutting, clear cutting, selection cutting, and shelter wood cutting.
    - Identifying common harvesting techniques in forestry
      Examples: felling, bucking, skidding, loading
12. Compare artificial and natural reforestation methods.
   - Identifying sources of tree seedlings
   - Selecting methods for the handling and care of seedlings
   - Evaluating tree planting methods

13. Explain the importance of prescribed burning.

**Forest Products**

14. Describe chemical and physical properties of wood.

15. Identify lumber, timber, and paper products produced from wood.
   - Describing the process by which various forest products are made

16. Analyze characteristics of lumber to determine grade.
    Examples: decay splits, milling defects, knots, stains

17. Describe wood treatment processes.
    Examples: preservative oils, water-borne salts, pressure treatment techniques

**Forest Protection**

18. Identify causes of forest fires.
   - Identifying fire-fighting tools and methods