



Georgia FFA Association

ENVIRONMENTAL / NATURAL RESOURCES

- SENIOR CDE

I. OVERVIEW

The Environmental/Natural Resources CDE is a four-person team event. It is designed to develop an understanding of our state's natural resources while allowing students to explore and prepare for possible careers in Natural Resources and Environmental Science.

II. PURPOSE

Georgia possesses a vast wealth of Natural Resources. The purpose of the Environmental/Natural Resources CDE is to acquaint students with the different areas of the Natural Resources that are found throughout the State and to foster skill development in each student's chosen area of study.

III. ELIGIBILITY

This event is open to students in grades 9-12 who are agricultural education students, and are paid members of a chartered FFA chapter. Each member of the team must be a member of the chapter registering them, and each student's name must appear on the chapter's FFA roster at least 10 days prior to competition above the chapter level.

IV. SPECIAL NEEDS REQUEST

To report any special needs or request special services for a student to compete in a Career Development Event or FFA Award area (Area or State level), it is the responsibility of the FFA advisor to provide a detailed and specific request and explanation in writing. Requests should include written documentation from the school system verifying the IEP and need being requested. Written requests must be submitted to the CDE Superintendent prior to registering for the CDE/event (at least 3 weeks prior to the date of competition).

V. RULES

- 1) Team size shall be four members. **All four members will be scored and all scores will count towards the team total score.**
- 2) Under no circumstances will any participant be allowed to handle any of the items in the identification portion of the practicums. Any infraction of this rule will give sufficient cause to eliminate a team from the event.
- 3) 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.
- 4) All participants will be given an identification number by which they will be designated throughout the event.
- 5) The event will be conducted regardless of the weather conditions.
- 6) Written material will be furnished for the event.
- 7) Materials student must provide: Each participant must have a clean, note-free clipboard, two sharpened No. 2 pencils, and an electronic calculator. Calculators used in this event should be TI-30Xa or equivalent (no programmable calculators allowed). A GPS Unit such as the Garmin e-trex or equivalent.
- 8) Equipment provided: All other tools and equipment will be furnished for the event. Participants must use the tools and equipment furnished at the event.
- 9) No cell phones may be used during this competition.



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VI. FORMAT

The Area CDE will involve:

- A. Exam (*all four students will take an exam as a team*)
- B. Identification (*all four students participate individually*)
- C. GPS practicum (*all four students participate individually*)

The State CDE will involve:

- A. Exam (*all four students take an exam individually*)
- B. Identification (*all four students participate individually*)
- C. GPS practicum (*all four students participate individually*)
- D. Team Activity (*all four team members will work together*)

A) Team Activity: Time – 90 minutes to complete.

The team activity will consist of problem solving stations. All four team members may work together and discuss problems and/or practicums to come up with the solution. The main focus of the team activity will center on the current team activity, which is rotated each year by the schedule that is listed in the National FFA CDE Handbook (see below). Problem solving activities from other components of this CDE may be included into this team activity.

All four team members can work together on the problem solving. The activity will be worth 200 points toward the team score.

The team activity will follow this rotation:

2015-2016 – Ecosystems	2017-2018 – Soils
2016-2017 – Waste Management	2014-2015 – Water

B) Individual Activities:

1) Exam (200 points)

At the Area CDE, the team will be able to work together on the exam and the exam will count 200 points.

At the State CDE, each individual will take an exam separately; there will be no collaboration among contestants. The exam will be worth 50 points per contestant for a total possible team score of 200 points.

The reference for the written exam questions will come from the Georgia Agricultural Education Natural Resources Curriculum (see Reference section).



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2) Identification (100 points) (45 minutes)

Students will identify 50 items from the following combined areas. Each item will count as 2 points. Students may be required to identify the item from the actual sample, a mounted or preserved sample, a photograph, a written description or a sign of the item, such as a track, scat, or a fruit or cone. A word bank will be provided to students at the competition.

Equipment	Reptiles/Amphibians	Plants (Trees and Shrubs, Vines, and Grasses)
Wildlife	Fish and other Aquatic Animals	
Birds	Non-Native Species	

3) GPS Locations (100 points) (45 minutes)

1. Students should bring a Global Positioning System (GPS) unit. Any 12 channel GPS unit can be used. The coordinate system used to designate points will be latitude and longitude in degrees/minutes/seconds. Map datum used to collect points will be NAD83.
2. Using GPS unit, the participant will be required to walk to and locate the points.
3. Students will then record a predetermined identification mark located at each point along with the common name that corresponds to a scientific name of a tree from the identification list at each point.
4. After the students return to the checkout station, time will stop and then they will write the common name of the GPS points on the score sheet. If they write the common name on the score sheet before checking back in the participant will not receive any credit.
5. Students shall know how to read longitude and latitude numbers and how to use a GPS unit.
6. Students may also be asked to identify the latitude and longitude of a given point or set of points using a GPS unit and a map.
7. Students may also be asked to identify boundaries of a given area including calculation of land area and linear feet of the boundary.
8. After 30 minutes, students will have 2 points deducted for each minute up to 45 minutes. Time will be called at 45 minutes.

VII. SCORING

AREA Level

Exam –	200 points per team
Identification –	100 points per student
GPS –	100 points per student

Maximum score for an individual is **200 points**. Maximum score for a team is **1000 points**.

STATE Level

Team Activity –	200 points per team
Exam –	50 points per student
Identification –	100 points per student
GPS –	100 points per student

Maximum score for an individual is **250 points**. Maximum score for a team is **1200 points**.



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VIII. TIE BREAKER

Team tiebreaker will be settled in the following order:

1. Team with the highest exam score (Area)(total of the four individual exam scores at the state CDE)
2. Team with the highest identification score (total of the four individual scores)
3. Team with the highest individual score
4. Team with the next highest individual score (continue until tie is broken)

Individual tiebreaker will be settled in the following order:

1. Individual with the highest GPS score
2. Individual with the highest identification score
3. Individual with the highest exam score (at the state CDE)(at Area, the highest team exam score)
4. Individual on the team with the highest team activity score (at the state CDE)

IX. AWARDS

Awards shall be determined each year by the Board of Trustees of the Georgia FFA Foundation. This event at the state level is made possible through the Georgia FFA Foundation as a special project of an industry sponsor or from the Foundation general fund. Minimum awards will recognize the first four places of individuals in each activity, and the first and second place teams at the state level. Area awards will be dependent on sponsorship of these events.

X. REFERENCES

- *Georgia Ag Ed Natural Resources Curriculum*
 - <http://www.gaaged.org/GPS/Courses/AG-NR-03.411/Lessons/>
 - 2014-2015 – Water Lessons 5.1, 5.2, and 5.4
 - 2015-2016 – Ecosystems Lessons 3.1 – 3.5
 - 2016-2017 – Waste Management 6.1, 6.2, and 6.4
 - 2017-2018 – Soils 4.1, 4.2, and 4.4
- *Cornell Lab of Ornithology*
 - <http://www.allaboutbirds.org/Page.aspx?pid=1189>
- *Savannah River Ecology Laboratory*
 - <http://srelherp.uga.edu/>
- *Fishes of Georgia*
 - <http://fishesofgeorgia.uga.edu/index.php?page=home>
- *Georgia Department of Natural Resources, Wildlife Resources Division*
 - <http://www.georgiawildlife.com/node/1469?cat=conservation>
- *Georgia Department of Natural Resources, Environmental Protection Division*
 - <http://www.georgiaadoptastream.org/db/Default.asp>



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Georgia Environmental/Natural Resources CDE Identification List

Equipment

Water Quality

101. Refractometer
102. Secchi Disk (for measuring turbidity)
103. Thermometer
104. Water Bottle Samplers
105. Water Meter for physical/chemical parameters (pH, conductivity, and/or DO)

Aquatic Samplers

106. Aquatic net
107. Bottom dredges
108. Fish measuring board
109. Plankton net
110. Seines
111. Sieves
112. Stream bottom sampler

Wildlife

113. Animal tags/bands
114. Binoculars
115. Mammal traps
116. Radio telemetry unit
117. Snake/reptile stick

Geographical

118. GPS unit

Weather

119. Anemometer
120. Barometer
121. Rain gauge
122. Sling psychrometer

Forestry

123. Biltmore stick
124. Clinometer
125. Diameter tape
126. Logger's tape
127. Prism
128. Quadrant Compass
129. Tree increment borer



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Wildlife

201. Armadillo
202. Bat
203. Beaver
204. Black Bear
205. Bobcat
206. Chipmunk
207. Coyote
208. Feral Hog
209. Fox (Red or Gray)
210. Mole
211. Muskrat
212. Opossum
213. Porcupine
214. Rabbit (Eastern Cottontail or Swamp)
215. Raccoon
216. Skunk
217. Squirrel (Fox or Gray)
218. Weasel
219. Whitetail Deer

Birds

301. American Kestrel
302. Bald Eagle
303. Bluebird (Eastern or Mountain)
304. Blue Jay
305. Brown Pelican
306. Brown Thrasher
307. Canada Goose
308. Cardinal
309. Cooper's Hawk
310. European Starling
311. Great Blue Heron
312. Great Horned Owl
313. House Sparrow
314. Hummingbird
315. Mallard Duck
316. Mourning Dove
317. Northern Bobwhite
318. Purple Martin
319. Red-tailed Hawk
320. Ruffed Grouse
321. Wild Turkey
322. Woodcock
323. Wood Duck



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Reptile/Amphibians

401. Alligator
402. Alligator Snapping Turtle
403. Black Rat Snake
404. Bullfrog
405. Canebrake Rattlesnake
406. Common Snapping Turtle
407. Copperhead Snake
408. Coral Snake
409. Corn Snake
410. Cottonmouth
411. Eastern Diamondback Rattlesnake
412. Fence Lizard
413. Garter Snake
414. Gopher Tortoise
415. Green Anole Lizard
416. Green Treefrog
417. Ringneck Snake
418. Red-Eared Slider
419. Scarlet Kingsnake
420. Slider Turtle

Fish

501. Black Crappie
502. Bluegill
503. Bowfin
504. Brook Trout
505. Brown Trout
506. Chain Pickerel
507. Channel Catfish
508. Crab
509. Crayfish
510. Flathead Catfish
511. Freshwater Shrimp
512. Grass Carp
513. Hybrid Striped Bass
514. Largemouth Bass
515. Rainbow Trout
516. Redbreast Sunfish
517. Redear Sunfish
518. Shad (Gizzard or Threadfin)
519. Smallmouth Bass
520. Striped Bass
521. Walleye
522. Warmouth

Non-Native Species

601. Chinese Privet
602. Chinaberry
603. English Ivy
604. Fire Ant
605. Hydrilla
606. Kudzu
607. Mimosa
608. Nutria



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Plants

Participants may be required to identify by common names the following trees, shrubs, vines, and grasses. Specimens could include full trees, freshly cut foliage, herbarium sheets with pressed foliage, photographs, foliage, bark, limbs, fruits, nuts, cones, seeds, or any other plant parts.

Trees

Common Name

- 701. American Beech
- 702. American Holly
- 703. Black Cherry
- 704. Black Locust
- 705. Black Walnut
- 706. Blackgum
- 707. Catalpa
- 708. Chestnut Oak
- 709. Eastern Redcedar
- 710. Flowering Crabapple
- 711. Flowering Dogwood
- 712. Honeylocust
- 713. Live Oak
- 714. Loblolly Pine
- 715. Longleaf Pine
- 716. Mockernut Hickory
- 717. Mulberry
- 718. Pecan
- 719. Persimmon
- 720. Post Oak
- 721. Sassafras
- 722. Sawtooth Oak
- 723. Slash Pine
- 724. Southern Red Oak
- 725. Turkey Oak
- 726. Virginia Pine
- 727. White Oak
- 728. Yellow-Poplar

Scientific Name

- Fagus grandifolia*
- Ilex opaca*
- Prunus serotina*
- Robinia pseudoacacia*
- Juglans nigra*
- Nyssa sylvatica*
- Catalpa bignonioides*
- Quercus prinus*
- Juniperus virginiana*
- Malus* spp.
- Cornus florida*
- Gleditsia triacanthos*
- Quercus virginiana*
- Pinus taeda*
- Pinus palustris*
- Carya tomentosa*
- Morus* spp.
- Carya illinoensis*
- Diospyrus virginiana*
- Quercus stellata*
- Sassafras albidum*
- Quercus acutissima*
- Pinus elliotii*
- Quercus falcata*
- Quercus laevis*
- Pinus virginiana*
- Quercus alba*
- Liriodendron tulipifera*

Shrubs & Vines & Grasses

Common Name

- 801. American Beautyberry
- 802. Blackberry
- 803. Common Lespedeza
- 804. Greenbriers
- 805. Highbush Blueberry
- 806. Japanese Honeysuckle
- 807. Mistletoe
- 808. Partridge pea
- 809. Pokeweed
- 810. Ragweed
- 811. Sparkleberry
- 812. Vetch
- 813. Viburnum

Scientific Name

- Callicarpa americana*
- Rubus* spp.
- Lespedeza* spp.
- Smilax* spp.
- Vaccinium* spp.
- Lonicera japonia*
- Loranthaceae* spp.
- Cassia fasciculata nicitans*
- Phytolacca americana*
- Ambrosia* spp.
- Vaccinium arboreum*
- Vicia* spp.
- Viburnum* spp.