

Environmental & Natural Resources

Nebraska Career Development Event
Handbook and Rules for 2024-2027

1. EVENT PURPOSE

The purpose of the Nebraska Environmental and Natural Resources CDE is to provide individuals with basic knowledge and skills necessary to take advantage of wildlife, ecosystem, soil, water and waste management career opportunities.

The Nebraska Environmental and Natural Resources CDE is a simplified version of the national event. It includes 3 elements:

- a. Individual multiple choice test focusing on invasive and native species, habitat management, food webs and ecosystem properties, soil, water and waste management.
- b. Individual Nebraska species identification test using a collection of tracks, pelts, scat, photos and other identifying factors.
- c. Team activity on data interpretation and decision making related to the year's theme.

Agricultural Education courses that may align to the Environmental and Natural Resources CDE includes: Introduction to Agriculture, Food, and Natural Resources, Environmental and Natural Resources, Natural Resources and Ecology, Environmental and Natural Resources Management, and Wildlife Management.

2. OBJECTIVES

- a. Team Activity Objectives (objectives applied to rotating themes)
 - i. Apply knowledge of land capability class, soil classification, and physical properties such as: structure, permeability, and slope.
 - ii. Read, find information, and use data from a soil survey (online version printed to hard copy or book) in a given scenario.
 - iii. Using specific data and waste allowances as related to surface and groundwater and soil nutrients such as phosphorus, nitrates, nitrites and pH, select the best solution to a given scenario.
 - iv. Understand how to run and read the following tests for water quality: nitrites, dissolved oxygen, nitrates, pH, phosphates, water hardness, chlorine, ammonia and the current temperature.
 - v. Make decisions about habitat suitability including suggestions for how the habitat can be improved given information regarding specific species habitat requirements.
- b. Individual Objectives (multiple choice test 75 questions and 25 species identification questions) (View Appendix 1)
 - i. Explain the hydrologic cycle and how water moves through the cycle.
 - ii. Interpret the nitrogen cycle.
 - iii. Apply knowledge of land capability class, soil classification, and physical properties such as structure, texture, permeability, and slope while correctly using soil vocabulary.
 - iv. Apply knowledge of waste management as it relates to surface and groundwater and soil nutrients such as phosphorus, nitrates, nitrites and pH.
 - v. Identify the tracks, pelts, scat, photos and other identifiers of a variety of plant and animal species found in Nebraska.
 - vi. Identify invasive species and explain how they affect the natural environment.
 - vii. Describe climate effects on agriculture, water and wildlife.
 - viii. Analyze private land conservation scenarios to develop solutions that increase conservation while remaining profitable.

3. ELIGIBILITY

- a. This event is open to students in grades 9-12.
- b. Schools must place in the top 33% at their district event to qualify for the state event.
- c. Schools must register 4 students with all 4 individual scores making up the team score. Teams with less than 4 students may participate but will not be eligible to earn all points (0 points earned for missing member).
- d. This is a national-qualifying event.

4. REQUIRED ATTIRE

- a. Official FFA Dress or Professional Attire, such as dress pants and a collared shirt. Inappropriate dress, as determined by the event superintendent, may result in up to a 10% point deduction on the individual exam portion of the event.
- b. Lab coats are recommended but optional.

5. REQUIRED SUPPLIES AND EQUIPMENT

- a. A pencil

NOTE: no electronic devices of any kind including cell phones, laptop computers, tablets (e.g., iPads) will be allowed during the duration of this event.

6. EVENT SCHEDULE

- a. See the CDE schedule on the Nebraska CDE website for specific times for each district.
- b. Some participants will complete the individual activities first, then the team activities. The other participants will complete the team activities first, then the individual activities.
- c. During the scheduled time, each team will participate in 2 rotations of 45 minutes each.
 - i. 1 - 45 minute rotation will be for individual activities.
 - i. 35 minutes for the exam
 - ii. 10 minutes for identification
 - ii. 1 - 45 minute rotation will be for team activities.
- d. Late teams can participate, but must end at the designated time. They will only be able to complete whichever section still remaining (ie. a team arriving after the rotation cannot complete whichever section they would have done in the first half).

7. ANNUAL THEME

- a. Soil & Water, 2025, 2028
- b. Water & Wildlife, 2026, 2029
- c. Soil & Wildlife, 2024, 2027

8. EVENT FORMAT

Individual Exam - 45 minutes: (See Appendix 2)

- a. 75 multiple choice questions exam - 35 minutes
- b. 25 species identification exam -10 minutes
 - a. Species could be represented by specimens, pelts, tracks, scat or any combination of the above.

Team Activity - 45 minutes: (See Appendix 3)

- a. Work collectively on given scenarios to identify the best possible solution to the problem, based on their knowledge of environmental and natural resources topics.
- b. 25 multiple choice questions.

9. SCORING

Event		Individual Points
• Written Examination	(75 Questions x 2 Points)	150
• Species Identification	(25 Specimen x 2 Points)	50
Total score		200

Event		Team Points
• Total of 4 Individual Scores	(4 x 200)	800
• Team Scenario Activity	(25 Questions x 4 Points)	100
Total score		900

10. TIEBREAKER

- a. Individual
 - i. Highest Exam Score
 - ii. Highest Identification Score
 - iii. Scores on most difficult individual exam questions (determined by number of all students successful on that question)
- b. Team
 - i. Highest Team Activity Score
 - ii. Highest combined identification score (all 4 team members)
 - iii. Highest combined scores on most difficult individual exam questions (determined by number of all students successful on that question)

11. RESOURCE MATERIALS

- a. Managing Our Natural Resources. Camp and Daughtery. Delmar Publishers, Inc. 2009. Albany NY.
- b. Past Exams from National FFA:
<https://ffa.app.box.com/s/4zr1yrskewb91s505knsimysyatq2ohi/folder/52338936687>
- c. Wildlife:
 - a. <https://herpneb.unl.edu/>
 - b. <https://outdoornebraska.gov/learn/nebraska-wildlife/nebraska-animals/>
 - c. <https://wildlife.unl.edu/identification>
- d. Aquatics:
 - a. <https://outdoornebraska.gov/learn/nebraska-wildlife/nebraska-fish/>
- e. Soils:
 - a. https://www.ffa.org/resource_tag/soil/
 - b. <https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soil>
 - c. <https://soilhealthinstitute.org/resources/>
- f. Water:
 - a. <https://www.nrdnet.org/programs/water>
 - b. <https://water.unl.edu/water-sources>

- c. https://www.ffa.org/resource_tag/water/
- g. Online Species Identification resources:
 - a. Native animals
 - b. Bird Identification
 - i. <http://www.allaboutbirds.org/guide/search/>
 - c. Plant Identification
 - i. <http://identifythatplant.com/plant-id-resources/plant-id-websites/>
 - d. Nebraska Invasive Species (Plants and Animals)
 - i. <https://neinvasives.com/home>
 - ii. <https://neinvasives.com/resources>
 - e. Nebraska Reptiles and Amphibians
 - i. <http://snr.unl.edu/herpneb/index.asp>

▪ **12. PAST EXAMS**

- a. See UNL Environmental & Natural Resources CDE website for past exams and team problems

▪ **13. POST-CDE DEBRIEFING OPPORTUNITY**

- a. Superintendent will record a video debrief of team exercise and questions with greatest difficulty by April 30th of each year. Schools can access and view this video at any time from the CDE website.
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Appendix

Appendix 1: Species Identification List

This is the subset of species on the National Competition list that are found in Nebraska and could be on the ID portion of the test.

MAMMALS

- 200. armadillo
- 201. badger
- 202. beaver
- 203. bighorn sheep
- 204. bison
- 205. bobcat
- 206. chipmunk
- 207. cottontail
- 208. coyote
- 209. elk
- 210. fox squirrel
- 211. gray squirrel
- 212. jackrabbit
- 213. mole
- 214. mountain lion
- 215. mule deer
- 216. muskrat
- 217. opossum
- 218. pocket gopher
- 219. porcupine
- 220. prairie dog
- 221. pronghorn
- 222. raccoon
- 223. red fox
- 224. skunk
- 225. whitetail deer
- 226. woodchuck

BIRDS

- 300. bald eagle
- 301. blue jay
- 302. bluebird
- 303. brown thrasher
- 304. Canada goose
- 305. canvasback
- 306. western meadowlark
- 307. Northern cardinal
- 308. Cooper's hawk
- 309. mourning dove
- 310. great blue heron
- 311. great horned owl
- 312. American kestrel

- 313. least tern
- 314. mallard
- 315. osprey
- 316. American white pelican
- 317. purple martin
- 318. Northern bobwhite
- 319. red-tailed hawk
- 320. sandhill crane
- 321. blue-winged teal
- 322. Wood duck
- 323. Burrowing owl
- 324. wild turkey
- 325. American crow

REPTILES/AMPHIBIANS

- 400. Bullsnake
- 401. Coachwhip snake
- 402. Eastern copperhead
- 403. Prairie rattlesnake
- 404. Timber rattlesnake
- 405. Blanding's turtle
- 406. Ornate box turtle
- 407. American bullfrog
- 408. American toad
- 409. Plains Leopard frog
- 410. Northern Prairie Skink
- 411. Western tiger salamander
- 412. black rat snake
- 413. common snapping turtle
- 414. fence lizard
- 415. garter snake
- 416. gray tree frog
- 419. red eared slider
- 420. ring neck snake
- 421. Woodhouse's toad

FISH & OTHER AQUATIC ANIMALS

- 500. blue catfish
- 501. bream/bluegill
- 502. brown trout
- 503. carp

- 504. channel catfish
- 505. clam
- 506. crappie
- 507. crayfish
- 508. flathead catfish
- 509. largemouth bass
- 510. smallmouth bass
- 511. sturgeon
- 512. Paddlefish
- 513. Gizzard shad
- 514. White sucker
- 515. Big buffalo
- 516. Flathead chub
- 517. Striped bass hybrid (wiper)
- 518. Rainbow trout
- 519. walleye
- 520. yellow bullhead catfish

INVASIVE/NON-NATIVE SPECIES (Established in Nebraska.)

PLANTS

- 600. hydrilla
- 601. juniper
- 602. kudzu
- 603. leafy spurge
- 604. purple loosestrife
- 605. Russian olive
- 606. Saltcedar

ANIMALS

- 700. Asiatic clam
- 701. House sparrow
- 702. European starling
- 703. Norway rat
- 704. ring-necked pheasant