

# Forestry CDE

(rev. June 2023)

## Purpose

The Forestry Career Development Event is designed to stimulate student interest and to promote forestry instruction in the agricultural education curriculum and to provide recognition for those who have demonstrated skills and competencies as a result of forestry instruction.

## Eligibility

This event is open to all high school FFA chapters and FFA members in good standing. Members that have participated in a previous national event or previous state winning teams in this area are ineligible.

This event will be held during the June CDE Week at Brecknock County Park in Camden, Delaware, with registration at 9:30am and the event beginning at 10am. There is also a middle school portion to this CDE that occurs simultaneously as the high school CDE. Middle school students will do the following components: Tree Identification, Equipment Identification, and Disorder Identification individually. The Middle School team event will be map interpretation.

## Event Procedures

- A. The team will consist of four individuals and **all four scores will count** toward the team score. The team score is comprised of the combined scores of each individual and the team activity in which all team members will participate.
- B. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. Participants should have rain gear, FFA T-shirt, jeans or long pants, and closed-toed shoes—sneakers okay. Students **will not** be able to participate if they are wearing shorts, flipflops, sandals, or other open toed shoes.
- C. Students must bring their own pencils, non-programmable calculator, clipboard—clean, compass, tree/Biltmore stick, water bottle, and insect spray.
- D. Under no circumstances will any participant be allowed to touch or handle equipment or plant material during the event. Any infraction of this rule will be sufficient to eliminate the team from the event.
- E. Observers will not be permitted in the event area while the event is in progress.
- F. No team, team member or team coach shall visit the event facilities to observe plant materials and facilities two weeks prior to the CDE. Any team, team member or coach reported and proven to do so will cause the elimination of the team from the Delaware FFA Forestry CDE.
- G. Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his/her assigned group leader throughout the event or until told to change leaders by the event superintendent. Leaving the event area or rotation and moving to another before assigned will result in disqualification of individual or team.
- H. All participants will be given an identification number by which they will be designated throughout the event.

- I. Written Materials: All written materials will be furnished for the event. No written materials such as tests, problems and worksheets shall be removed from the event site.
- J. Any communication, verbal or non-verbal, between participants during the event will be sufficient cause to eliminate the team member involved from the career development event.
- K. Event chairs may stop any participant if they deem their manner hazardous to themselves or others. Such stoppage shall deem the individuals disqualified for that section of the event.

**L. Participants will not be allowed to possess any personal electronic devices (i.e. cell phones, smart watches, air pods, etc) other than those approved by event officials. Participants who possess personal electronic devices without prior approval of the event officials will be disqualified from the event.**

## Event Format

**Please note: The event format will be impacted by the number of teams participating in the event.**

### A. Individual Activities

1. General Knowledge Exam - 100 points
  - a. Fifty (50) multiple-choice questions will be selected from areas of the forestry industry reflected in the event objectives. This phase of the event will test the participant's knowledge and understanding of basic principles of forestry. The test will be comprised of questions from the last three (3) years of National FFA Forestry CDE questions.
  - b. Scoring: Each answer has a value of 2 points for a total maximum score of 100 points.
2. Tree Identification - 100 points
  - a. Twenty (20) tree specimens, pressed samples, fresh leaf samples and/or standing trees, from the list below will be displayed for participants to identify by common names. A number will designate each specimen.
  - b. Scoring: Five points will be given for each specimen that is correctly identified for a maximum of 100 points.

### B. Forestry Practicums - 100 points each for total of 300 points per individual

1. Tree/Forest Disorders Practicum
  - a. Symptoms of at least ten (10) and not more than twenty (20) disorders from the list at the end of this chapter will be displayed for participants to identify by common names. The symptoms will be presented in one or more of the following forms:
    - i. Actual sample
    - ii. Pictures/slides
    - iii. Written description

- iv. Written case history
  - b. A number will designate each set of symptoms representing a disorder.
  - c. Scoring: A total of 100 points are possible for this practicum.
- 2. Equipment Identification Practicum 100 points
  - a. Twenty (20) pieces of equipment from the list below will be displayed for participants to identify by technical names. Each piece of equipment will be designated by number.
  - b. Scoring: Five points will be given for each piece of equipment identified correctly for a total of 100 points.
- 3. Compass Practicum— 100 points
  - a. 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.
  - b. Scoring: Partial credit will be given with a deduction of one point for each two degrees or two feet the participant is off the correct answer.
- 4. Map Interpretation Practicum—100 points
  - a. Participants will answer questions using a furnished United States Geological Survey topographic map. The participant should know legal description, recognize topographic map symbols, understand the meaning of map symbols, size and location of 40 acres or more in a parcel.
  - b. Examples:
    - i. What is the legal description of the boxed area?
    - ii. What is the item located at this point?
    - iii. What is the acreage of the area enclosed?
    - iv. In what section is the city of Marshall located?
    - v. What is the elevation at this point?
  - c. Legal descriptions will be written or described according to the public land survey system.
  - d. Example: SE ¼ of NW ¼ of Section 3, T3N, R1E
- 5. Forest Products Practicum— 100 points
  - a. 10 to 20 wood products/samples will be displayed for participants to evaluate and identify its tree species source from the tree identification specimen list. The wood products/samples will be presented in one or more of the following forms:
    - i. Actual sample.
    - ii. Pictures/slides.
    - iii. Written description

### C. Team Activity - 300 points

A sampling of practicums will be incorporated into the team activity which may include map interpretation (see description above), compass and pacing (see description above) timber stand improvement, and measuring board foot volume (Middle School activity).

- 1. Forest Management Evaluation - Timber Stand Improvements (TSI) and/or Thinning Practicum.— 100 points
  - a. The trees selected and designated for use in this part of the event may be all of one species or a mixture of species.
  - b. An area will be selected and identified by ribbons, paint, rope, etc. It will contain 20 marked trees within a timber stand that needs thinning or some TSI work. 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:
    - i. Harvest - utilize the tree
    - ii. Leave - the tree should remain in stand for a good reason
    - iii. Deaden - Undesirable tree, not merchantable or beneficial to wildlife, should be deadened or cut down and left in woods
  - c. 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:
    - i. Markets available
    - ii. Wildlife considerations
    - iii. Present condition of stand
    - iv. Management plan
- 2. Tree Measurement—Timber Cruising for Board Volume (Middle School team activity)- 100 points
  - a. Using the provided tree measurement tools, each participant will measure ten pre-numbered trees on a plot for board foot volume. The participant must record the DBH (Diameter Breast Height) to the nearest one-inch class and the merchantable height of each tree height rounded down to the nearest ½ log. Volume tables will be provided at the event.
  - b. The following minimum diameters and log length will be:
 

<b>Minimum Saw Timber</b>	
	DBH
	10 inches
	Top Diameter
	10 inches DIB
	Height
	16 feet
  - c. Points for tree measurement will be broken down as:
    - \*Diameter Breast Height— 30 points
    - \* Height— 30 points
    - \* Volume— 40 points

- d. Merchantable height stops are estimated to the upper point on a tree where it becomes 10 inches in diameter or where a major fork in a tree stem occurs or where a limb has a diameter equal to 1/2 of the diameter of the tree at that point.
- e. Time: Each participant will be allowed 30 minutes to complete this phase.

[materials-c1289.aspx](#))

FFA Learn- 2005 & 2006 CDE Q&A's- (<http://ffa.learn.com/learncenter.asp?id=178409&page=31&mode=preview>)

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 80223.

W. M. Harlow, E. S. Harrar, and F. M. White. *Textbook of Dendrology*, current edition. New York, NY: McGraw-Hill Book Company.

*Silvics of Forests of United States*, Handbook #654, volume one and two, U. S. Forest Service, P.O. Box 2417, 12th and Independence Avenue SW, Washington, DC 20013.

*Forestry Handbook*, current edition, Edited by Karl Wenger for the Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814.

*Choices in Silviculture for American Forests*, current edition. Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814.

Dendrology at Virginia Tech, <http://www.cnr.vt.edu/DENDRO/dendrology/main.htm>

*Science of Forestry Management*, Kris Irwin, University of Georgia, AAVIM.

Chainsaw manuals from various manufacturers.

**Equipment References**

Current Catalog of Forestry Suppliers, Inc., 205 West Rankin Street, Jackson, MS 39204-0397.

Other selected references are available from the U.S. Forest Service and state forestry agencies.

**Delaware FFA Specific References**

Available under Chapter Resources: <http://www.delawareffa.org/Programs/Guide/>

**High School Scoring**

Phase	Individual Pts	Team Pts
General Knowledge Exam	100	400
Tree Identification	100	400
Forestry Practicums (3)	300	1200
Team Activity	0	300
Total	500	2,300

**Middle School Scoring**

Phase	Individual Pts	Team Pts
Tree Identification	100	400
Equipment Identification	100	400
Disorder identification	100	400
Team Activity (BFV Activity)	0	100
Total	300	1,300

**Tiebreakers**

Tiebreakers for high school individual scores will be 1) Knowledge Exam, 2) Tree Identification, 3) Total Rotational Practicum Score. For Middle School individual scores will be 1) tree identification, equipment, disorders Tie Breaker for teams will be the team activity.

**Awards**

Awards will be presented to individuals and/or teams based upon their rankings at the State Fair FFA Awards Breakfast. The first place team will represent Delaware at National Convention. The second place team will represent Delaware at the Big E.

**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.

The most current edition of each of the following references will be used.

National FFA Core Catalog:

CDE Q&A's (2009-2011)- (<http://shop.ffa.org/cde-qas-c1413.aspx>)

Forestry CDE Scan Forms- (<http://shop.ffa.org/cde->

**Tree Identification Specimen List**

11. Alder, Red (*Alnus rubra*)
12. Ash (*Fraxinus sp.*)
13. Aspen, Bigtooth (*Populus grandidentata*)
14. Aspen, Quaking (*Populus tremuloides*)
15. Baldcypress (*Taxodium distichum*)
16. Beech, American (*Fagus americana*)
17. Birch, Black (*Betula lenta*)
18. Birch, White (*Betula papyrifera*)
19. Cherry, Black (*Prunus serotina*)
20. Cottonwood, Eastern (*Populus deltoides*)
21. Elm (*Ulmus sp.*)
22. Fir, Balsam (*Abies balsamea*)
23. Fir, Douglas (*Pseudotsuga menziesii*)
24. Hemlock, Eastern (*Tsuga canadensis*)
25. Hemlock, Western (*Tsuga heterophylla*)
26. Hickory (*Carya sp.*)
27. Maple, Red (*Acer rubrum*)
28. Maple, Sugar (*Acer saccharum*)
29. Oak, Black (*Quercus velutina*)
30. Oak, Chestnut (*Quercus Montana*)
31. Oak, Northern Red (*Quercus rubra*)
32. Oak, Scarlet (*Quercus coccinea*)
33. Oak, Southern Red (*Quercus falcata*)
34. Oak, White (*Quercus alba*)
35. Pecan (*Carya illinoensis*)
36. Pine, Eastern White (*Pinus strobus*)
37. Pine, Loblolly (*Pinus taeda*)
38. Pine, Lodgepole (*Pinus contorta*)
39. Pine, Longleaf (*Pinus palustris*)
40. Pine, Pitch (*Pinus rigida*)
41. Pine, Ponderosa (*Pinus ponderosa*)
42. Pine, Red (*Pinus resinosa*)
43. Pine, Shortleaf (*Pinus echinata*)
44. Poplar, Yellow (*Liriodendron tulipifera*)
45. Red Cedar, Western (*Thuja plicata*)
46. Redcedar, Eastern (*Juniperus virginiana*)
47. Spruce, Red (*Picea rubens*)
48. Spruce, Sitka (*Picea sitchensis*)
49. Spruce, White (*Picea glauca*)
50. Sweetgum (*Liquidambar styraciflua*)
51. Sycamore (*Platanus sp.*)
52. Walnut, Black (*Juglans nigra*)

**Equipment Identification List**

53. Altimeter
54. Back-pack Fire Pump
55. Bark Gauge
56. Bulldozer
57. Canthook
58. Chainsaw
59. Chainsaw Chaps
60. Clinometer
61. Data Recorder
62. Densimeter
63. Diameter Tape
64. Dot Grid
65. Drip Torch
66. Endloader
67. Feller Buncher
68. Fiberglass Measuring Tape
69. Fire Rake
70. Fire Weather Kit

71. Fire-Swatter
72. Flow/current Meter
73. GPS Receiver
74. Hand Compass
75. Hand Lens/Field Microscope
76. Hip Chain
77. Hypo-Hatchet
78. Increment Borer
79. Log Rule
80. Logger's Tape
81. pH Meter
82. Planimeter
83. Plant Press
84. Plastic Flagging
85. Pulaski Forester Axe
86. Relaskop
87. Safety Glasses
88. Safety Hard Hat
89. Soil Sampler
90. Soil Test Kit
91. Staff Compass
92. Stereoscope
93. Survey Instrument
94. Tally Book
95. Tally Meter
96. Tree Caliper
97. Tree Harvester
98. Tree Marking Gun
99. Tree Planting Hoe or Bar
100. Tree Skidder
101. Tree Stick/Biltmore Stick
102. Water Sampler
103. Water Test Kit
104. Wedge Prism
105. Wheeler Caliper

**Tree Disorders Identification List**

106. Air pollution
107. Aphid
108. Beetles
109. Butt or Heart Rot
110. Canker
111. Chemical damage
112. Cicada
113. Climatic injury: snow, wind, frost, drought, hail
114. Damping off
115. Douglas fir tussock moth
116. Emerald ash borer
117. Fire damage
118. Gypsy moth
119. Hemlock woolly adelgid
120. Landscape equipment damage
121. Lightning damage
122. Mechanical damage
123. Mistletoe
124. Nematode
125. Rust
126. Sawfly
127. Scale
128. Spruce budworm
129. Sunscald
130. Tent caterpillar
131. Wetwood or slime flux

## Middle School Tree Specimen Identification List

12. Ash (*Fraxinus* sp.)
15. Baldcypress (*Taxodium distichum*)
16. American Beech (*Fagus grandifolia*)
17. Black birch (*Betula lenta*)
19. Black Cherry (*Prunus serotina*)
20. Eastern Cottonwood (*Populus deltoides*)
26. Hickory (*Carya* sp.)
27. Red Maple (*Acer rubrum*)
31. Northern Red Oak (*Quercus rubra*)
33. Southern Red Oak (*Quercus falcata*)
34. White oak (*Quercus alba*)
35. Pecan (*Carya illinoensis*)
36. Eastern white pine (*Pinus strobus*)
37. Loblolly pine (*Pinus taeda*)
39. Longleaf pine (*Pinus palustris*)
44. Yellow Poplar (*Liriodendron tulipifera*)
46. Eastern Redcedar (*Juniperus virginiana*)
50. Sweetgum (*Liquidambar styraciflua*)
51. Sycamore (*Platanus* sp.)
52. Black Walnut (*Juglans nigra*)







Practicum 1		
1	11	21
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9	19	29
0	20	30

TEAM ACTIVITY #3—TSI

Practicum 2	
1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
0	20

PRACTICUM (MAP INTERPRETATION OR CHAINSAW) / TEAM ACTIVITY # 1:

21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
01	02	03	04	05	06	07	08	09	10

Forestry Disorders									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
01	02	03	04	05	06	07	08	09	10

PRACTICUM - 100 POINTS TOTAL

Equipment ID (100 points)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20

EQUIPMENT ID PRACTICUM—100 POINTS

EXTREMELY IMPORTANT!! THERE ARE ONLY 2 DIGIT SPOTS—FOR A 3 DIGIT ID, ONLY BUBBLE IN THE LAST 2 DIGITS OF THE NUMBER (EX. 104 = 04)

Compass Practicum									
1	2	3	4	5	6	7	8	9	10
01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20
01	02	03	04	05	06	07	08	09	10

TEAM ACTIVITY #2