

# Indiana 4-H Forestry CDE

Updated 3/21

**A. OBJECTIVES** - The objectives of the 4-H/FFA Forestry event for youth are:

1. To develop leadership skills, to work as a team, and to practice good study habits.
2. To acquire information about forest ecosystems and forestry skills used in forest management and the utilization of forest products.
3. To appreciate and manage wisely Indiana's forest resources.

**B. AREA Event** - The area qualifying event will determine which teams qualify to attend the state event.

Contestants should bring a non-programmable calculator, clipboards and pencils. Participants will be given a list of trees and disorders to mark the appropriate number on the Scantron answer sheet to identify the specimens.

Some problems may require simple math calculations so a non-programmable calculator will be allowed.

**Junior Event** - identify 20 leaves, 10 seeds and 5 tree disorders. The junior written quiz will have 20 questions.

Quiz questions will be taken from the resources found at:

<https://extension.purdue.edu/4-H/get-involved/state-programs/career-development-events/forestry-cde.html>.

**Senior Event** - identify 30 leaves, 10 seeds, , 5 woods and 10 tree disorders. The senior written quiz will consist of 50 questions. Quiz questions will be taken from the resources found at:

<https://extension.purdue.edu/4-H/get-involved/state-programs/career-development-events/forestry-cde.html>.

**Time:** The recommended time for the quiz and identification is given in the table below. The contest coordinator may adjust if needed, particularly at the beginning of the contest, when participants are learning the process.

**Materials** - Area event specimen kits are maintained by Area 4-H and FFA Event Coordinators. They should be used for the Area CDE only. Area kits contain leaf, seed, and wood specimens.. Event coordinators are asked to do their own photo-copying. Practice specimens for the event should be prepared by local 4-H clubs and FFA chapters. See directions for preparing a kit at the website: <https://extension.purdue.edu/4-H/get-involved/state-programs/career-development-events/forestry-cde.html>. Area coordinators may provide a picture from the resource in "Fifty Trees of Indiana" (4-H-15-80) with leaf specimens, if they wish.

## Scoring and Suggested Time

Junior Event	(Area)	Suggested Time (minutes)	Points
	identifications: 35, 10 points each	25	350
	written quiz: 20 questions, 7 points each	25	140
<b>TOTAL POSSIBLE POINTS</b>			<b>490</b>

Senior Event	(Area)	Suggested Time (minutes)	Points
	identifications, 55, 10 points each	30	550
	written quiz: 50 questions, 7 points each	30	350
<b>TOTAL POSSIBLE POINTS</b>			<b>900</b>

Tie breakers will be in the following order:

- Individual:
  1. Combined identifications
  2. Exam
- Team:
  1. Extra team member
  2. Combined identifications
  3. Exam

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### C. STATE Event

This CDE has a staggered start so that every team sees the same specimens (senior or junior). They start times follow the schedule shown below.

Even Years	Odd Years
9 AM Start: Teams in Extension Areas 1-6	9 AM Start: Teams in Extension Areas 7-11
11:00* Start: Teams in Extension Areas 7-11	11:00* Start: Teams in Extension Areas 1-6

\*the second group will begin as soon as the first group (9 AM start) is finished.

Contestants should bring a non-programmable calculator, clipboard and pencils. Participants will be given a list of trees and disorders to mark the appropriate number on the Scantron answer sheet to identify the specimens. Some problems may require simple math calculations so a non-programmable calculator will be allowed.

**Junior Event** - identify 30 leaves, 10 seeds and 5 tree damages. The junior written quiz will have 20 questions.

Quiz questions will be taken from the resources found at:

<https://extension.purdue.edu/4-H/get-involved/state-programs/career-development-events/forestry-cde.html>.

**Senior Event** - identify 35 leaves, 10 seeds, 5 woods and 10 tree damages. The senior written quiz will have 50 questions. Quiz questions will be taken from the resources found at:

<https://extension.purdue.edu/4-H/get-involved/state-programs/career-development-events/forestry-cde.html>.

**Materials** - The state event is held at Purdue University. Practice specimens for the event should be prepared by local 4-H clubs and FFA chapters.

### Scoring

Junior Event	(State)	Suggested Time (minutes)	Points
	identifications: 45, 10 points each	30	450
	written quiz: 20 questions, 7 points each	30	140
TOTAL POSSIBLE POINTS			590

Senior Event	(State)	Suggested Time (minutes)	Points
	identifications, 60, 10 points each	40	600
	written quiz: 50 questions, 7 points each	40	350
TOTAL POSSIBLE POINTS			950

### Notes:

- ID: Contestants will choose from numbered answer list provided.
- Both the Identification and Quiz portions of this CDE will be electronically scored using Scantron.
- Tie breakers will be in the following order:
  - Individual:
    1. Combined identifications
    2. Exam
  - Team:
    1. Extra team member
    2. Combined identifications
    3. Exam

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## D. List of Possible Specimens

### Leaves

101. American basswood ( <u>Tilia americana</u> )	128. Largetooth/Bigtooth aspen ( <u>Populus grandidentata</u> )
102. American beech ( <u>Fagus grandifolia</u> )	129. Mockernut hickory ( <u>Carya tomentosa</u> )
103. American elm ( <u>Ulmus americana</u> )	130. Northern catalpa ( <u>Catalpa speciosa</u> )
104. Bitternut hickory ( <u>Carya cordiformis</u> )	131. Northern red oak ( <u>Quercus rubra</u> )
105. Black cherry ( <u>Prunus serotina</u> )	132. Ohio buckeye ( <u>Aesculus glabra</u> )
106. Black gum/Black tupelo ( <u>Nyssa sylvatica</u> )	133. Osage-orange ( <u>Maclura pomifera</u> )
107. Black locust ( <u>Robinia pseudoacacia</u> )	134. Persimmon ( <u>Diospyros virginiana</u> )
108. Black maple ( <u>Acer nigrum</u> )	135. Pignut hickory ( <u>Carya glabra</u> )
109. Black oak ( <u>Quercus velutina</u> )	136. Pin oak ( <u>Quercus palustris</u> )
110. Black walnut ( <u>Juglans nigra</u> )	137. Quaking aspen ( <u>Populus tremuloides</u> )
111. Black willow ( <u>Salix nigra</u> )	138. Red maple ( <u>Acer rubrum</u> )
112. Blue beech ( <u>Carpinus caroliniana</u> )	139. Red mulberry ( <u>Morus rubra</u> )
113. Boxelder ( <u>Acer negundo</u> )	140. Red pine ( <u>Pinus resinosa</u> )
114. Bur oak ( <u>Quercus macrocarpa</u> )	141. River birch ( <u>Betula nigra</u> )
115. Butternut ( <u>Juglans cinerea</u> )	142. Sassafras ( <u>Sassafras albidum</u> )
116. Chestnut oak ( <u>Quercus prinus</u> )	143. Scotch pine ( <u>Pinus sylvestris</u> )
117. Chinquapin oak ( <u>Quercus muhlenbergii</u> )	144. Shagbark hickory ( <u>Carya ovata</u> )
118. Eastern cottonwood ( <u>Populus deltoides</u> )	145. Shingle oak ( <u>Quercus imbricaria</u> )
119. Eastern redbud ( <u>Cercis canadensis</u> )	146. Silver maple ( <u>Acer saccharinum</u> )
120. Eastern red cedar ( <u>Juniperus virginiana</u> )	147. Slippery elm/Red elm ( <u>Ulmus rubra</u> )
121. Eastern white pine ( <u>Pinus strobus</u> )	148. Sugar maple ( <u>Acer saccharum</u> )
122. Flowering dogwood ( <u>Cornus florida</u> )	149. Swamp white oak ( <u>Quercus bicolor</u> )
123. Hackberry ( <u>Celtis occidentalis</u> )	150. Sweetgum ( <u>Liquidambar styraciflua</u> )
124. Honeylocust ( <u>Gleditsia triacanthos</u> )	151. Sycamore ( <u>Platanus occidentalis</u> )
125. Ironwood ( <u>Ostrya virginiana</u> )	152. Tuliptree/Yellow-poplar ( <u>Liriodendron tulipifera</u> )
126. Jack pine ( <u>Pinus banksiana</u> )	153. Virginia pine ( <u>Pinus virginiana</u> )
127. Kentucky coffeetree ( <u>Gymnocladus dioica</u> )	154. White ash ( <u>Fraxinus americana</u> )
	155. White oak ( <u>Quercus alba</u> )

### Seeds

201. American basswood ( <u>Tilia americana</u> )	<b>Seeds</b> (cont.)
202. American beech ( <u>Fagus grandifolia</u> )	220. Sugar maple ( <u>Acer saccharum</u> )
203. Black oak ( <u>Quercus velutina</u> )	221. Sweetgum ( <u>Liquidambar styraciflua</u> )
204. Black walnut ( <u>Juglans nigra</u> )	222. Sycamore ( <u>Platanus occidentalis</u> )
205. Blue beech ( <u>Carpinus caroliniana</u> )	223. Tuliptree/Yellow-poplar ( <u>Liriodendron tulipifera</u> )
206. Bur oak ( <u>Quercus macrocarpa</u> )	224. Virginia pine ( <u>Pinus virginiana</u> )
207. Butternut ( <u>Juglans cinerea</u> )	225. White oak ( <u>Quercus alba</u> )
208. Eastern red cedar ( <u>Juniperus virginiana</u> )	<b>Note:</b> Some of the 55 tree species used in the identification contest are not described in "Fifty trees of Indiana," therefore supplementary tree identification books are recommended.
209. Eastern white pine ( <u>Pinus strobus</u> )	
210. Honeylocust ( <u>Gleditsia triacanthos</u> )	
211. Ironwood ( <u>Ostrya virginiana</u> )	
212. Jack pine ( <u>Pinus banksiana</u> )	
213. Kentucky coffeetree ( <u>Gymnocladus dioica</u> )	
214. Northern red oak ( <u>Quercus rubra</u> )	
215. Ohio buckeye ( <u>Aesculus glabra</u> )	
216. Persimmon ( <u>Diospyros virginiana</u> )	
217. Red maple ( <u>Acer rubrum</u> )	
218. Shagbark hickory ( <u>Carya ovata</u> )	
219. Silver maple ( <u>Acer saccharinum</u> )	

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<b>Woods</b> (Seniors only)
301. American basswood ( <u><a href="#">Tilia americana</a></u> )
302. American beech ( <u><a href="#">Fagus grandifolia</a></u> )
303. American elm ( <u><a href="#">Ulmus americana</a></u> )
304. Black cherry ( <u><a href="#">Prunus serotina</a></u> )
305. Black walnut ( <u><a href="#">Juglans nigra</a></u> )
306. Butternut ( <u><a href="#">Juglans cinerea</a></u> )
307. Eastern red cedar ( <u><a href="#">Juniperus virginiana</a></u> )
308. Northern red oak ( <u><a href="#">Quercus rubra</a></u> )
309. Shagbark hickory ( <u><a href="#">Carya ovata</a></u> )
310. Sugar maple ( <u><a href="#">Acer saccharum</a></u> )
311. Sycamore ( <u><a href="#">Platanus occidentalis</a></u> )
312. Tuliptree/Yellow-poplar ( <u><a href="#">Liriodendron tulipifera</a></u> )
313. White ash ( <u><a href="#">Fraxinus americana</a></u> )
314. White oak ( <u><a href="#">Quercus alba</a></u> )

## Tree Damage Identification by Insect or Disease

[http://4hforestryinvitational.org/training/insect-and-disease-contest/index\\_html](http://4hforestryinvitational.org/training/insect-and-disease-contest/index_html)

Insect Damage:

	Common name	Scientific name
401	<u><a href="#">Asian longhorned beetle</a></u>	<i>Anoplophora glabripennis</i>
402	<u><a href="#">balsam woolly adelgid</a></u>	<i>Adelges piceae</i>
403	<u><a href="#">beech scale</a></u>	<i>Cryptococcus fagisuga</i>
404	<u><a href="#">bronze birch borer</a></u>	<i>Agrilus anxius</i>
405	<u><a href="#">caterpillar hunter beetle</a></u>	<i>Calosoma sycophanta</i>
406	<u><a href="#">checkered beetle</a></u>	<i>Thanasimus dubius</i>
407	<u><a href="#">eastern tent caterpillar</a></u>	<i>Malacosoma americanum</i>
408	<u><a href="#">emerald ash borer</a></u>	<i>Agrilus planipennis</i>
409	<u><a href="#">European pine sawfly</a></u>	<i>Neodiprion sertifer</i>
410	<u><a href="#">fall webworm</a></u>	<i>Hyphantria cunea</i>
411	<u><a href="#">forest tent caterpillar</a></u>	<i>Malacosoma disstria</i>
412	<u><a href="#">gypsy moth</a></u>	<i>Lymantria dispar</i>
413	<u><a href="#">hemlock woolly adelgid</a></u>	<i>Adelges tsugae</i>
414	<u><a href="#">Japanese beetle</a></u>	<i>Popillia japonica</i>
415	<u><a href="#">locust borer</a></u>	<i>Megacyllene robiniae</i>
416	<u><a href="#">locust leafminer</a></u>	<i>Odontota dorsalis</i>
417	<u><a href="#">Nantucket pine tip moth</a></u>	<i>Rhyacionia frustrana</i>
418	<u><a href="#">pales weevil</a></u>	<i>Hylobius pales</i>
419	<u><a href="#">periodical cicada</a></u>	<i>Magicicada septendecim</i>
420	<u><a href="#">pine needle scale</a></u>	<i>Chionaspis pinifoliae</i>
421	<u><a href="#">red oak borer</a></u>	<i>Enaphalodes rufulus</i>
422	<u><a href="#">smaller European elm bark beetle</a></u>	<i>Scolytus multistriatus</i>
423	<u><a href="#">twolined chestnut borer</a></u>	<i>Agrilus bilineatus</i>
424	<u><a href="#">white pine weevil</a></u>	<i>Pissodes strobi</i>
425	<u><a href="#">whitemarked tussock moth</a></u>	<i>Orgyia leucostigma</i>

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### Disease Damage:

	Common Name	Scientific Name
426	<a href="#">artist's conk</a>	<i>Ganoderma applanatum</i>
427	<a href="#">beech bark disease</a>	<i>Neonectria coccinea</i>
428	<a href="#">black knot</a>	<i>Apiosporina morbosa</i>
429	<a href="#">cedar-apple rust</a>	<i>Gymnosporangium juniperi-virginianae</i>
430	<a href="#">chestnut blight</a>	<i>Cryphonectria parasitica</i>
431	<a href="#">dogwood anthracnose</a>	<i>Discula destructiva</i>
432	<a href="#">Dutch elm disease</a>	<i>Ophiostoma ulmi</i>
433	<a href="#">dwarf mistletoes</a>	<i>Arceuthobium sp.</i>
434	<a href="#">hypoxylon canker</a>	<i>Biscogniauxia atropunctata var. atropunctata</i>
435	<a href="#">lichens</a>	numerous species
436	<a href="#">nectria canker</a>	<i>Neonectria galligena</i>
437	<a href="#">needle cast fungi</a>	numerous species
438	<a href="#">oak wilt</a>	<i>Ceratocystis fagacearum</i>
439	<a href="#">red heart of pine</a>	<i>Phellinus pini</i>
440	<a href="#">white pine blister rust</a>	<i>Cronartium ribicola</i>

Exam question will be from the following Purdue Forestry and Natural Resources publications.

Junior questions will come from:

[National 4-H Forestry Invitational Training](#)

[Indiana 4-H Forestry](#)

[Fifty Trees of Indiana](#)

[How Baby Bear's Chair Was Made](#)

[Environmental and Management Injury in Hardwood Tree Plantations](#)

[Planting Forest Trees and Shrubs in Indiana](#)

[The Great Clearcut Controversy](#)

[Who Does That Job? – A Forestry & Natural Resources Coloring Book](#)

Senior questions will come from all junior publications and these:

[Diagnosing and Controlling Wildlife Damage in Hardwood Plantations](#)

[Fertilizing, Pruning, and Thinning Hardwood Plantations](#)

[Financial and Tax Aspects of Tree Planting](#)

[Hardwood Log Grades and Lumber Grades: Is There a Relationship?](#)

[How to Identify Some Common Indiana Woods](#)

[How to Make and Use the Tree Measuring Stick](#)

[How to Treat Timber Sale Income](#)

[Indiana Forest Products Price Report and Trend Analysis](#)

[Invasive Plant Species in Hardwood Tree Plantations](#)

[Log and Tree Scaling Techniques](#)

[Marketing Timber](#)

[Nursery Production of Hardwood Seedlings](#)

[Some Important Indiana Hardwoods Their Characteristics and Uses](#)

[Sources of Wood and Wood Residues for Energy Production in Indiana](#)

[The Hardwood Ecosystem Experiment: Indiana Forestry and Wildlife](#)

[Tips on How to Get the Most from Your Timber Harvest](#)

[Wood from Midwestern Trees](#)

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### E. Resources

Additional references are available on-line at:

- Articles: <http://www.fnr.purdue.edu/extension/index.shtml> See *Forests and Trees and Wood Products sections*.
- Articles: Purdue Extension [publications](#) (list being updated and final list will be added to Forestry CDE web page)  
<https://mdc.itap.purdue.edu/>, Search For: *Forestry, Wood*
- On-line ID: Iowa State University Extension, Identification of Common Trees of Iowa: <http://www.extension.iastate.edu/pages/tree/>, see [Index of Iowa Trees](#)
- National 4-H Forestry Invitational Contest Training Materials: <http://4hforestryinvitational.org/training>
- National FFA Forestry CDE: <https://www.ffa.org/participate/cdes/forestry/>



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Team Name
<p>This sheet is for demonstration and practice only. You must use a real scan sheet for actual competition.</p>

### Floriculture Disorders Practicum

Cls 1 2 3

**1 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**2 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**3 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**4 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**5 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**6 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**7 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**8 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**9 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**10 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**11 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**12 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	4 5
7	7	6 7
8	8	9
9	9	10 11

Cls 1 2 3

**13 ID** Chem. Control

		0 3
0	0	1 4
1	1	2 5
2	2	Cultural Control
3	3	
4	4	0 1
5	5	2 3
6	6	



[illegible]