Virginia FFA Guide

Virginia FFA does not discriminate against employees, students, or applicants on the basis of race, color, sex, sexual orientation, disability, age, veteran status, national origin, religion, or political affiliation.

Philosophy for Virginia FFA Career Development Events

Students are important customers of agricultural education and the FFA who recognize quality and value in products and activities. When provided an opportunity to fashion their educational experiences, they generally make wise decisions based on needs, perceptions, image and the opinions of others influence students. They value change based on their perceived personal needs as well as the needs of others. They sometimes value change for the sake of variety. Adults are concerned about the experiences of students and want to help organize experiences that will meet the future needs of students while accomplishing the purposes of agricultural education and the FFA organization. The Virginia FFA Association should assume the leadership role in developing and continuously improving relevant FFA career development events and awards. Although the Virginia FFA Association should be aware of the needs of local chapters and should react to those needs, it should help initiate opportunities that reflect relevant and emerging technology.

Virginia FFA career development events and awards should be developed with significant input from FFA members, teachers, partners, respective industry sponsors, and others involved in agricultural education. Virginia career development events and awards should reflect instruction that currently takes place in the entire agricultural education program, including classroom instruction, laboratory instruction, individualized instruction, and/or supervised agricultural experience. However, it is appropriate for the state organization to develop career development events and awards that stimulate instruction in emerging areas that reflect both current and future community, national, and global work force needs. The authority for insuring the relevance of an FFA activity is ultimately vested in the Virginia FFA Advisory Council. The primary goal of career development events is to develop individual responsibilities, foster teamwork and promote communication and individual achievement.

The activities in each career development event:

- Include problem solving, critical thinking and teamwork skills, where appropriate.
- Encourage appreciation for diversity by reducing barriers to participation among members.
- Develop general leadership and recognize individual and team achievement.
- Promote concentrated focus on future needs of members and society.

The state association should promote individual, chapter, and team career development events and awards. Chapter and team career development events and awards should be based on cooperation and teamwork while recognizing the value of competition and individual achievement. The role of career development events and awards is to motivate students and encourage leadership, personal growth, citizenship, and career development.

Students should be recognized for achievement in career development events and awards. Quality standards should be used as a basis for achievement. The state association should ensure that the recognition is appropriate and meaningful. Recognition for achievement should be reflective of the total effort required by the chapter/team/individual and should take place at all levels of participation.

The Virginia FFA Association shall encourage accessibility and provide opportunities for achievement and recognition for students with diverse backgrounds. High expectations should be consistently communicated to those who are involved in career development events and awards.

Agriculture, Food and Natural Resources (AFNR) Career Cluster Content

Agriculture is a highly technical and ever-changing industry upon which everyone is dependent. In order to maintain agriculture as the nation's number on industry, it is crucial to understand the importance of agrisciences, marketing strategies, safe food production and continuous research. Strong, relevant Agriscience programs are on way to maintain the nation's agricultural edge.

General Rules and Official Policies

Violations of any of the following rules may be grounds for the event superintendent to disqualify the participants.

State FFA Staff and CDE Superintendents will use the published rules and procedures to organize and implement the State FFA Career Development Events. Event activities may not be conducted due to lack of necessary materials, expertise or extreme impact to event budgets.

TEAM ACTIVITIES

The primary goal of team career development events and awards is to develop individual responsibilities, foster teamwork, and promote communications while recognizing the value of ethical competition and the value of individual achievement. A team career development event/award requires two or more members from one chapter working cooperatively. Team career development events and awards are intended to be an outgrowth of instruction.

Team career development events and awards should:

- include problem solving and critical thinking.
- promote an appreciation for diversity by reducing barriers to participation.
- promote new directions and focus on future needs of members and society.
- include cooperative activities.
- encourage broad participation among members and recognize excellence within levels of experience.
- recognize individual and team achievement, develop general leadership, and recognize levels of ability.
- provide local recognition for superior performance at the state and national level.

ELIGIBILITY OF PARTICIPANTS

1) Each participant must be a current bona fide dues paying FFA member in good standing with the local chapter, state FFA association, and the National FFA Organization at the time of the career development event (or by May 1 for the Virginia FFA, whichever date comes first.) In the event a participant's name is not on the chapter's official roster for the years in which the dues were payable to the National FFA Organization, a past due membership processing fee of $35, in addition to the dues must be paid.
2) The participant, in a State Senior Career Development Event, must be:
   a. A high school FFA member, (a graduating senior is considered eligible to compete in state career development events the convention directly after graduation.) (High school refers to grades 9-12.)
   b. A middle school team consisting of all 8th grade FFA members.
   c. While in school, be enrolled in at least one agricultural education course during the school year and/or follow a planned course of study; either course must include a supervised agricultural experience program, the objective of which is preparation for an agricultural career. For this purpose a student needs to be enrolled in at least one agricultural education course during the year they qualified for the event. If the student was previously enrolled in an agriculture class and was an FFA member, they may compete in a contest if they have scheduling issues (ex. Advanced Placement classes) that do not allow them be enrolled in an agriculture class but they must still have an SAE.
3) The participant in a State Junior Career Development Event must be:
   a. at the time of the event must be a 6th,7th, 8th or 9th grade full dues paying member.
   b. While in school, be enrolled in at least one agricultural education course during the school year and/or follow a planned course of study; either course must include a supervised agricultural experience program, the objective of which is preparation for an agricultural career. For this purpose a student needs to be enrolled in at least one agricultural education course during the year they qualified for the event.
4) The participant in a State Middle School Career Development Event must be:
   a. At the time of the state competition has qualified as either a 6th, 7th or 8th grade middle school member.
   b. While in school, be enrolled in at least one agricultural education course during the school year and/or follow a planned course of study; either course must include a supervised agricultural experience program, the objective of which is preparation for an agricultural career. For this purpose a student needs to be enrolled in at least one agricultural education course during the year they qualified for the event.

5) To compete in the creed speaking event, the member has qualified as either a 7th, 8th or 9th grader by state convention.
6) CDE participants who start an event and do not complete the event without notifying event officials at the time of departure will be disqualified. This can affect the overall team rank and position. In some events this will also disqualify the entire team
7) The state supervisor/executive secretary of agricultural education must certify that participants are eligible. If an ineligible student is entered in any career development event, the entire team of which that student is a member may be declared ineligible.
8) The first contest that a school wins in the current year will be the contest that the individuals on that team will represent Virginia at the National FFA Convention. To explain, if an FFA chapter puts more than one current winner of an FFA contest on an additional team, then the second place team will be declared the State Winner and will compete at the National FFA Convention. If one person is a duplicate and the National rules allow for a three-person team, then the first place team will represent Virginia. If a student that wins a contest is declared ineligible, or cannot attend the Convention, then the other members of the team will be allowed to compete for individual awards only. (A medical waiver may be granted if a member of a winning team is unable to attend due to a medical condition.)
9) Individuals who have been state winners or have represented the state in any official national FFA career development event are not eligible to enter the same FFA event again. However, FFA junior division state winners are eligible for state senior division. Individuals on a state winning team cannot compete in that division again.
10) A chapter may enter any number of career development events; however, a chapter may have no more than one team in each division in each event. ***If the contest allows a Junior and Senior Team then only the Senior Team is eligible to advance to the National Level*****. If the event is a joint FFA & 4-H contest, then a school must declare an official team but will be allowed to enter the number of teams permitted by 4-H.**

CHECK-IN

Participants will check-in at the state FFA convention as indicated in the annual State Guidelines. Dates, hours and place of check-in will be sent annually to the agricultural education teacher. All participants will be given an identification number by which they will be designated throughout the event.

ADDITIONAL OPERATIONAL PROCEDURES AND POLICIES

1) Emergency Conditions: Under emergency conditions, a state team participating in a Virginia FFA Career Development Event may be made up of less than the required members. Fewer than the required number could compete if an emergency condition such as illness, death in the family or an act of God would occur. Those individuals competing would still be eligible to qualify for individual awards.

2) Event committees will strive to divide teams into groups so that no two participants from a team will be in the same group. In any case, no two members will be placed side-by-side.

3) Disqualification:

a. Any communication, verbal or non-verbal between participants during a career development event will be sufficient cause to eliminate the team member involved from the career development event. The only exception to this would be communication between team members during the team activity portion of a given career development event.

b. Teams arriving after the career development event has begun may be disqualified or penalized. No member substitutions may be made after the career development event begins.

c. Any assistance given to a team member from any source other than the career development event officials or assistants will be sufficient cause to eliminate the team from the career development event.

d. Event superintendents may stop any participant if they deem their manner to be hazardous either to themselves or others. Such stoppage shall deem the individuals disqualified for that section of the career development event.

e. CDE participants who start an event and do not complete the event without notifying event officials at the time of departure will be disqualified. This can affect the overall team rank and position. In some events this will also disqualify the entire team.

f. Participants will not be allowed to utilize personal electronic communication devices, other than those approved by the event officials, during the entire course of the event. Participants who access personal electronic communication devices without prior approval of the event officials will be disqualified.
g. No participant shall gain access to real materials that will be utilized by the event committee during the competition. Any team, participant, advisor or coach reported and proven to do so will be disqualified from the national event.

4) Advisors
a. Advisors are not allowed to be in contact with their students at any point or time during the competition.
b. Advisors may only be allowed at the contest site if they are assigned to a supervise a group or part of the contest

5) Participants are expected to observe the National FFA Code of Ethics and the Proper Use of the FFA Jacket during the career development events. (Please see the latest edition of the Official FFA Manual.)

6) Official FFA dress is highly recommended for all participants where appropriate and is required for the awards presentation and recognition.

7) Participants or advisors will not be allowed in the career development event area as designated in the specific career development event rules. Infractions of this statement may result in team disqualification.

8) Accessibility for all students—all special needs requests should be submitted two weeks prior to the event for scheduling of assistance during event.

9) Written Document Penalties- a penalty of 10% of the total points allotted will be assessed for the written documents received after the postmarked deadline. If the document is still not received seven days after the postmark deadline, the team/individual may be subject to disqualification.
    1. National staff will mark late entries as such.
    2. Event officials will be notified of late entries at the time written documents are provided for judging.
    3. Event superintendent will ensure that penalty is applied.

10) Results of all Virginia State FFA Career Development Events will be announced during sessions at State Convention.

TEAM AND INDIVIDUAL AWARDS

The ranking of teams and individuals in each of the career development events will be on the basis of logical groups within the total range of scores. Awards will be distributed to the winning teams and individuals at award programs following the completion of the career development events.

VIRGINIA FFA ADVISORY COUNCIL

Purpose: To advise the State Staff on issues impacting both FFA Career Development Events and Awards to ensure:

1) All activities are consistent with industry needs.
2) All activities are available to all members.
3) All activities are conducted openly, fairly and in a quality manner.
4) Cooperation among various activities occurs, to the degree possible, to promote the interconnectedness of agriculture (i.e. forestry and agricultural mechanics or farm business management and dairy or livestock) and agricultural education (classroom, SAE, FFA).
5) New and innovative activities are being put forward for consideration.
6) As many students as possible have the opportunity to participate.
7) A constant process of local advisor in-service on proper use of these activities as tools for learning is being championed.
8) All activities are operated consistently with Advisory Council policy.

9) Activities are conducted within available budgets approved by the FFA Advisory Council and, if appropriate, Virginia FFA Foundation Board.

The State FFA Advisory Council shall consist of two instructors of agricultural education from each FFA area in the state, two at-large agricultural education members, past State FFA President, and current President of the Virginia Association of Agricultural Educators; appointed annually by the state advisor. The duties of this council shall be to represent the FFA chapters and advisors in the areas on matters pertaining to the conduct of the entire program; to arbitrate conflicts at the area, federation and chapter level; to review State FFA Degree applications, Star FFA Degree Applications, Proficiency Award Applications, and National Chapter Award applications and make recommendations to the state advisor; to recommend changes, revisions and/or new rules and regulations to the State FFA Board of Directors and the state advisor; and to serve in any capacity in which it may be called upon by the state advisor.

The chair of the advisory committee on awards and career development events will be elected each year.

State Board of Directors

Section A.

Governing Body

1. The governing body of the organization shall be the State Board of Directors, which shall consist of: the state FFA advisor, who shall serve as chairperson; one agricultural education instructor from each of the state FFA areas; one representative from the State FFA Advisory Council, one representative of the State FFA Foundation; and one representative of the State FFA Alumni Association. The state FFA executive secretary shall serve as ex-officio member of the State FFA Board of Directors.

2. The terms of office of members, other than the ex-officio member, shall be prescribed in the bylaws.

3. The State FFA Board of Directors shall meet at least once each year at such time and place as may be prescribed by the board and shall present an annual report.

4. The duties of the State FFA Board of Directors shall include: interpret rules governing the activities of the state association, including the State FFA Convention; to have full power to prescribe new regulations that the board finds necessary in connection with the operation of the organization, including the State Convention; to interpret rules and regulations applicable to the convention; and to review recommendations from the State FFA Advisory Council and State FFA Executive Committee and take any action deemed appropriate.

Section B.

Governing Committee

The chairperson and two members of the State FFA Board of Directors shall be designated by the board to serve as the Governing Committee and shall have the power to deal with items of business of the state organization. All official actions of the Governing Committee shall be reported to the State FFA Board of Directors.

Meeting Schedule

1) Annual fall meeting to report on the completion of activities at convention and provide input into the winter meeting agenda.
2) The annual spring meeting will allow for most of the committee's work to be conducted as a whole group and in sub-groups focused on specific issues or specific types of activities (e.g. team career development events, individual awards, chapter awards).

Local advisors should submit concerns suggestions to the state FFA Specialist/chair of the advisory board and their area representative at least two weeks in advance of the meeting.

Rules Committee on State Career Development Events

The advisory committee will meet only when needed and will make all final decisions on interpretation of the rules and regulations of the State FFA Career Development Events or awards programs.

Official judges' decisions are final. The announced results are the official results.

Conflict of Interest

If there is a violation of a student whose advisor is a member of the advisory board, the advisor may not vote on the violation. A teacher from that area maybe used to fill in for the advisor whose student has possible committed the violation.

State FFA Environmental & Natural Resources CDE

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 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.

II. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards

With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities. Refer to Appendix A in this document for a complete list of the measurable activities that participants will carry out in this event. For details about the incorporation of AFNR standards, refer to the Introduction chapter of the National FFA CDE handbook.

III. Event Rules

A. Each team will be comprised of four members. All four scores will be used to determine the total team score.
B. 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.
C. 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 be sufficient to eliminate a team from the event.
D. 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 coordinator.
E. All participants will be given an identification number by which they will be designated throughout the event.
F. All written material will be furnished at the event. No written materials such as tests, problems, and worksheets shall be removed from the site.

IV. Event Format

A. Equipment

1. **Materials student must provide** - teams will be notified in the team orientation packet if these materials will be needed for the current year:
    a. Computers: Each team is required to provide a laptop computer for the team activity. Minimum computer specifications will be determined and posted on the CDE webpage prior to the event. Computers must be Microsoft Office ® compatible.
    b. Global Positioning System (GPS): The minimum requirements for GPS will be the Garmin eTrex receiver or compatible. Position accuracy WAAS enabled three meters, 20 routes, 500 way points (total).
2. **Equipment provided**- A clipboard, two sharpened No. 2 pencils and all other tools and equipment will be furnished for the event. Participants must use the tools and equipment furnished at the event.

B. Team Activity - 90 minutes - 1,000 points total

1. Students will be provided a scenario that deals with an environmental/natural resource problem from the following areas:
    a. Soils
        i. Physical properties
        ii. Soil erosion
        iii. Soil analysis
        iv. Environmental impact of soil degradation
    b. Water
        i. Importance of water quality
        ii. Factors that influence the quality of water
        iii. Measure to ensure water quality
        iv. Management practices used to ensure water quality
    c. Ecosystems
        i. Basic ecological concepts
        ii. Management of ecosystems
        iii. Grassland ecosystems
        iv. Forestry ecosystems
        v. Aquatic ecosystems
        vi. Wetland ecosystems
        vii. Non-native species effect on ecosystems
    d. Waste management
        i. Preventing and reducing solid waste
        ii. Disposing of waste
        iii. Manure management
        iv. Hazardous waste
2. Teams will be evaluated on their ability to work together.
3. Teams will be required to develop both an oral, as well as a written statement that addresses the questions in the annual scenario.
4. Teams will submit a written summary of their findings at the end of one hour.
5. Teams will have ten (10) minutes of prep time prior to their oral presentation.
6. Teams will be required to give an oral presentation justifying the decisions made by the team. The team will have eight minutes to make the oral presentation.
7. Teams will be required to answer questions regarding the decision reached by their team. The question period will be five minutes in length.
8. Team Activity scorecard

Oral presentation and questions	700 points
Written presentation	150 points
Teamwork	150 points
TOTAL	1000 points

C. Individual Activities

1. **Objective Written Exam** - 60 minutes - 100 points
   The written exam will consist of fifty questions submitted by the event committee.
2. **Annual Practicums:** Students will participate in the following two areas on an annual basis:
    a. Writing exercise – 100 points

i. Participants will create a written document of 350 words or less that may be a news/press release, letter to the editor, etc.
ii. The document should contain the basic elements/facts customarily found in written publications (who, what, where, when and how). The elements/facts presented are to reflect the thoughts of the participant in relation to the topic being addressed.
iii. Examples -
1. What type of change is being proposed?
2. Does the proposed solution reflect an economic or natural resource impact on surrounding communities?
3. Have participants clearly stated the outlined problem and a solution?
4. Does the document outline and explain the problem in a clear manner? Could someone from outside of the CDE or FFA arena read the release and understand the problem and proposed solution?

b. Identification – 100 points

Students will identify fifty items from the following combined areas. See complete list in the reference section of this chapter of the handbook.

i. Equipment
1. Water quality
2. Aquatic
3. Wildlife
4. Geographical
5. Weather
6. Forestry

ii. Native Species
1. Wildlife
2. Birds
3. Reptiles/amphibians
4. Fish and other aquatic animals

iii. Invasive/non-native species
1. Plants
2. Animals

3. **Rotational Practicums:** Students will participate in four of the following practicums each year. Practicums may vary from year to year -100 points each.

a. *Water Analysis*

i. Using measuring devices, each participant will measure a sample of water for quality analysis. Four of the following categories will be tested each year: dissolved oxygen, nitrates, nitrites, pH, temperature, phosphates, water hardness, chlorine and ammonia.
ii. Analyze the results of measurements and determine if it is suitable for a specific use.
iii. Explain ways the water quality can be improved.

b. Soil Analysis (lab analysis)

Participants will:

i. Use a soil probe to pull a soil sample.
ii. Be given a map of a specific field to be sampled and plot areas for pulls.
iii. Analyze actual lab results.
iv. Use this information along with an extension service bulletin to make recommendations that need to be applied.

c. *Soil Profile*
    i. Students will be furnished with a scorecard, an interpretation guide and a pre-dug soil pit or core/monolith to judge. The participants will identify soil horizons, textures, percentage course fragments, pH, horizon colors, slope, geologic origin, soil permeability, irrigation suitability and soil structure types of the soil present in the given example.
    ii. Using the information from the scorecard and interpretation guide, the student will then identify the most appropriate use for the given area and the erosion control practice that best fits the designated use for the land.

d. *GPS Locations*

Participants will utilize the global position system (GPS) unit (supplied by the team) to complete one of the following:

    i. Identify the longitude and latitude of a given set of points using a GPS unit and a map.
    ii. Identify boundaries of a given area including calculation of land area and linear feet of boundary.
    iii. Use GPS unit and topographic map to layout the location of fence line, pond, drainage structure or other related facility.
    iv. Use a GPS unit to mark the location of a path or road through a given area.
    v. Use GPS unit to determine slope of land area for installation of drainage and or other related facilities.

e. *Environmental Analysis*

Areas that could be analyzed are as follows: forests, grasslands, wetlands, farm land and rangelands. Any of these areas could be bordered by industry, urban development, recreational areas, etc.

Students will address the following five aspects:

    i. Living organisms: students will identify and list as many living organisms (both native and invader) as they can find within the marked boundaries of the site. Additional species may be artificially introduced as mounted or preserved specimens.
    ii. Non-living components (shelter, nutrients): students will inventory resources such as water, shelter, etc. upon which resident species depend for survival.
    iii. Food web: students will define relationships among the plants and animal species that are found or introduced in the study area.
    iv. Ecological succession: students will identify the stages of succession of various grasses, shrubs and trees. They will also identify causes of changes in succession patterns.
    v. Situation analysis: students will determine whether a healthy balance exists between the environment and the species that depend upon it. They will also check remediation practices where needed.

f. *Waste Management*
    i. Participants will be presented with a scenario (agricultural producer, neighborhood, office building, manufacturing plant, etc.,) that generates waste material creating environmental threats.
    ii. 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.
    iii. Participants should be able to identify at least one benefit and one deterrent for each possible option that is offered.

V. Scoring

Individual	*Possible Points*
Written Exam	100
Writing Exercise	100
Identification	100
Rotational Practicums	400 (100 points/practicum)
Total Possible Individual Points	700

Team	*Possible Points*
Individual scores of four team members	2800
Team Activity	1000
Total Possible Team Points	3800

VI. Tiebreaker

1. Team
    - **a.** Team with the highest team activity score
    - **b.** Team with the highest annual practicum scores
    - **c.** Team with the highest rotational practicum scores
2. Individual
    - **a.** Individual with the highest exam score
    - **b.** Individual with the highest annual practicum scores
    - **c.** Individual with the highest rotational practicum scores

VII. Awards

Awards will be presented to individuals and teams based upon their rankings at the State Convention.

VIII. 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.

National FFA Core Catalog - CDE Questions and Answers
http://shop.ffa.org/cde-qas-c1413.aspx

Wildlife Science Manual Instructional CD-ROM: The Core Catalog, National FFA Organization product number CAERT-WSM. 888-332-2668 fax orders to 800-366-6556 or on line at http://shop.ffa.org/wildlife-science-manual-cd-rom-p39980.aspx

Environmental Science and Technology. Porter, Lee, Turner and Hillan. Interstate Publishers, Inc. 1997. PO Box 50 Danville, IL 61834-0050

Managing Our Natural Resources. Camp and Daughtery. Delmar Publishers, Inc. 1988. Albany NY.

Wildlife Management, Stutzenbaker, Scheil, Swan, Lee and Mattics, Interstate Publishers, Inc. 1999.
Natural Resources and Environmental Technology, Lee, Interstate Publishers, Inc. 2000.

Environmental Science for Agriculture and the Life Sciences. Albany, NY. Delmar Publishers 1994.

Our Natural Resources and Their Conservation. Kircher, H.B., Wallace, D.L., & Gore, D.J. Danville, IL. Interstate Publishers, Inc. 1992.

Soil Science: Evaluation, Interpretation, and Management of Soil. Columbia, MO. Instructional Materials Laboratory, University of Missouri, phone: 800-669-2465.

The Global Ecology Handbook. What You Can Do About the Environmental Crisis. Courson, W.H. (Ed.). Boston, MA. Beacon Press 1990.

Biological Science, an Ecological Approach. Dubuque, IA. Kendall Hunt Publishers, 1992

Introduction to Forestry Science. L.DeVere Burton. Delmar Publishers, 2000.

Agriscience & *Technology*. L. DeVere Burton. Delmar Publishers, 1992.

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

Non-Native (Invader) Resource List

U.S. Fish and Wildlife Service http://www.fws.gov/
U.S. Park Service http://www.nps.gov/index.htm
U.S. Dept. of Interior http://www.doi.gov/index.cfm
U.S. Forest Service http://www.fs.fed.us/
State Department of Natural Resources
National Biological Information Infrastructure www.nbii.gov
Great Lakes Indian Fish and Wildlife Commission www.glifwc.org
EPA– Gulf of Mexico Program www.epa.gov/gmpo

Identification List – 100 points

Equipment

Water Quality

101. refractometer
102. secchi disk
103. thermometer
104. water bottle samplers
105. water meter for physical/chemical parameters (pH, conductivity and/or DO)

Aquatic

107. aquatic net
108. bottom dredges
109. fish measuring board
110. plankton net
111. seines
112. sieves
113. stream bottom sampler

Wildlife

114. animal tags/bands
115. binoculars
116. mammal traps
117. snake/reptile stick
118. radio telemetry unit

Geographical

119. GPS unit

Weather

120. anemometer
121. barometer
122. sling psychrometer
123. rain gauge

Forestry

124. biltmore stick
125. diameter tape
126. prism
127. tree increment borer

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. polar bear
227. porcupine
228. prairie dog
229. pronghorn
230. raccoon
231. red fox
232. skunk
233. weasel
234. whitetail deer
235. woodchuck

Birds

301. bald eagle
302. blue jay
303. bluebird
304. brown thrasher
305. Canada goose
306. canvas duck
307. cardinal
308. Cooper's hawk
309. Crissal thrasher

Birds (cont.)

310. 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. teal duck
325. turkey
326. whopping crane
327. wood duck

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. cogongrass
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
704. carp
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

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
AS.07.02. Performance Indicator: Comply with government regulations and safety standards for facilities used in animal production.			Science: F5
	AS.07.02.01.c. Design a facility that meets standards for the legal, safe, ethical and efficient pro-	Team activity	
AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.			Science: C4 and F4
	AS.08.01.01.b. Outline methods of reducing the effects of animal agriculture on the environment.	Team activity; Water analysis practicum; Waste man-	
BS.01.03. Performance Indicator: Analyze the ethical, legal, social and cultural issues relating to biotechnology.			Science: A4 Language Arts: 4, 7 and 8 Social Studies: 10c
	BS.01.03.01.c. Research, evaluate and articulate the implications of an ethical, legal, social or	Team activity	
ESS.01.01. Performance Indicator: Analyze and interpret samples.			Math: 1A, 1B, 4A and 5B
	ESS.01.01.01.c. Analyze and interpret results of sample measurements.	All rotational practicums	
	ESS.01.01.02.c. Calibrate and use laboratory and field equipment and instruments according to standard operating procedures.	GPS practicum; Water analysis practicum	
ESS.03.02. Performance Indicator: Apply soil science principles to environmental service systems.			Science: B2, D2 Social Studies: 3k
	ESS.03.02.03.c. Conduct tests of soil to determine its use for environmental service systems.	Soil analysis practicum	
	ESS.03.02.04.c. Design a master land-use management plan for a given area.	Soil profile practicum	
ESS.03.03. Performance Indicator: Apply hydrology principles to environmental service systems.			Science: D2
	ESS.03.03.01.c. Research and debate one or more current environmental issues associated with the supplies of groundwater and surface	Team activity; Writing exercise	
	ESS.03.03.04.c. Test and document the quality of groundwater supplies.	Water analysis practicum	

ESS.03.04. Performance Indicator: Apply best management techniques associated with the properties, classifications and functions			Science: C4 and F3 Social Studies: 3c
	ESS.03.04.01.a. Describe the functions of wetlands and differentiate types of wetlands.	Environmental analysis practicum; Team activity	
	ESS.03.04.02.c. Conduct a survey of the predominant species in a local wetland.	Environmental analysis practicum	
	ESS.03.04.03.b. Identify techniques used in wetland management, creation, enhancement and restoration programs.	Team activity	
ESS.04.01. Performance Indicator: Use pollution control measures to			Science: F4 and F5
	ESS.04.01.01.c. Survey the local area for evidence of industrial and nonindustrial pollution.	Waste management practicum; Team activity	
	ESS.04.01.02.c. Plan and develop a pollution remediation, management or prevention program.	Team activity	
ESS.04.02. Performance Indicator: Manage safe disposal of all categories of solid waste.			Science: F1, F4 and F5
	ESS.04.02.01.b. Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal.	Waste management practicum	
	ESS.04.02.02.b. Identify characteristics of solid waste treatment and recognize the byproducts of solid waste treatment.	Team Activity	
	ESS.04.02.03.b. Explain basic sanitary landfill operating procedures and design.	Waste management practicum; Team activity	
	ESS.04.02.04.a. Define compost and composting.	Written exam	
ESS.04.04. Performance Indicator: Apply principles of wastewater treatment to manage wastewater disposal in keeping with rules and regulations.			Science: F4 and F5
	ESS.04.04.01.a. Define wastewater.	Written exam	
NRS.01.01. Performance Indicator: Apply knowledge of natural resource components to the management of natural resource systems.			Math: 5a Science: C4 and F3 Social Studies: 3h and 3k
	NRS.01.01.01.c. Research and debate one or more current issues related to the conservation or preservation of natural resources.	Team activity; Writing exercise	
	NRS.01.01.02.c. Conduct a field study of an ecosystem, and record and document observations of species interactions.	Environmental analysis	

NRS.01.02. Performance Indicator: Classify natural resources.			Science: F3
	NRS.01.02.01.c. Conduct a field inventory of trees and other woody plants and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practi-	
	NRS.01.02.02.c. Conduct a field inventory of herbaceous plants and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practi-	
	NRS.01.02.03.c. Conduct a field inventory of wildlife species and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practi-	
	NRS.01.02.04.c. Conduct a field inventory of aquatic species and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practi-	
	NRS.01.02.05.c. Conduct a field inventory of rock, mineral and soil types and record and document findings.	Environmental analysis practicum; GPS practicum; Identification practi-	
NRS.02.02. Performance Indicator: Demonstrate cartographic skills to aid in developing, implementing and evaluating natural resource management plans.			Math: 4B Science: A3 and F2 Social Studies: 3b and 3c
	NRS.02.02.01.c. Employ Global Positioning System and Geographic Information Systems technologies to inventory features in natural resource management.	GPS practicum	
NRS.02.03. Performance Indicator: Measure and survey natural resource status to obtain planning data.			Math: 5C Science: A3 and F2 Social Studies: 3h
	NRS.02.03.01.c. Conduct resource inventories and population studies to assess resource status.	Environmental analysis practicum	

NRS.02.04. Performance Indicator: Demonstrate natural resource enhancement techniques.			Science: F3 Social Studies: 3g and 3k
	NRS.02.04.01.b. Identify indicators of the biological health of a stream.	Environmental analysis practicum; Water analysis practicum	
	NRS.02.04.02.c. Formulate a timber stand improvement plan for a forest.	Team activity	
	NRS.02.04.03.c. Conduct a survey of a habitat and devise a comprehensive improvement plan.	Team activity; Environmental analysis practicum	
	NRS.02.04.05.c. Evaluate the impact of recreational activities on natural resources and create an improvement plan.	Team activity	
NRS.02.06. Performance Indicator: Apply ecological concepts and principles to natural resource systems.			Science: D2 and F3 Social Studies: 3b, 3f and 3h
	NRS.02.06.02.c. Analyze ecosystem functions of a watershed.	Environmental analysis practicum; Team activity; Water analysis practicum	
	NRS.02.06.04.b. Identify techniques used in the creation, enhancement and management of riparian zones and riparian buffers.	Written exam; Team activity; Soil profile practicum; Soil	
	NRS.02.06.05.c. Conduct a field study to determine the stages of ecological succession in a community of organisms.	Environmental analysis practicum	
	NRS.02.06.06.c. Create and implement a management plan based on a population study for a community of organisms.	Team activity; Environmental analysis practicum	
	NRS.02.06.07.c. Develop and implement a plan to reduce the impact of invasive species on natural resources.	Team activity	
	NRS.02.06.08.b. Describe the impact of pollution on natural resources.	Environmental analysis practicum; Team activity; Writ-	
	NRS.02.06.09.b. Describe the impact climate has on natural resources.	Environmental analysis practicum; Team activity; Writ-	
NRS.04.01. Performance Indicator: Manage fires in natural resource systems.			Science: F5
	NRS.04.01.01.b. Describe techniques used to suppress wildfires and manage prescribed fires.	Team activity; Writing exercise	

NRS.04.03. Performance Indicator: Manage insect infestations of			Science: C4 and F3
	NRS.04.03.01.c. Describe techniques used to manage pests of natural resources.	Team activity	
NRS.05.01. Performance Indicator: Communicate natural resource information to the public.			Science: F3 and F6 Language Arts: 5, 6
	NRS.05.01.01.c. Communicate a natural resource message through the press, radio, television or public appearances.	Team activity; Writing exercise	
PS.03.04. Performance Indicator: Apply principles and practices of sustainable agriculture to plant production.			Science: F3, F4 and F6
	PS.03.04.01.b. Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of	Team activity	
PST.05.03. Performance Indicator: Use geospatial technologies in agricultural applications.			Science: A3, E2, F6 Social Studies: 3c
	PST.05.03.01.a. Identify geospatial technologies, including global positioning, geographical information and remote sensing.	GPS practicum	
CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.			Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	Team activity	
	CS.01.01.03.c. Implement an effective project	Team activity	
	CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	Team activity	
CS.01.02. Performance Indicator: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.			Language Arts: 12 Social Studies: 4h
	CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.	Team activity	
CS.01.04. Performance Indicator: Character: Conduct professional and personal activities based on virtues.			Social Studies: 4c and 4f
	CS.01.04.04.c. Demonstrate respect for others.	Team activity	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.			Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	Team activity	

CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing			Language Arts: 12 Social Studies: 1e
	CS.02.02.02.c. Present oneself appropriately in various settings.	Team activity	
	CS.02.02.03.b. Exhibit the behaviors needed for developing and maintaining a professional rela-	Team activity	
CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.			Math: 6C Science: A4
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	Team activity	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.			Social Studies: 4a
	CS.02.05.03.c. Exhibit self confidence while in the workplace.	Team activity	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.			Language Arts: 4, 5 and 12
	CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively	Writing exercise; Team activity	
	CS.03.01.03.c. Make effective business presentations.	Team activity	
CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.			Science: A1 and A5 Social Studies: 1c
	CS.03.02.01.c. Make decisions for a given situation by applying the decision-making process.	All event areas	
	CS.03.02.02.c. Use problem-solving skills.	All event areas	
CS.03.03. Performance Indicator: Flexibility/Adaptability: Describe traits that enable one to be capable and willing to accept change.			Science: A2, A6 and E2 Language Arts: 7
	CS.03.03.02.c. Evaluate strategies that can be used to manage change within the workplace.	Team activity	

Appendix B: Related Academic Standards

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the Agriculture, Food and Natural Resources (AFNR) Career Cluster.

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
    - 1A. Understand numbers, ways of representing numbers, relationships among numbers and number systems.
    - 1B. Understand meanings of operations and how they relate to one another.
4. Standard and Expectations: Measurement
    - 4A. Understand measurable attributes of objects and the units, systems and processes of measurement.
    - 4B. Apply appropriate techniques, tools and formulas to determine measurements.
5. Standard and Expectations: Data Analysis and Probability
    - 5A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
    - 5B. Select and use appropriate statistical methods to analyze data.
    - 5C. Develop and evaluate inferences and predictions that are based on data.

Science

A. Content Standard: Science as an Inquiry
- A2. Design and conduct scientific investigations.
- A3. Use technology and mathematics to improve investigations and communications.
- A4. Formulate and revise scientific explanations and models using logic and evidence.

B. Content Standard: Physical Science
- B2. Structure and properties of matter.

C. Content Standard: Life Science
- C4. Interdependence of organisms.

D. Content Standard: Earth and Space Science
- D2. Geochemical cycles.

E. Content Standard: Science and Technology
- E2. Understanding about science and technology.

F. Content Standard: Science in Personal and Social Perspectives
- F1. Personal and community health.
- F2. Population growth.
- F3. Natural resources.
- F4. Environmental quality.
- F5. Natural and human-induced hazards.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.

7. Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate, and synthesiSze data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Social Studies

3. Thematic Strand: People, Places and Environments

3b. create, interpret, use and synthesize information from various representations of the earth, such as maps, globes and photographs;

3c. use appropriate resources, data sources and geographic tools such as aerial photographs, satellite images, geographic information systems (GIS), map projects and cartography to generate, manipulate and interpret information such as atlases, data bases, grid systems, charts, graphs and maps;

3f. use knowledge of physical system changes such as seasons, climate and weather and the water cycle to explain geographic phenomena;

3g. describe and compare how people create places that reflect culture, human needs, government policy and current values and ideals as they design and build specialized buildings, neighborhoods, shopping centers, urban centers, industrial parks and the like;

3h. examine, interpret and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas and ecosystem changes;

3k. propose, compare and evaluate alternative policies for the use of land and other resources in communities, regions, nations and the world.

10. Thematic Strand: Civic Ideals and Practices

10c. locate, access, analyze, organize, synthesize, evaluate and apply information about selected public issues—identifying, describing and evaluating multiple points of view;

10i. construct a policy statement and an action plan to achieve one or more goals related to an issue of public concern;