

# Forestry CDE 2026



## PURPOSE

The Forestry Career Development Event is designed to create an interest in career preparation for all current and future aspects of the forestry industry through leadership development and hands-on technical skill development using industry standards which are delivered through the agriculture education curriculum.

## ELIGIBILITY

The participant must be an active member of a chartered West Virginia FFA Chapter and enrolled in grades 9, 10, 11, or 12. Each chapter may enter one team.

## EVENT PROCEDURE

The event will be a team event consisting of four students. All 4 team members' scores will be calculated in the team total. A team may compete with less than 4 members. FFA members will wear outdoor official dress. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. Participants should have rainwear, warm clothes, and appropriate footwear.

Under no circumstances will any participants be allowed to handle any of the items in the identification portion of the practicums. Any infraction of this rule will result in team elimination from the event.

No FFA advisors/coaches will be allowed in the area of the contest, but arrangements will be made to view the specimens following the contest.

## EVENT MATERIALS

### MATERIALS STUDENTS MUST PROVIDE

- Pencils
- Clipboards
- Electronic Calculator (if needed)- standard four-function battery operated
- Industry Equipment: Hard hats, Azimuth compass, tree sticks



## **INDIVIDUAL PRACTICUMS**

### **GENERAL KNOWLEDGE EXAMINATION**

A fifty multiple choice and true/false question exam will be given that covers all areas of forest industry and forest management. Each question is worth 2 points. Participants will have a maximum of 30 minutes to complete the exam.

### **TREE IDENTIFICATION (90 pts)**

Fifteen specimens from the Tree Identification List will be displayed for participants to identify by technical and common names. Each specimen is worth 6 points. A number will designate each specimen. Specimens may be presented either in live or picture form. Participants will have a maximum of 30 minutes to complete this practicum.

### **EQUIPMENT IDENTIFICATION (100pts)**

Twenty pieces of equipment from the Equipment Identification List will be displayed for the contestants to identify by technical names. A number will designate each piece of equipment. Contestants will have 30 minutes to complete this practicum. Each piece of equipment will be worth 3 points. Equipment (20) (2pts each), Disease (10) (3pts each), Products (10) (3pts each)

### **SAWTIMBER CRUISING (100 pts)**

Participants will use a Biltmore Tree Stick to measure the DBH and merchantable height in 8-foot half-logs or 16-foot logs for 10 designated saw timber trees. Using the provided volume table, the contestants will calculate the total volume of the 10 trees. Participants will be given 30 minutes to complete this practicum.

#### *Diameter Measurement Criteria:*

- Diameter breast height (DBH) must be 11.0 inches or greater.
- Record all trees in 1-inch diameter classes.

#### *Height Measurement Criteria*

Merchantable sawtimber height is measured from a 1-foot stump to a 10-inch top

diameter (inside bark).

Hollow trees or curved trunks (sweep) are not considered as a defect for this

contest. Measure to the nearest half-log by interpolating between the full log

markings or stick.

#### *Scoring*

Three points will be given for the correct DBH and three points for the correct height. Forty (40) points will be given for the correct volume per acre. Five points will be deducted for each five percent plus or minus from the correct

measured volume.

### **COMPASS AND PACING (50 pts)**

The participant will use a hand compass and pacing to simulate the determination of the property lines on a tract of timber for cruising timber. The compass course will consist of 5 separate lines. The participants can start at any of the 5 starting points and will record the **azimuth** bearing (to the nearest full degree). A total of 50 points are possible with a deduction of 1 point for every 2 degrees of bearing of distance from the correct answer. A maximum deduction of 10 points will be deducted from any line.

The participant will use a hand compass and pacing to the nearest full foot to simulate the determination of the property lines on a tract of timber. The participant will start at any point and record the compass reading and distance to the next point. Azimuth readings shall be recorded. One point deduction for every two feet the participant is off from the correct answer up to 10 points for each one for a total of 50 points.

**The Compass and Pacing section will be worth 50 points total**

## **Rotating Practicums**

### **FOREST MANAGEMENT EVALUATION-TIMBER STAND IMPROVEMENTS**

The trees selected and designated for use in this part of the event may be all of one species or a mixture of species.

An area will be selected and identified by ribbons, paint, rope, etc. It will contain 20 marked trees within a timber stand. All trees in the selected area will be considered as a forest management site, and the participants will score each marked tree using one of the following options:

- Harvest — utilize the tree.
- Leave — the tree should remain in stand for a good reason.
- Deaden-Undesirable trees, not merchantable or beneficial to wildlife, should

be deadened or cut down and left in the woods.

The participants will be given a situation concerning the forest management objectives of the stand selected. This information will be given to participants at the site before they start. Information that will be needed to help participants in their decisions will include the following:

- Markets available
- Wildlife considerations
- Present condition of stand
- Management plan

### **MAP INTERPRETATION**

Participants will answer questions using a furnished United States Geological Survey topographic map. The participant should know the legal description, recognize topographic map symbols, and understand the meaning of map symbols, size, and location of 40 acres or more in a parcel.

Examples:

- What is the legal description of the boxed area?
- What is the item located at this point?
- What is the acreage of the area enclosed?
- In what section is the city of Marshall located?
- What is the elevation at this point?

Legal descriptions will be written or described according to the public land survey system. • Example: SE  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of Section 3, T3N, R1E

### **CHAINSAW PART IDENTIFICATION**

This practicum will consist of one or more of the parts listed below. Parts may utilize photos, video, demonstration, actual parts, written situations, and/or problems. This is not an all-inclusive list.

- Chainsaw parts identification: Each participant will identify parts of a chainsaw (does not include internal engine components).
- Troubleshooting: The participant will identify chainsaw problems or troubles.
- Safety: The participant will identify safety hazards, unsafe practices, and/or proper safety equipment.

### **FOREST BUSINESS MANAGER**

This section is designed to determine the participant's ability to apply economic

principles and concepts of management to the decision-making process by actual problem analysis and to defend the decisions made. This will involve a model forest operation with possible calculations on profit/loss, cost of operation, taxes, depreciation, marketing product, stumpage cost, record keeping, etc.

A maximum of ten problems or questions will be used.

## Scoring

| Activities                                                                                                                                                                                       | Individual Points | Team Points       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|
| General Knowledge Exam                                                                                                                                                                           | 100               | 400               |
| Tree Identification                                                                                                                                                                              | 90                | 360               |
| Sawtimber Cruising                                                                                                                                                                               | 100               | 400               |
| Compass and Pacing                                                                                                                                                                               | 50                | 200               |
| Other ID (100pts) <ul style="list-style-type: none"> <li>Equipment (20) (2pts each)</li> <li>Disease (10) (3pts each)</li> <li>Products (10) (3pts each)</li> </ul>                              | 40<br>30<br>30    | 160<br>120<br>120 |
| Rotating Practicums- (1) <ul style="list-style-type: none"> <li>Timber Stand Improvement (TSI)</li> <li>Map Interpretation</li> <li>Chainsaw Part ID</li> <li>Forest Business Manager</li> </ul> | 50                | 200               |
| Total                                                                                                                                                                                            | 490               | 1,960             |

## IDENTIFICATION SPECIMEN LIST

| ID NUMBER | BOTANTICAL NAME                | COMMON NAME         |
|-----------|--------------------------------|---------------------|
| 001       | <i>Alnus rubra</i>             | Adler, Red          |
| 002       | <i>Fraxinus sp.</i>            | Ash                 |
| 003       | <i>Populus grandidentata</i>   | Aspen, Bigtooth     |
| 004       | <i>Populus tremuloides</i>     | Aspen, Quaking      |
| 005       | <i>Taxodium distichum</i>      | Baldcypress         |
| 006       | <i>Fagus Americana</i>         | Beech, American     |
| 007       | <i>Betula lenta</i>            | Birch, Black        |
| 008       | <i>Betula papyrifera</i>       | Birch, White        |
| 009       | <i>Prunus serotina</i>         | Cherry, Black       |
| 010       | <i>Populus deltoides</i>       | Cottonwood, Eastern |
| 011       | <i>Ulmus sp.</i>               | Elm                 |
| 012       | <i>Abies balsamea</i>          | Fir, Balsam         |
| 013       | <i>Pseudotsuga menziesii</i>   | Fir, Douglas        |
| 014       | <i>Tsuga canadensis</i>        | Hemlock, Eastern    |
| 015       | <i>Tsuga heterophylla</i>      | Hemlock, Western    |
| 016       | <i>Carya sp.</i>               | Hickory             |
| 017       | <i>Acer rubrum</i>             | Maple, red          |
| 018       | <i>Acer saccharum</i>          | Maple, Sugar        |
| 019       | <i>Quercus velutina</i>        | Oak, Black          |
| 020       | <i>Quercus Montana</i>         | Oak, Chestnut       |
| 021       | <i>Quercus rubra</i>           | Oak, Northern red   |
| 022       | <i>Quercus coccinea</i>        | Oak, Scarlet        |
| 023       | <i>Quercus falcata</i>         | Oak, Southern Red   |
| 024       | <i>Quercus alba</i>            | Oak, White          |
| 025       | <i>Carya illinoensis</i>       | Pecan               |
| 026       | <i>Pinus strobus</i>           | Pine, Easter White  |
| 027       | <i>Pinus taeda</i>             | Pine, Loblolly      |
| 028       | <i>Pinus contorta</i>          | Pine, Lodgepole     |
| 029       | <i>Pinus palustris</i>         | Pine, Longleaf      |
| 030       | <i>Pinus rigida</i>            | Pine, Pitch         |
| 031       | <i>Pinus ponderosa</i>         | Pine, Ponderosa     |
| 032       | <i>Pinus resinosa</i>          | Pine, Red           |
| 033       | <i>Pinus echinate</i>          | Pine, Shortleaf     |
| 034       | <i>Liriodendron tulipifera</i> | Poplar, Yellow      |
| 035       | <i>Thuja plicata</i>           | Red Cedar, Western  |
| 036       | <i>Juniperus virginiana</i>    | Red Cedar, Eastern  |
| 037       | <i>Picea rubens</i>            | Spruce, red         |
| 038       | <i>Picea sitchensis</i>        | Spruce, Sitka       |
| 039       | <i>Picea glauca</i>            | Spruce, White       |
| 040       | <i>Liquidambar styraciflua</i> | Sweetgum            |
| 041       | <i>Platanus sp.</i>            | Sycamore            |
| 042       | <i>Juglans nigra</i>           | Walnut Black        |

## EQUIPMENT

| ID NUMBER | EQUIPMENT                 | ID NUMBER | EQUIPMENT                |
|-----------|---------------------------|-----------|--------------------------|
| 01        | Altimeter                 | 36        | Hypo-Hatchet             |
| 02        | Angle Gauge               | 37        | Increment Borer          |
| 03        | Ascender                  | 38        | Jacob Staff              |
| 04        | Automatic Level           | 39        | Log Rule                 |
| 05        | Backpack Fire Pump        | 40        | Logger's Tape            |
| 06        | Bark Gauge                | 41        | Maul                     |
| 07        | Bulldozer                 | 42        | Peavy                    |
| 08        | Canthook                  | 43        | pH Meter                 |
| 09        | Carabiner                 | 44        | Planimeter               |
| 10        | Chainsaw                  | 45        | Plant Press              |
| 11        | Chainsaw chaps            | 46        | Plastic Flagging         |
| 12        | Clinometer                | 47        | Pole Saw                 |
| 13        | Combination tool          | 48        | Pruning Saw              |
| 14        | Data recorder             | 49        | Pulaski Axe              |
| 15        | Densitometer              | 50        | Relaskop                 |
| 16        | Diameter Tape             | 51        | Safety Glasses           |
| 17        | Dot Grid                  | 52        | Safety Hard Hat          |
| 18        | Drip Torch                | 53        | Scale Stick              |
| 19.       | Ear Protection            | 54        | Secchi Disc              |
| 20        | Endloader                 | 55        | Soil Sampler             |
| 21        | Feller Buncher            | 56        | Soil Test Kit            |
| 22        | Felling Wedge             | 57        | Staff Compass            |
| 23        | Fiberglass Measuring Tape | 58        | Stereoscope              |
| 25        | Fire Rake                 | 59        | Tally book               |
| 26        | Fire Shelter              | 60        | Tally meter              |
| 27        | Fire Weather Kit          | 61        | Timber tongs             |
| 28        | Fire Swatter              | 62        | Tree caliper             |
| 29        | First aid kit             | 63        | Tree harvester           |
| 30        | Flow/Current Meter        | 64        | Tree marking gun         |
| 31        | GPS Receiver              | 65        | Tree planting hoe or bar |
| 32        | Hand Compass              | 66        | Tree skidder             |
| 33        | Hand Lens/Field           | 67        | Water sampler            |
| 34        | Microscope                | 68        | Water test kit           |
| 35        | Hip Chain                 | 69        | Wedge prism              |
|           |                           | 70        | Tree marking gun         |

**DISORDERS**

| ID NUMBER | DISORDER                                         |
|-----------|--------------------------------------------------|
| 01        | Aphid                                            |
| 02        | Asian longhorn beetle                            |
| 03        | Butt or heart rot                                |
| 04        | Canker                                           |
| 05        | Chemical Damage                                  |
| 06        | Cicada                                           |
| 07        | Climatic injury: snow, wind frost, drought, hail |
| 08        | Damping Off                                      |
| 09        | Douglas fir tussock moth                         |
| 10        | Emerald ash borer                                |
| 11        | Fir engraver beetle                              |
| 12        | Fire damage                                      |
| 13        | Gypsy moth                                       |
| 14        | Hemlock wooly adelgid                            |
| 15        | Ipps engraver beetle                             |
| 16        | Landscape equipment damage                       |
| 17        | Lightning damage                                 |
| 18        | Mechanical damage                                |
| 19        | Mistletoe                                        |
| 20        | Mountain pine beetle                             |
| 21        | Nematode                                         |
| 22        | Rust                                             |
| 23        | Sawfly                                           |
| 24        | Scale                                            |
| 25        | Spruce budworm                                   |
| 26        | Sunscald                                         |
| 27        | Tent caterpillar                                 |
| 28        | Wetwood or slime flux                            |
| 29        | Wildlife/Livestock Damage                        |

## Bd Ft Volume Estimation Worksheet

| Tree Number | DBH | Number of Logs      | Volume |
|-------------|-----|---------------------|--------|
| 1.          |     |                     |        |
| 2.          |     |                     |        |
| 3.          |     |                     |        |
| 4.          |     |                     |        |
| 5.          |     |                     |        |
| 6.          |     |                     |        |
| 7.          |     |                     |        |
| 8.          |     |                     |        |
| 9.          |     |                     |        |
| 10.         |     |                     |        |
|             |     | <b>Total Volume</b> |        |

## Forest Products

| Species |                                                    | Engineered and Processed Materials |                              |
|---------|----------------------------------------------------|------------------------------------|------------------------------|
| 01      | Alder ( <i>Alnus</i> sp.)                          | 32                                 | Chips, Shavings, or Mulch    |
| 02      | Ash ( <i>Fraxinus</i> sp.)                         | 33                                 | Corrugated Paper Packaging   |
| 03      | Aspen/Cottonwood ( <i>Populus</i> spp.)            | 34                                 | Crosstie                     |
| 04      | Baldcypress ( <i>Taxodium distichum</i> )          | 35                                 | Finger Joint Material        |
| 05      | Basswood ( <i>Tili americana</i> )                 | 36                                 | Glued Laminated Timber       |
| 06      | Beech, American ( <i>Fagus americana</i> )         | 37                                 | Laminated Veneer Lumber      |
| 07      | Birch ( <i>Betula</i> sp.)                         | 38                                 | Medium Density Fiberboard    |
| 08      | Cherry, Black ( <i>Prunus serotina</i> )           | 39                                 | Molding and Millwork         |
| 09      | Elm ( <i>Ulmus</i> sp.)                            | 40                                 | Oriented Strand Board        |
| 10      | Fir, Balsam ( <i>Abies balsamea</i> )              | 41                                 | Paperboard Packaging         |
| 11      | Fir, Douglas ( <i>Pseudotsuga menziesii</i> )      | 42                                 | Particle Board               |
| 12      | Hackberry ( <i>Celtis occidentalis</i> )           | 43                                 | Pellets                      |
| 13      | Hemlock ( <i>Tsuga</i> sp.)                        | 44                                 | Pole or Piling               |
| 14      | Hickory/Pecan ( <i>Carya</i> spp.)                 | 45                                 | Primed Boards                |
| 15      | Larch ( <i>Larix</i> sp.)                          | 46                                 | Plywood                      |
| 16      | Maple ( <i>Acer</i> sp.)                           | 47                                 | Tongue and Groove            |
| 17      | Oak, Red                                           | 48                                 | Treated Dimensional Lumber   |
| 18      | Oak, White                                         | 49                                 | Untreated Dimensional Lumber |
| 19      | Pine, White                                        | 50                                 | Veneer                       |
| 20      | Pine, Red                                          |                                    |                              |
| 21      | Pine, Southern Yellow                              |                                    |                              |
| 22      | Pine, Western Yellow - Ponderosa or Lodgepole      |                                    |                              |
| 23      | Poplar, Yellow ( <i>Liriodendron tulipifera</i> )  |                                    |                              |
| 24      | Red Cedar, Eastern ( <i>Juniperus virginiana</i> ) |                                    |                              |
| 25      | Red Cedar, Western ( <i>Thuja plicata</i> )        |                                    |                              |
| 26      | Sassafras ( <i>Sassafras albidum</i> )             |                                    |                              |
| 27      | Spruce ( <i>Picea</i> sp.)                         |                                    |                              |
| 28      | Sweetgum ( <i>Liquidambar styraciflua</i> )        |                                    |                              |
| 29      | Sycamore ( <i>Platanus</i> sp.)                    |                                    |                              |
| 30      | Walnut, Black ( <i>Juglans nigra</i> )             |                                    |                              |
| 31      | Willow, Black ( <i>Salix nigra</i> )               |                                    |                              |

# References

This list of references is not intended to be all-inclusive. •Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation

## GENERAL KNOWLEDGE EXAM

- Introduction to Forestry Science. Burton, Delmar Publications.
- Science of Forestry Management. Kris Irwin. University of Georgia, AAVIM. Please call 706-742-5355 or email sales@aavim.com. Request Item #400. Cost is ~ \$25 plus \$10.50 shipping. Please leave your name, Item, number of copies, shipping and billing address, and phone number. They will respond to secure payment information.

## TREE IDENTIFICATION

- Dendrology at Virginia Tech, <http://dendro.cnre.vt.edu/dendrology/main.htm>
  - “FFA Georgia State and National Tree Lists,” available from [www.amazon.com](http://www.amazon.com) • W. H. Harlow, E. S. Harrar, and F. M. White. Textbook of Dendrology, current edition. New York, NY: McGraw-Hill Book Company.
- Silvics of North America, Handbook #654, volume one and two, U.S. Forest Service, P. O. Box 2417, 12th and Independence Avenue SW, Washington, DC 20013.

## TREE MEASUREMENT

- [https://www.americanforests.org/wp-content/uploads/2014/12/AF-TreeMeasuring\\_Guidelines\\_LR.pdf](https://www.americanforests.org/wp-content/uploads/2014/12/AF-TreeMeasuring_Guidelines_LR.pdf)

## FOREST MANAGEMENT

- Introduction to Forestry Science. Burton, Delmar Publications.
- Science of Forestry Management. Kris Irwin. University of Georgia, AAVIM. . Please call 706-742-5355 or email sales@aavim.com. Request Item #400. Cost is ~ \$25 plus \$10.50 shipping. Please leave your name, Item, number of copies, shipping and billing address, and phone number. They will respond to secure payment information.

## EQUIPMENT IDENTIFICATION

- Current Catalog of Forestry Suppliers, Inc., 205 West Rankin Street, Jackson, MS 39204 • <http://www.husqvarna.com/us/accessories/>
- [www.deere.com/en\\_US/industry/forestry/forestry.page?](http://www.deere.com/en_US/industry/forestry/forestry.page?)
- [www.treestuff.com](http://www.treestuff.com)

## MAP INTERPRETATION

- The U.S. Department of Interior Geological Survey Topographic Map Information and Symbols Key, Map Distribution, U. S. Geological Survey, Box 25286, Federal Center, Denver CO. <https://pubs.usgs.gov/gip/TopographicMapSymbols/topomapsymbols.pdf>
- Map Interpretation: <https://www.norfolk.gov.uk/-/media/norfolk/downloads/jobs-trainingvolunteering/volunteering/map-readingguide.pdf> Map Interpretation: [https://d28rz98at9flks.cloudfront.net/102240/Map\\_reading\\_guide\\_v4.pdf](https://d28rz98at9flks.cloudfront.net/102240/Map_reading_guide_v4.pdf)
  - Reading and Interpreting Topographic Maps: paste the following url into your browser [ftp://ftp.bpcrc.osu.edu/downloads/outreach/Watersheds/01\\_Exercise3.5v1.pdf](ftp://ftp.bpcrc.osu.edu/downloads/outreach/Watersheds/01_Exercise3.5v1.pdf)

## COMPASS

- [https://georgia4h.org/wp-content/uploads/2018/05/manual\\_compassranger.pdf](https://georgia4h.org/wp-content/uploads/2018/05/manual_compassranger.pdf)

### CHAINSAW PARTS AND IDENTIFICATION

Husqvarna How to and safety training videos, Training videos include stance, safety gear, maintenance and how to execute a tree felling plan.

<https://www.youtube.com/playlist?list=PL0VcazyXHqErUd8ib-0Ks6sZkfGFQ5shu>

### FOREST PRODUCTS

- [www.fpl.fs.fed.us/products/publications/several\\_pubs.php?grouping\\_id=100&theader\\_id=p](http://www.fpl.fs.fed.us/products/publications/several_pubs.php?grouping_id=100&theader_id=p)
- [https://www.dec.ny.gov/docs/lands\\_forests\\_pdf/woodproducts.pdf](https://www.dec.ny.gov/docs/lands_forests_pdf/woodproducts.pdf) • [www.home-extension.co.uk/timber.pdf](http://www.home-extension.co.uk/timber.pdf)
- <https://www.octaneseating.com/types-of-wood-for-furniture>
- <https://www.columbiaforestproducts.com/resources/forestry/commontimberresources/>

### FOREST BUSINESS MANAGEMENT

- Introduction to Forestry Science. Burton, Delmar Publications.
- Science of Forestry Management. Kris Irwin. University of Georgia, AAV