

Oregon 4-H Forestry Field Day Event And State 4-H Forestry Contest Guide

- 1. Tree Identification Contest- 75 points**
- 2. Tree Measurement Contest - 35 points**
- 3. Forestry Compass and Pacing Contest- 35 points**
- 4. Topographic Map Contest- 45 points**
- 5. Forestry Written Examination- 45 points**

Total = 250 Points

This guide is intended for the use of 4-H members, club leaders and event coordinators in preparing for, and participating in, Oregon's 4-H Forestry Field Day Event and State 4-H Forestry Contest. This program will take place annually. Registration forms will be available on the State 4-H Office website.

Participants in the Field Day may be Junior, Intermediate or Senior 4-H members. The Field Day is provided as an opportunity to learn and practice forestry skills. Leaders and parents are encouraged to attend the event with their youth.

Participants in the contest may be Junior, Intermediate or Senior 4-H members. Only Senior members scores will be considered for participation in the Oregon 4-H Forestry State Team. The top four individual Senior contest participants will be selected to train for, and attend, the National 4-H Forestry Invitational in West Virginia (www.oregon4h.oregonstate.edu).

Oregon 4-H Tree Identification Contest

Objective

Participants will learn to recognize and identify different species of Oregon trees. This skill is valuable because tree species have varying requirements for growth, and differ in use and value. These skills and knowledge are important to inform natural resource management decisions in wild lands and in human landscapes.

Contest Explanation

1. Participants will have the opportunity to identify 10 trees and shrubs found in a natural outdoor setting and 5 herbarium specimens in a specific amount of time. The trees and shrubs will be from Oregon's Official 4-H Forestry Species List. The list can be found on the state 4-H web site www.oregon4h.oregonstate.edu. From the home page locate Resources on the left navigation bar, select printed materials, scroll down to the Forestry section, click on the document Forestry Specimen Exhibit Requirements.
2. Participants will be judged on the accuracy of **identification** and the **spelling** of the common names of the trees and shrubs presented for identification. Spelling, including capitalization, must be the same as that on Oregon's Official 4-H Forestry Species List in order to be counted correct. Scientific names are not required.
3. Five points will be given for each correct common name. One point will be deducted for each name misspelled. Two points will be deducted for each missing name. Maximum score for this event is 75 points.

Sample Answers	Points Earned	Points Deducted
ponderosa pine	5	0
pondosa pine	4	1
pine	3	2
missing answer	0	5

Contest Rules

1. Participants must be on time, have a pencil, listen carefully, and follow instructions.
2. Participants must begin and end the contest as instructed by the contest monitor(s).
3. Participants should not talk with anyone except the monitor(s).
4. Participants should not look at other participant's Identification Sheets.
5. Handwriting must be neat.
6. Handle specimens carefully.

Oregon 4-H Tree Identification Score Sheet

Participant's Name: _____

County: _____

No.	Common Name	Correct + 5	Misspell - 1; Missing word -2	Line Score
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

(Maximum Score 75 Points) **Total Score:** _____

Oregon 4-H Tree Measurement Contest

Objective

Participants will learn to measure standing trees in order to estimate the volume of forest products that may be obtained from trees. Most timber is bought and sold on a volume basis (usually by board foot volume). Therefore, it is important to have some estimate of total tree volume, volume per acre and volume by product before selling timber.

Contest Explanation

1. To prepare for this event, learners may use the Training Materials and References located on the National 4-H Forestry Invitational (N4-HFI) web site www.aces.edu.n4hfi/Page4.html. Select Tree Measurement Contest References.
2. Following the example of the N4-HFI any standard tree scale stick may be used. A printable page for each of the three versions of scale sticks is located on the N4-HFI web site. Scale sticks may be purchased from companies such as Forestry Suppliers, Inc., Ben Meadows Co., or TSI. Co. These are also found in the Oregon's National Invitational Training trunks, and some Extension offices.
3. Participants will determine tree volumes using the International 1/4-inch Log Rule Volume Table used by the National 4-H Forestry Invitational. They will not use the volume table on the tree scale stick.
4. A fixed radius plot will be selected for the event. Participants will be required to give the total volume of saw timber per acre as determined from the sample plot volume. The plot may be 1/10 acre (37.3 foot radius), 1/5 acre (52.7 foot radius), or 1/4 acre (58.9 foot radius).
5. Participants will complete the Tree Measurement Score Sheet for 5 tree specimens. Each tree is to be identified by **common name**, and an estimate of its **diameter at breast height** (DBH), **merchantable** ("merch.") **height**, and **volume** recorded on the Tree Measurement Score Sheet.
 - a. Tree diameters will be measured and recorded in even 2-inch diameter classes.
 - b. Tree heights will be measured in 16-foot logs to the nearest full log.
 - c. The smallest tree will be no less than 10 inches DBH and one log merchantable height.
 - d. Merchantable height will be measured to an 8-inch top diameter, or a major or serious defect (hollow or point of decay) which affects greater than half the tree's diameter at that point.

6. Maximum score for this event is 35 points as noted in 7 and 8 below.
7. One point will be awarded for each correct tree identification, two points for each correct DBH, and two points for each correct tree height. A maximum of 5 points is available for each tree specimen. The total points possible in this section of this contest are 40 points. No points are awarded for individual tree volumes; these are used to calculate the total board foot volume in the plot and the total board foot volume per acre.
8. After the 5 specimen trees have been measured, contestants will determine the total volume in the plot and the volume per acre. The total volume in the plot must be multiplied by an acre factor to determine the volume per acre. Multiply by 10 for a 1/10-acre plot; 5 for a 1/5-acre plot; 4 for a 1/4-acre plot.

Ten points will be allowed for the correct **total board foot volume per acre** answer.

Point allocation will be 10 for +/- 5% of official volume, 5 for +/- 10% of official volume, 2 for +/- 15% of official volume, and no points over 15% error.

Example: If 4000 board feet (bd. ft.) is the official volume per acre (as determined by the contest monitor) then a participant answer between 3800 – 4200 bd. ft. is awarded 10 points; 3600 – 3799 bd. ft. is awarded 5 points; 3400 – 3599 bd. ft. is awarded 2 points.

Participant answers under 3400 bd. ft. and 4600 bd. ft. receives no points.

Contest Rules

7. Participants must be on time, have a pencil, listen carefully, and follow instructions.
8. Participants must begin and end the contest as instructed by the contest monitor(s).
9. Participants should not talk with anyone except the monitor(s).
10. Participants should not look at other participant's Tree Measurement Sheets.
11. Handwriting must be neat.
12. The official volume per acre answer will be determined by the contest monitor.

Tree Volume Table

International ¼ inch Log Rule – Form Class 78

National 4-H Forestry Invitational

Volume (board feet) by number of 16-foot logs to the nearest full half log:

<i>DBH inches</i>	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
10	36	48	59	66	73	--	--	--	--
12	56	74	92	106	120	128	137	--	--
14	78	105	132	153	174	187	200	--	--
16	106	143	180	210	241	263	285	--	--
18	136	184	233	274	314	344	374	--	--
20	171	234	296	348	401	440	480	511	542
22	211	290	368	434	500	552	603	647	691
24	251	364	441	523	605	664	723	782	840
26	299	414	528	626	725	801	877	949	1,021
28	347	482	616	733	850	938	1,027	1,114	1,201
30	403	560	718	854	991	1,094	1,198	1,306	1,415
32	462	644	826	988	1,149	1,274	1,400	1,518	1,637
34	521	728	934	1,119	1,304	1,447	1,590	1,727	1,864
36	589	826	1,063	1,274	1,485	1,650	1,814	1,974	2,135
38	656	921	1,186	1,428	1,670	1,854	2,038	2,224	2,410
40	731	1,030	1,329	1,598	1,868	2,081	2,294	2,494	2,693

To use this table, first measure the **DBH** of the tree and locate it in the proper even 2-inch diameter class in the first column (10 – 40 inches). Next measure the merchantable height of the tree in **number of 16-foot logs** to the nearest half log and locate it in the top row (1- 5 ½ logs). Move across the chart in the row for the **DBH** and down the column from the **number of 16-foot logs** to the intersection of that row and column. At this intersection you will find the merchantable volume of the tree. **Example:** A tree with DBH = 12 and number of 16-foot logs = 2 has a merchantable timber volume of 92 board feet.

Oregon 4-H Tree Measurement Score Sheet

Participant's Name: _____ County: _____

Plot Size: _____ acre

Circle the acre factor multiplier to be used below-

(a) 10 for a 1/10-acre plot (b) 5 for a 1/5-acre plot (c) 4 for a 1/4-acre plot

Specimen #	Species Common Name (1 point)	DBH (2 pts)	Merch. Height 16 ft. logs (2 pts)	Volume Board Feet (from chart)	Row Score (Max. 5 pts./row)
1.					
2.					
3.					
4.					
5.					
Total board foot volume in plot				_____	
Total board foot volume per acre				_____	
<u>To be completed by Contest Monitor:</u>					
Monitor's Score Calculation:					
(a) Subtotal- Total of Tree Specimen Row Scores					
Maximum 25 points possible					
(b) Subtotal-Score for Total bd. ft. volume per acre calculation.					
Maximum 10 points possible*					
(c) Total Score: (a) + (b) = (c)					
Maximum 35 points possible					_____

*Ten points will be allowed for the correct **total board foot volume per acre** answer. Point allocation will be 10 for +/- 5% of official volume, 5 for +/- 10% of official volume, 2 for +/- 15% of official volume, and no points over 15% error. **Example:** If 4000 board feet (bd. ft.) is the official volume per acre (as determined by the contest monitor) then a participant answer between 3800 – 4200 bd. ft. is awarded 10 points; 3600 – 3799 bd. ft. is awarded 5 points; 3400 – 3599 bd. ft. is awarded 2 points. Participant answers under 3400 bd. ft. and 4600 bd. ft. receives no points.

Oregon 4-H Forestry Compass and Pacing Contest

Objective

Participants will learn to estimate ground distances by the pacing method and learn to determine direction using a compass.

Contest Explanation

1. To prepare for this event, learners may use the Training Materials and References located on the National 4-H Forestry Invitational (N4-HFI) web site www.aces.edu.n4hfi/Page4.html. Select Compass Traverse Contest References.
2. Each contestant determines the number of paces he or she takes per 100 feet on a practice course prior to the contest beginning. Pacing distance is determined with a normal walking stride. No heel to toe or other measurements is allowed.
3. Compass declinations will not be needed.
4. The compass course layout will consist of four lines with marked corners. Every effort will be made to avoid slopes over 15 percent, steep revines, heavy brush, large rocks and wetlands on the contest course.
5. A maximum of 10 points is possible for each of the four lines. Five points for each correct bearing and 5 points for each correct distance. One-half point will be deducted for each degree of error in the bearing up to a maximum of 5 points per line. One-half point will be deducted for each foot of error in distance up to a maximum of 5 points. There are 10 points awarded for the participant's accurate pace measure. A maximum of 50 points are possible.

Contest Rules

1. Participants must be on time, have a pencil, listen carefully, and follow instructions.
2. Participants must begin and end the contest as instructed by the contest monitor(s).
3. Participants should not talk with anyone except the monitor(s).
4. Participants should not look at other participant's Compass and Pacing Sheets.
5. Handwriting must be neat.
6. Participants will use the compasses provided by the contest monitor.

Forestry Compass and Pacing Score Sheet

Participant's Name: _____ County: _____

Participant's number of paces/100 feet = _____ paces/ 100 feet

Participant's pace: _____ (10 points)

<i>Line</i>	Bearing	Bearing Score (a) Max. 5 pts.	Distance	Distance Score (b) Max. 5 pts.	Row Score (a) + (b)
<i>A - B</i>					
<i>B - C</i>					
<i>C - D</i>					
<i>D - E</i>					

Total Score: _____

Maximum Score 50 points

A maximum of 10 points is possible for each of the four lines. Five points for each correct bearing and 5 points for each correct distance. One-half point will be deducted for each degree of error in the bearing up to a maximum of 5 points per line. One-half point will be deducted for each foot of error in distance up to a maximum of 5 points. There are 10 points awarded for the participants accurate pace measure. A maximum of 50 points are possible.

Oregon 4-H Topographic Map Contest

Objective

Participants in this event will learn the following:

1. how to identify different features on a topographic map by their symbols;
2. how to determine the length of a line established between two points on the a map;
3. how to determine the bearing (line of travel) between two given points on the map using a mirror-sighting type azimuth compass;
4. how to correct the bearing of a line of travel for declination.

Contest Explanation

1. To prepare for this event, learners may use the Training Materials and References located on the National 4-H Forestry Invitational (N4-HFI) web site [www.aces.edu.n4hfi/Page 4.html](http://www.aces.edu.n4hfi/Page%204.html). Select Topographic Map Contest References.
2. 7.5 minute USGS Amity Quad will be the map used in the Oregon event. The scale on a 7.5 Minute Series map is 1:24,000. This means 1 inch on the map equals 24,000 inches or 2000 feet of actually distance on the ground.
3. The map used in the contest will be the same for all contestants.
4. Participants will identify ten symbols and/or features on the map which will be indicated with arrows. Locate and study the 30 topographic map symbols and features found on the N4-HFI web site. Three points will be awarded for each correct answer in this section.
5. Participants will measure the distance between two locations identified on the contest map with a ruler. Five points will be awarded for a correct answer.
6. Participants will determine the bearing (line of travel) between two locations identified on the contest map using a mirror-sighting azimuth compass. Five points will be awarded for an answer that is within plus or minus 2 degrees of the official answer.
7. Participants will correct a bearing for declination. Five points will be awarded for a correct answer.

Contest Rules

1. Participants must be on time, have a pencil, listen carefully, and follow instructions.
2. Participants must begin and end the contest as instructed by the contest monitor(s).
3. Participants should not talk with anyone except the monitor(s).
4. Participants should not look at other participant's Topographic Map Score Sheet.

5. Participants will use only the mirror-sighting azimuth compasses, rulers and 7.5 Minute Series maps provided by the monitor(s) for this event.
6. Handwriting must be neat.

Topographic Map Score Sheet

Participant's Name: _____ County: _____

	Map Symbol or Feature	Row Score 3 pts./ row
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

		Possible Points	
Distance:		5	
Bearing:		+/- 2 degrees 5	
Corrected Bearing:		5	

Total Score: _____

Oregon 4-H Forestry Written Contest

Objective:

Participants will become familiar with aspects of general forestry, ecology, utilization, insects and diseases.

Contest Explanation

1. To prepare for this event, learners may use the Training Materials and References located on the National 4-H Forestry Invitational (N4-HFI) web site www.aces.edu.n4hfi/Page4.html. Select Forestry Bowl Contest References.
2. The written examination will include 45 multiple choice questions. Each correct answer is worth 1 point. A maximum of 45 points is possible.

Contest Rules

1. Participants must be on time, have a pencil, listen carefully, and follow instructions.
2. Participants must begin and end the contest as instructed by the contest monitor(s).
3. Participants should not talk with anyone except the monitor(s).
4. Participants should not look at other participant's Written Examination Sheet.
5. Handwriting must be neat.