

ENVIRONMENTAL AND NATURAL RESOURCES

Team Event

IMPORTANT NOTE

Please thoroughly read the General CDE Rules Section at the beginning of this handbook for complete rules and procedures that are relevant to State FFA Career Development Events.

I. PURPOSE

Environmental and natural resource education has a responsibility to educate the public and prepare students to enter careers in the environmental and natural resource industry. The purpose of the environmental and natural resource career development is to foster student interest, promote environmental and natural resource instruction in the agricultural education curriculum and provide recognition for those who have demonstrated skills and competencies as a result of environmental and natural resource instruction

II. OBJECTIVES

The objectives of this career development event are directly aligned with the objectives of the Environmental Science and Natural Resources curriculum as developed by the Curriculum and Instructional Materials Center (CIMC). The *Introduction to Natural Resources, 3rd Edition*, will be used to create all contest elements during the 2018-2019 school year.

III. EVENT RULES

1. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of the weather. Participants should have rainwear, warm clothes and appropriate footwear.
2. Under no circumstance will any participant be allowed to handle any of the items in the identification portion of the practicums. Any infraction of this rule will be sufficient to eliminate a team from the event.
3. Possession or use of any equipment, including electronic devices, other than items specified in section IV. B., is prohibited.
4. Participants will be assigned to group leaders who will escort them to various event---staging sites. Each participant is to stay with his or her assigned group leader throughout the event or until told to change leaders by the event superintendent.
5. All written material will be furnished for the event. No written materials such as tests, problems and worksheets shall be removed from the site.

IV. EVENT FORMAT

A. Team Make-Up

Each team will be comprised of three or four members. The top three scores will be used to determine the total team score.

B. Equipment

1. Materials students must provide – Each participant may bring an electronic calculator that is non---programmable, with only these functions: addition, subtraction, multiplication, division, equals, percent, square root, +/- key, and one memory register. No other calculators are allowed to be used during the event. We will have handheld GPS units available, however, PARTICIPANTS can bring their own dedicated handheld GPS unit. Minimum requirements for GPS will be Garmin eTrex receiver or compatible. Position accuracy WAAS enabled 3 meters, 20 routes, 500 waypoints (total). Students from each team will not be allowed to share the same GPS unit, unless the group leader has determined the GPS memory to be cleared. No cellphones or tablets will be allowed. EACH PARTICIPANT will also be responsible for bringing:
 - a. Clean transparent clipboard, and
 - b. No. 2 pencils (sharpened)
2. Equipment provided – Participants must use the other tools and equipment furnished for the event. All activities will be on a scan sheet provided by the contest administrators. Water test results will be provided—students will not conduct their own analysis.

C. Objective Written Exam – (100 points) (60 minutes)

1. The written exam will consist of 50 questions generated from the Introduction to Natural Resources text from CIMC (see reference list).

D. Identification – (100 points) (45 minutes)

1. Students will identify 50 items from the categories listed below. It is important to note that identification items may include pictures, actual full specimens, animal tracks, and/or elements of specimens (e.g. wing of a specific duck species). See the complete list of identification items in the reference section of these guidelines.
 - i. Equipment
 - Water quality
 - Aquatic
 - Wildlife
 - Geographical
 - Weather
 - Forestry

- ii. Native Species
 - Wildlife
 - Birds
 - Reptiles/amphibians
 - Fish and other aquatic animals
- iii. Invasive/non---native species
 - Plants
 - Animals

E. Rotational Practicums – (100 points each) (20 minutes each)

1. Students will participate in following practicums described below.

i. Water Analysis – (100 points, 20 minutes)

- Test results for each of the following categories can be included in the staged scenario: dissolved oxygen, nitrates, nitrites, pH, temperature, phosphates, water hardness, chlorine and ammonia.
- Analyze the results of measurements and determine if it is suitable for a specific use.
- Answer questions using the data collected about water quality and limiting factors.

ii. GPS Locations – (100 points, 20 minutes)

Participants should be prepared to use the GPS unit to complete any of the following:

- a. Identify the longitude and latitude of a given set of points using a GPS unit and/or a map.
- b. Identify boundaries of a given area including calculation of land area and linear feet of boundary.
- c. Determine the slope of land area.
- d. Use GPS unit and topographic map to layout the location of a fence line, pond, drainage structure or other related facilities.
- e. Use a GPS unit to mark location of a path or road through a given area.

v. SCORING

Individual

Written Exam	100
Identification	100
Rotational Practicums	200 (100 each)

Individual Total **400**

Team Total **1200**

VI. TIEBREAKER

1. Individual with the highest exam score.
2. Individual with the highest annual practicum scores.
3. Individual with the highest rotational practicum scores.

VII. AWARDS

Awards will be presented to individuals and/or teams based upon their rankings at the awards ceremony.

VIII. RESOURCES

The Environmental and Natural Resources CDE will be based upon the following CIMC curriculum:

Hehn, D. & Newport, B. (2003). *Introduction to Natural Resources: 3rd Edition*. Stillwater, OK: Oklahoma Department of Career and Technology Education.

IX. SUPPLEMENTAL MATERIALS AND FORMS

Environmental and Natural Resources Identification List
(adapted from the National FFA Environmental & Natural Resources Handbook)

EQUIPMENT

WATER QUALITY

1. refractometer
2. secchi disk
3. water meter for physical/chemical parameters (pH, conductivity and/ or DO)

AQUATIC

4. bottom dredges
5. fish measuring board
6. plankton net
7. seines
8. sieves

WILDLIFE

9. animal tags/bands
10. mammal traps
11. snake/reptile stick
12. radio telemetry unit

WEATHER

13. wind speed meters
14. barometer

SOILS

15. abny level
16. push probe
17. soil auger
18. soil color book

NATIVE SPECIES

WILDLIFE

19. armadillo
20. badger
21. beaver
22. bighorn sheep
23. bison
24. black bear

25. blacktail deer

26. bobcat

27. chipmunk

28. cottontail

29. coyote

30. elk

31. fox squirrel

32. gray squirrel

33. gray wolf

34. grizzly bear

35. jack rabbit

36. mole

37. moose

38. mountain goat

39. mountain lion

40. mule deer

41. muskrat

42. opossum

43. pocket gopher

44. porcupine

45. prairie dog

46. pronghorn

47. raccoon

48. red fox

49. skunk

50. weasel

51. whitetail deer

52. woodchuck

BIRDS

53. bald eagle

54. blue jay

55. bluebird

56. brown thrasher

57. Canada goose

58. canvasback duck

59. cardinal

60. Cooper's hawk

61. Crissal thrasher

62. mourning dove

63. great blue heron

- 64. great horned owl
- 65. golden eagle
- 66. hummingbird
- 67. kestrel
- 68. least tern
- 69. mallard duck
- 70. osprey
- 71. pelican
- 72. purple martin
- 73. quail
- 74. red-tailed hawk
- 75. sand hill crane
- 76. blue-winged teal
- 77. turkey
- 78. whooping crane
- 79. wood duck

- 104. carp
- 105. channel catfish
- 106. clam
- 107. crab
- 108. crappie
- 109. crayfish
- 110. flathead catfish
- 111. largemouth bass
- 112. lobster
- 113. salmon
- 114. shrimp
- 115. smallmouth bass
- 116. sturgeon
- 117. trout
- 118. walleye
- 119. yellow bullhead catfish

REPTILES/AMPHIBIANS

- 80. alligator
- 81. alligator snapping turtle
- 82. black rat snake
- 83. bullfrog
- 84. collared lizard
- 85. common snapping turtle
- 86. copperhead snake
- 87. coral snake
- 88. corn snake
- 89. cottonmouth
- 90. crocodile
- 91. fence lizard
- 92. garter snake
- 93. green anole lizard
- 94. gray tree frog
- 95. rattlesnake
- 96. red eared slider
- 97. ring neck snake
- 98. rubber boa snake
- 99. scarlet king snake
- 100. Woodhouse's toad

FISH AND OTHER AQUATIC ANIMALS

- 101. blue catfish
- 102. bream/bluegill
- 103. brown trout

INVASIVE/NON-NATIVE SPECIES

PLANTS

- 120. broom snake weed
- 121. cheatgrass
- 122. Chinese tallow
- 123. cogongrass
- 124. English ivy
- 125. Himalaya blackberry
- 126. hydrilla
- 127. juniper
- 128. kudzu
- 129. leafy spurge
- 130. melaleuca
- 131. mimosa tree
- 132. purple loosestrife
- 133. Russian olive
- 134. saltcedar

ANIMALS

- 135. Asiatic clam
- 136. Asian long-horned beetle
- 137. Chinese mitten crab
- 138. chukkar
- 139. English sparrow
- 140. European starling
- 141. feral hog

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142. feral horse
143. fire ant
144. gopher
145. Norway rat
146. nutria
147. ring neck pheasant
148. sea lamprey
149. tilapia
150. zebra mussel