



Environmental and Natural

2026 Updates

Below is a summary of updates to the Environmental and Natural Resources Handbook for the 2026-2027 cycle.

HANDBOOK UPDATE:

All teams will complete the following: exam, soil profile, waste management scenario. The top 30 highest scoring teams in those categories will move on to complete the ID portion of the event.

Identification will be worth 200 points.

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 event 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.

Event Rules

- Each team will be comprised of four members. All four scores will be used to determine the total team score.
- 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.

Event Format

Equipment

Participants must use the tools and equipment furnished at the event. Equipment that will be provided:

- A clipboard.
- Two sharpened No. 2 pencils.
- All other tools and equipment will be furnished for the event.

Please note that all competitors will complete the following components: the general knowledge exam, soil profile evaluation, and waste management scenario. The top 30 teams will then advance to the identification (ID) portion of the contest.

Prequalifying Events

Objective Written Exam — (100 points)

The written exam will consist of fifty questions submitted by the event committee. Questions will come from Environmental and Natural Resources test bank maintained on tnffa.org.

Soil Profile — (100 points)

- Students will be furnished with a scorecard, and an interpretation guide to judge. Students will utilize information given to complete a national land judging card.
- Sample information will be given and students will utilize the information to complete all aspects of the land judging card. Example available at the end of the document.

Waste Management — (100 points)

- Participants will be presented with various scenarios (agricultural producer, neighborhood, office building, manufacturing plant, etc.,) that generates waste material creating environmental threats.

- Participants will evaluate the nature of waste output to identify plausible options for reducing the rate of waste generation, recycling or providing potential alternative uses for the waste, treating the waste or disposing of the waste.
- Participants should be able to identify at least one benefit and one deterrent for each possible option that is offered.

Top 30 teams in the prequalifying events will move on to complete ID.

Identification — (200 points)

Students will complete fifty items. These may include pelts, bone, actual specimens, photos, footprint casts or scat. Identification would include understanding the application of or responding to questions regarding the samples/specimens. This will include items from the following lists:

- Equipment
- Native species
- Invasive/non-native species

Scoring

Event participants are evaluated as follows:

ACTIVITY	Individual Points	Total Team Points
Written exam	100	400
Soil Profile	100	400
Waste Management	100	400
Identification	200	800
TOTAL POSSIBLE POINTS	500	2000

Tiebreakers

Team

1. Highest combined identification score
2. Highest soil profile and waste management score
3. Highest combined exam score

Individual

1. Highest identification score
2. Highest soil profile and waste management score
3. Highest exam score

References

This list of references is not intended to be all-inclusive.

Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

Past CDE materials and other resources are available on [FFA.org](https://www.ffa.org).

Managing Our Natural Resources. Camp and Daughtery. Delmar Publishers, Inc. 2009. Albany N.Y.

Land Judging in Oklahoma. J.H. Stiegler, 4-H Member's Guide, Oklahoma Cooperative Extension Service, Division of Agricultural Sciences and Natural Resources, Oklahoma State University. 4H.HPS.101., http://www.landjudging.com/2009/land_judging_manual_2009.pdf

Environmental Science: Fundamentals and Applications. Cengage learning. 2007.

Applied Environmental Science, FFA.org/thecouncil/resources

GPS

<https://www.gps.gov/>

https://en.wikipedia.org/wiki/Spatial_reference_system

Identification List

100 POINTS

Equipment

Water Quality

- 101. refractometer
- 102. secchi disk
- 103. water meter for physical/chemical parameters (pH, conductivity and/or DO)

Aquatic

- 104. bottom dredges
- 105. fish measuring board
- 106. plankton net
- 107. seines
- 108. sieves

Wildlife

- 109. animal tags/bands
- 110. mammal traps
- 111. snake/reptile stick
- 112. radio telemetry unit

Weather

- 113. wind speed meters
- 114. barometer

Soils

- 115. abny level
- 116. push probe
- 117. soil auger
- 118. soil color book

Native Species

Wildlife

- 201. armadillo
- 202. badger
- 203. beaver
- 204. bighorn sheep
- 205. bison
- 206. black bear
- 207. blacktail deer
- 208. bobcat
- 209. chipmunk
- 210. cottontail
- 211. coyote
- 212. elk
- 213. fox squirrel
- 214. gray squirrel
- 215. gray wolf
- 216. grizzly bear
- 217. jack rabbit
- 218. mole
- 219. moose
- 220. mountain goat
- 221. mountain lion
- 222. mule deer
- 223. muskrat
- 224. opossum
- 225. pocket gopher
- 226. porcupine
- 227. prairie dog
- 228. pronghorn
- 229. raccoon
- 230. red fox
- 231. skunk
- 232. weasel
- 233. whitetail deer
- 234. woodchuck

Birds

- 301. bald eagle
- 302. blue jay
- 303. bluebird
- 304. brown thrasher
- 305. Canada goose
- 306. canvasback duck
- 307. cardinal
- 308. Cooper's hawk
- 309. Crissal thrasher
- 310. mourning dove
- 311. great blue heron
- 312. great horned owl
- 313. golden eagle
- 314. hummingbird
- 315. kestrel
- 316. least tern
- 317. mallard duck
- 318. osprey
- 319. pelican
- 320. purple martin
- 321. quail
- 322. red-tailed hawk
- 323. sand hill crane
- 324. blue-winged teal
- 325. turkey
- 326. whooping crane
- 327. wood duck

Native Species

Reptiles/Amphibians

- 401. alligator
- 402. alligator snapping turtle
- 403. black rat snake
- 404. bullfrog
- 405. collared lizard
- 406. common snapping turtle
- 407. copperhead snake
- 408. coral snake
- 409. corn snake
- 410. cottonmouth
- 411. crocodile
- 412. fence lizard
- 413. garter snake
- 414. green anole lizard
- 415. gray tree frog
- 416. rattlesnake
- 417. red eared slider
- 418. ring neck snake
- 419. rubber boa snake
- 420. scarlet king snake
- 421. Woodhouse's toad

Fish and Other Aquatic Animals

- 501. blue catfish
- 502. bream/bluegill
- 503. brown trout
- 504. carp
- 505. channel catfish
- 506. clam
- 507. crab
- 508. crappie
- 509. crayfish
- 510. flathead catfish
- 511. largemouth bass
- 512. lobster
- 513. salmon
- 514. shrimp
- 515. smallmouth bass
- 516. sturgeon
- 517. trout
- 518. walleye
- 519. yellow bullhead catfish

Invasive/Non-native species

Plants

- 601. broom snake weed
- 602. cheatgrass
- 603. Chinese tallow
- 604. cogon grass
- 605. English ivy
- 606. Himalaya blackberry
- 607. hydrilla
- 608. juniper
- 609. kudzu
- 610. leafy spurge
- 611. melaleuca
- 612. mimosa tree
- 613. purple loosestrife
- 614. Russian olive
- 615. saltcedar

Animals

- 701. Asiatic clam
- 702. Asian long-horned beetle
- 705. Chinese mitten crab
- 706. chukkar
- 707. English sparrow
- 708. European starling
- 709. feral hog
- 710. feral horse
- 711. fire ant
- 712. Gopher
- 713. Norway rat
- 714. Nutria
- 715. ring neck pheasant
- 716. sea lamprey
- 717. Tilapia
- 718. zebra mussel

Soil Profile - Part I	
SURFACE TEXTURE	
1 Coarse	☐
2 Moderately Coarse	☐
3 Medium	☐
4 Moderately Fine	☐
5 Fine	☐
SUBSURFACE TEXTURE	
1 Coarse	☐
2 Moderately Coarse	☐
3 Medium	☐
4 Moderately Fine	☐
5 Fine	☐
DEPTH OF SOIL	
1 Deep	☐
2 Moderately Deep	☐
3 Shallow	☐
4 Very Shallow	☐
SLOPE	
1 Nearly Level	☐
2 Gently Sloping	☐
3 Moderately Sloping	☐
4 Strong Sloping	☐
5 Steep	☐
6 Very Steep	☐
EROSION - WIND & WATER	
1 None to Slight	☐
2 Moderate	☐
3 Severe	☐
4 Very Severe	☐
PERMEABILITY	
1 Rapid	☐
2 Moderate	☐
3 Slow	☐
4 Very Slow	☐
SURFACE RUNOFF	
1 Rapid	☐
2 Moderate	☐
3 Slow	☐
4 Very Slow	☐
MAJOR FACTORS	
1 Texture	(Y) (N)
2 Depth	(Y) (N)
3 Slope	(Y) (N)
4 Erosion	(Y) (N)
5 Permeability	(Y) (N)
6 Runoff	(Y) (N)
7 Wetness	(Y) (N)
8 Flooding	(Y) (N)
CAPABILITY CLASS	
1 Class I	(I)
2 Class II	(II)
3 Class III	(III)
4 Class IV	(IV)
5 Class V	(V)
6 Class VI	(VI)
7 Class VII	(VII)
8 Class VIII	(VIII)

Soil Profile - Part II	
VEGETATIVE LAND TREATMENTS	
1 Row crop/occasional soil conserving crop	(Y) (N)
2 Row crop/frequent soil conserving crop	(Y) (N)
3 Row crops not more than 2 out of 4 years	(Y) (N)
4 Row crops not more than 1 out of 5 years	(Y) (N)
5 Return crop residue to the soil	(Y) (N)
6 Practice conservation tillage	(Y) (N)
7 Establish recommended grass or grasses and legumes	(Y) (N)
8 Proper pasture and range management	(Y) (N)
9 Protect from burning	(Y) (N)
10 Control grazing	(Y) (N)
11 Plant recommended trees	(Y) (N)
12 Harvest trees selectively	(Y) (N)
13 Use only for wildlife or recreation area	(Y) (N)
MECHANICAL LAND TREATMENTS	
14 Control brush or trees	(Y) (N)
15 Terrace and farm on contour	(Y) (N)
16 Maintain terraces	(Y) (N)
17 Construct diversion terraces	(Y) (N)
18 Install drainage system	(Y) (N)
19 Control gullies	(Y) (N)
20 No mechanical treatment needed	(Y) (N)
FERTILIZER & SOIL AMENDMENTS	
21 Soil amendments	(Y) (N)
22 Phosphorus (P)	(Y) (N)
23 Potassium (K)	(Y) (N)
24 Nitrogen (N)	(Y) (N)
25 No fertilizer or soil amendments	(Y) (N)

Soil Profile Scorecard

100 POINTS

Name _____

Member Number _____

Chapter _____

State _____

PART 1 (60 POINTS)			
Soil Factors – Part 1 (Check Appropriate Box)		Soil Factors – Part 1 (Check Appropriate Box)	
Points		Points	
6 + 6	Texture Surface Subsurface ☐ ☐ 1. Coarse ☐ ☐ 2. Moderately Coarse ☐ ☐ 3. Medium ☐ ☐ 4. Moderately Fine ☐ ☐ 5. Fine	6	Permeability ☐ 1. Rapid ☐ 2. Moderate ☐ 3. Slow ☐ 4. Very Slow
6	Depth of Soil ☐ 1. Deep ☐ 2. Moderately Deep ☐ 3. Shallow ☐ 4. Very Shallow	6	Surface Runoff ☐ 1. Rapid ☐ 2. Moderate ☐ 3. Slow ☐ 4. Very Slow
6	Slope ☐ 1. Nearly Level 0-1% ☐ 2. Gently Sloping.....1-3% ☐ 3. Moderate Sloping3-5% ☐ 4. Strongly Sloping5-8% ☐ 5. Steep8-15% ☐ 6. Very Steep> 15%	9	Major Factors That Keep Area Out of Class 1 ☐ 1. Texture ☐ 2. Depth ☐ 3. Slope ☐ 4. Erosion ☐ 5. Permeability ☐ 6. Runoff ☐ 7. Wetness ☐ 8. Flooding ☐ 9. None
6	Erosion – Wind and Water ☐ 1. None to Slight ☐ 2. Moderate ☐ 3. Severe ☐ 4. Very Severe	9	Land Capability Class ☐ 1. Class I 5. Class V ☐ 2. Class II 6. Class VI ☐ 3. Class III 7. Class VII ☐ 4. Class IV 8. Class VIII
	<i>Points</i>		<i>Points</i>
		TOTAL POINTS PART 1	

Soil Profile Scorecard

PART 2 (40 POINTS)	
Recommended Treatment – Part 1 (Check Appropriate Box)	
Points	
	Vegetative ☐ 1. Row crop/occasional soil conserving crop ☐ 2. Row crop/frequent soil conserving crop ☐ 3. Row crops not more than 2 out of 4 years ☐ 4. Row crops not more than 1 out of 5 years ☐ 5. Return crop residue to the soil ☐ 6. Practice conservation tillage ☐ 7. Establish recommended grass or grasses and legumes ☐ 8. Proper pasture and range management ☐ 9. Protect from burning ☐ 10. Control grazing ☐ 11. Plant recommended trees ☐ 12. Harvest trees selectively ☐ 13. Use only for wildlife or recreation area Mechanical ☐ 14. Control brush or trees ☐ 15. Terrace and farm on contour ☐ 16. Maintain terraces ☐ 17. Construction diversion terraces ☐ 18. Install drainage system ☐ 19. Control gullies ☐ 20. No mechanical treatment needed Fertilizer and Soil Amendments ☐ 21. Soil amendments ☐ 22. Phosphorous [P] ☐ 23. Potassium [K] ☐ 24. Nitrogen [N] ☐ 25. Fertilizer or soil amendments not needed
	<i>Total Points Part 2 (40 points possible)</i>
	<i>Total Points Part 1(60 points possible)</i>
	GRAND TOTAL POINTS – 100 (points possible)

Judge's Name

Judge's Signature

Date

Soil Profile Scorecard Example

Utilize the information below to complete the soil profile card provided. You will then utilize the information to also complete permeability, surface runoff, major factors that keep area out of class 1, land capability class, vegetative and mechanical land treatments, and fertilizer & soil amendments.

Surface Soil

Loose, very friable and the individual grains can be readily seen or felt. When squeezed between thumb and forefinger it feels gritty and will not ribbon or stain fingers.

Subsoil

Feels gritty but contains enough silt and clay to make moist soil hold together. If squeezed when moist, a mold can be formed which can be carefully handled without breaking. It forms no ribbon or very poor ribbon.

Depth of Soil

24 inches of soil can be penetrated by plant roots.

Slope

There is a 1.7-foot elevation change in 100 feet.

Erosion

Original topsoil was 8". Currently topsoil is 4".

Ph is 5.5

Phosphorus is 75

Potassium is 75

Nitrogen is deficient

Students will use the information above to complete the soil profile scorecard. A helpful resource for practice and examples can be found at www.landjudging.com. Select the "Practice" tab, then review the "Land Cards" section for sample profiles and scorecards.