

## Natural Resources

### A Special Project of the South Dakota FFA Foundation

**Important Note:** Please thoroughly read the General Rules at the beginning of this handbook for complete rules and procedures that are relevant to all South Dakota FFA Career Development Events.

### Purpose

The purpose of the Natural Resources 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. Environmental and natural resource education has a responsibility to educate the public and prepare students to enter career in the environmental and natural resource industry.

### Objectives

- Identify common insects, birds, mammals, fish, and trees and shrubs of South Dakota.
- Understand the biological and scientific principles of soils, forestry, recycling, land management, energy resources, outdoor recreation, wildlife management, water resources management, wildlife habitats, and air resource management.
- Utilize different resources to answer problem-solving questions.

### Event Rules

Each team will be comprised of three or four members.

The top three individual scores will be used to determine the final team score.

### Event Format

The Natural Resources CDE will consist of a written test, a problem-solving activity, and the identification of 10 specimens within each of six different groups.

#### Written Test – 200 points

The written test will consist of 50 multiple-choice questions.

Each question will be worth four points.

One hour will be allowed to complete the written portion of the test.

The written test questions will be taken from the 5<sup>th</sup> edition of the test *Managing Our Natural Resources*, and will consist of questions from each of the following areas:

Air Resource Management	Recycling
Energy Resources	Soils
Forestry	Water Resources Management
Land Management	Wildlife Habitats
Outdoor Recreation	Wildlife Management

**Problem Solving Activity – 100 points**

The problem-solving activity will be taken from the *Managing Our Natural Resources* text and its workbook, the *South Dakota Hunting and Trapping Handbook*, and the *South Dakota Fishing Handbook*.

The problem-solving portion will consist of 10 multiple-choice questions.

Each question will be worth 10 points.

This phase will be limited to 30 minutes.

The problems will be selected from one or more of the following areas:

Conservation	Shelter Belt Management
Ecosystem	Soils
Energy	Upland Game
Fish	Vegetation Cover
Habitat	Water Pollution
Hunter Ethics	Wildlife Carrying Capacity
Population Dynamics	Wildlife Management
Recreation on Public Lands	Woodland Management

**Identification – 600 points**

Identification will consist of ten specimens in each of these six groups:

- insects
- waterfowl and upland game birds
- other birds
- mammals
- fish
- trees and shrubs

All specimens will be relative to South Dakota, as listed in the rules.

Specimens must not be handled by participants unless protected in tubes or boxes. If very small insects are used, they may be mounted under a binocular microscope.

All specimens will be represented by at least 5"x7" photographs. Study specimens may be used in addition to the photographs.

All birds in Group II will be males.

Twelve minutes will be allowed to identify specimens in each of the six groups.

**Scoring**

	Points Possible
Identification (10 points per specimen, 60 problems)	600
Written Test (60 questions, 4 points per question)	200
Problem Solving Activities(10 points per question, 10 questions)	100
<b>Total Possible Individual Score</b>	<b>900</b>
<b>Total Possible Team Score (3 participants)</b>	<b>2700</b>

## Tiebreakers

In the case of a team tie, the order to break the tie will be:

1. Total Written Test Score
2. Total Problem Solving Score

In the case of an individual tie, the order to break the tie will be:

1. Individual Written Test Score
2. Individual Written Identification Score

## References

- A. National FFA Core Catalog – Past CDE Materials (<http://shop.ffa.org/cde-materials-c1289.aspx>)
- B. *Introduction to Natural Resources*, 2003, Darold Hehn and Bob Newport, edited by Jim Steward, The Multistate Academic Vocational Curriculum Consortium, Inc. 1500 West Seventh, Stillwater, Oklahoma 74074-4364.
- A. *Managing Our Natural Resources*, 5<sup>th</sup> edition, 2009, Camp, William, G., Betty Heath-Camp: Delmar Cengage Learning, Clifton Park, NY 12065-2919.
- B. Workbook to Accompany Managing Our Natural Resources, 5<sup>th</sup> edition, 2009, Darold Hehn for William G. Camp and Betty Heath-Camp, Clifton Park, NY 12065-2919.
- C. The Audobon Society Field Guide Series: Mammals, Insects and Spiders, Trees, Birds (Eastern, Western Region), and Fishes, Whales, and Dolphins.
- D. SD Hunting and Trapping Handbook: <http://gfp.sd.gov/hunting/regulations/default.aspx>
- E. SD Fishing Handbook: <http://gfp.sd.gov/fishing-boating/rules-regs.aspx>
- F. U.S. Fish and Wildlife Service – National Digital Library: <http://digitalmedia.fws.gov/>
- G. NSU – Environmental Education in SD: <http://www3.northern.edu/natsource/index.htm>
- H. SD Birds and Birding: <http://sdakotabirds.com>
- I. Guide to the Fishes of SD: <http://gfp.sd.gov/fishing-boating/tacklebox/docs/FishesofSD-pub/index.html>

## South Dakota Insects, Birds, Mammals, Fish, Trees and Shrubs.

Insects		
1. Aphid	12. Flea	23. Mayfly
2. Back Swimmer	13. Giant Water Bug	24. Mosquito
3. Bush Katydid	14. Grasshopper	25. Mountain Pine Beetle
4. Carpenter Ant	15. Green Lacewing	26. Mud-Dauber Wasp
5. Carrion Beetle	16. Ground Beetle	27. Narrow-winged Damselfly
6. Cicada	17. Honey Bee	28. Northern Caddis Fly
7. Cockroach	18. Horse Fly	29. Skimmer Dragonfly
8. Deer fly	19. House Fly	30. Stone Fly
9. Eastern Tent Caterpillar	20. June Beetle	31. Water Boatman
10. Emerald Ash Borer	21. Ladybird Beetle	32. Water Strider
11. Field Cricket	22. Leafhopper	33. Yellow Jacket

Birds: Group 1 - Waterfowl and Upland Game Birds		
1. American Wigeon	9. Green-winged Teal	17. Ring-necked Duck
2. Blue-winged Teal	10. Lesser Scaup	18. Ring-necked Pheasant
3. Canada Goose	11. Mallard	19. Ruddy Duck
4. Canvasback	12. Mourning Dove	20. Ruffed Grouse
5. Common Merganser	13. Northern Pintail	21. Sharp-tailed Grouse
6. Gadwall	14. Northern Shoveler	22. Snow Goose
7. Gray Partridge	15. Prairie Chicken	23. Wild Turkey
8. Greater White Fronted Goose	16. Redhead	24. Wood Duck

Birds: Group 2 – Other Birds		
1. American Bittern	25. Cooper's Hawk	49. Peregrine Falcon
2. American Coot	26. Dark-eyed Junco	50. Pine Siskin
3. American Crow	27. Double-crested Cormorant	51. Piping plover
4. American Kestrel	28. Dowitcher	52. Purple Martin
5. American Goldfinch	29. Downy Woodpecker	53. Red-headed Woodpecker
6. American Robin	30. Eastern Kingbird	54. Red-tailed Hawk
7. Bald Eagle	31. European Starling	55. Red-winged Blackbird
8. Barn Owl	32. Eurasian Collared Dove	56. Ring-billed Gull
9. Barn Swallow	33. Ferruginous Hawk	57. Rough-legged Hawk
10. Belted Kingfisher	34. Franklin's Gull	58. Ruby-throated Hummingbird
11. Black Tern	35. Golden Eagle	59. Screech Owl
12. Black-capped Chickadee	36. Great Blue Heron	60. Short-eared Owl
13. Blue Jay	37. Great Egret	61. Swainson's Hawk
14. Brewer's Blackbird	38. Great Horned Owl	62. Tree swallow
15. Brown Thrasher	39. Horned Lark	63. Tundra Swan
16. Brown-headed Cowbird	40. House Finch	64. Upland Sandpiper
17. Burrowing Owl	41. House Sparrow	65. Western Meadowlark
18. Common Flicker	42. House Wren	66. White Pelican

Birds: Group 2 – Other Birds Continued		
19. Common Grackle	43. Killdeer	67. White-breasted Nuthatch
20. Common Loon	44. Least tern	68. Willet
21. Common Nighthawk	45. Long-billed Curlew	69. Wilson's Phalarope
22. Common Redpoll	46. Marbled Godwit	70. Yellow-headed Blackbird
23. Common Snipe	47. Northern Harrier	71. Yellow Warbler
24. Common Tern	48. Oriole	72. Yellowlegs

Mammals		
1. Badger	15. Grey fox	29. Prairie dog
2. Beaver	16. House mouse	30. Pronghorn
3. Black-footed ferret	17. Jackrabbit	31. Raccoon
4. Bighorn sheep	18. Meadow vole	32. Red fox
5. Bobcat	19. Mink	33. Red squirrel
6. Cottontail	20. Mole	34. Thirteen-lined ground squirrel
7. Coyote	21. Mountain lion	35. Shrew
8. Deer mouse	22. Mountain goat	36. Spotted skunk
9. Eastern chipmunk	23. Mule deer	37. Striped skunk
10. Elk	24. Muskrat	38. Weasel
11. Flying squirrel	25. Norway rat	39. Whitetail deer
12. Fox squirrel	26. Opossum	40. Woodchuck
13. Franklin's ground squirrel	27. Pocket gopher	
14. Gray squirrel	28. Porcupine	

Fish		
1. American eel	12. Darter	23. Rainbow trout
2. Black crappie	13. Fathead minnow	24. Rock bass
3. Blue catfish	14. Flathead catfish	25. Sauger
4. Bluegill	15. Golden shiner	26. Shortnose gar
5. Brook trout	16. Green sunfish	27. Smallmouth bass
6. Brown trout	17. Lake trout	28. Sturgeon
7. Bullhead	18. Largemouth bass	29. Walleye
8. Burbot	19. Muskellunge	30. White crappie
9. Carp	20. Northern pike	31. White sucker
10. Channel catfish	21. Paddlefish	32. Yellow perch
11. Creek chub	22. Rainbow smelt	

Trees and Shrubs: Hardwoods		
1. American elm	10. Cottonwood	19. Red oak
2. American linden	11. Green ash	20. Russian olive
3. Amur maple (Ginnala maple)	12. Hackberry	21. Shagbark hickory
4. Black cherry	13. Honeylocust	22. Silver maple
5. Black walnut	14. Ironwood	23. Sugar maple
6. Boxelder	15. Lilac	24. White oak
7. Bur oak	16. Paper birch	25. Willow
8. Butternut	17. Quaking aspen	
9. Caragana	18. Red maple	
Trees and Shrubs: Softwoods		
26. Austrian pine	30. Eastern red cedar	34. Ponderosa pine
27. Blue spruce	31. Eastern white pine	35. Scotch pine
28. Douglas fir	32. Northern white cedar	36. White fir
29. Eastern larch	33. Norway spruce	37. White spruce

\*Leaves and/or pictures of leaves will be used for identification.