



# **National FFA Career Development Events**

*A Special Project of the  
National FFA Foundation*

# National FFA Career Development Events

## General Information

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These are the official rules and regulations for National FFA Career Development Events for 2012-2016. Refer to the CDE webpage on [ffa.org](http://ffa.org) for the most up-to-date edition of the career development event handbook.

Prepared and published by the National FFA Organization. The National FFA Organization is a resource and support organization that does not select, control or supervise state association, local chapter or individual member activities except as expressly provided for in the National FFA Organization Constitution and Bylaws. The National FFA Organization affirms its belief in the value of all human beings and seeks diversity in its membership, leadership and staff.

FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education. National FFA Online, [www.ffa.org](http://www.ffa.org), FFA's Internet web site, can provide information about the National FFA Organization.

## **Philosophy of National FFA Career Development Events**

The National FFA Organization is dedicated to organizing experiences that will meet the future needs of students while accomplishing the current purposes of agricultural education. The primary goal of career development events is to develop individual responsibilities, foster teamwork and promote communication while recognizing the value of ethical competition 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 National FFA Organization assumes the leadership role in developing and continuously improving relevant FFA career development events. National career development events 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. Career development events and awards are intended to be an outgrowth of instruction. Also, it is appropriate for the national 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. National FFA Career Development Events should be developed with significant input from FFA members, teachers, partners, respective industry sponsors and others involved in agricultural education. The National FFA Organization continues to encourage accessibility and provide opportunities for achievement and recognition for students with diverse backgrounds.

Career development events that include team activities should be based on cooperation and teamwork while recognizing the value of competition and individual achievement. Where appropriate, team activities will be included that require two or more members from one chapter working cooperatively.

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

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

The National AFNR Career Cluster Content Standards were developed as part of the National FFA 10 x 15 project to provide state agricultural education leaders and teachers with a forward-thinking guide for what students should know and be able to do through the study of agriculture. The National AFNR Career Cluster Content Standards should be used as a guide to develop well-planned curriculum in agriscience education to be delivered to students throughout the country. For a complete copy of the AFNR Career Cluster Content Standards please visit [www.agedlearning.org](http://www.agedlearning.org).

National FFA Organization has adopted the AFNR Career Cluster Content Standards and integrated them into all national award and recognition programs for the benefit of the members, school administration and agriculture as a whole. Details outlining the incorporation of the standards in career development events can be found at the end of each event chapter in the CDE handbook.

## Official CDE Rules and Policies – 2012-2016

### General Rules

Violations of any of the following rules may be grounds for the event superintendent to disqualify the participants. National FFA staff and event superintendents will use the published rules and procedures to organize and implement the National FFA Career Development Events. Event activities may not be conducted due to lack of necessary materials, expertise or extreme impact to event budgets. Teams that are certified to compete will receive the current event format in a team orientation packet prior to the convention.

### Official Dress Recommendations, Number of Participants and Number of Scores for Team Total

Event	Official Dress Appropriate	Number of Participants Allowed (per team)	Number of Scores Counted for Team Score
Agricultural Communications	Yes	3	3
Agricultural Issues Forum	Optional	3-7	Team Score Event
Agricultural Technology and Mechanical Systems	No	4	Top 3 Scores
Agricultural Sales	Yes	4	4
Agronomy	Yes	4	4
Creed Speaking	Yes	1	N/A
Dairy Cattle Management and Evaluation	Yes	4	4
Dairy Cattle Handlers	Yes	1	N/A
Environmental and Natural Resources	No	4	4
Extemporaneous Public Speaking	Yes	1	N/A
Farm Business Management	Yes	4	Top 3 Scores
Floriculture	Yes	4	4
Food Science and Technology	Yes	4	4
Forestry	No	4	4
Horse Evaluation	Yes	4	Top 3 Scores
Job Interview	Yes	1	N/A
Livestock Evaluation	Yes	4	4
Marketing Plan	Yes	3	Team Score Event
Meats Evaluation and Technology	No	4	Top 3 Scores
Milk Quality and Products	Yes	4	4
Nursery/Landscape	Yes	4	Top 3 Scores
Parliamentary Procedure	Yes	6	Team Score Event
Poultry Evaluation	Yes	4	Top 3 Scores
Prepared Public Speaking	Yes	1	N/A
Veterinary Science	No	4	4

### Eligibility of Participants

- A. 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 during the school year which the participant qualified to participate at the national level.
  - 1. 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, in addition to the dues, must be paid prior to the national event.
  - 2. National FFA membership staff will set the processing fee amount annually.
- B. The participant, at the national event, must:
  - 1. Be a high school FFA member; high school refers to grades 9-12. (A graduating senior is considered eligible to compete in state and national career development events up to and including his/her first national convention following graduation.)
  - 2. Have qualified as a 7th, 8th or 9th grade member to participate in the Creed speaking event.
  - 3. While in high 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.
  - 4. If a student moves to a different chapter or a different state once a he/she has qualified as a state representative in a career development event, that student may be allowed to compete in the national event with the school he/she qualified with during the qualifying year.
- C. A student may not participate more than once in the same official National FFA Career Development Event.
- D. No student may participate in more than one National FFA Career Development Event each year.
- E. Each member participating in a National FFA Career Development Event must submit the proper *Waiver, Release of Liability and Consent to Medical Treatment Form* prior to start of event.

### Selection and Certification of State Teams

- A. Each state will submit a team declaration form by **June 1** prior to the national FFA convention. An entry processing fee will be charged for participation in each declared event with the exception of the dairy cattle handlers activity.
- B. Each team will be composed of the number of members determined by the specific event rules and formats. The members of a state team must be from the same chapter. Members must qualify in the career development event in which they are to participate at the national level. Teams must be selected at a state or interstate career development event held between the immediate previous national FFA convention and prior to the national FFA convention in which they are participating. States that qualify more than one year out must request and submit a written waiver for approval by the certification deadline.
  - 1. Online certification deadline: **September 15**.
  - 2. Online add/delete deadline: **Tuesday before convention at noon (Eastern)**.
- C. With extenuating circumstances a teacher may substitute another student from the chapter who may not have participated at a state qualifying event, with the exception of Creed speaking, dairy handlers activity, extemporaneous public speaking, job interview and prepared public speaking, which must be submitted and approved by state staff.

- D. The state supervisor of agricultural education or the executive secretary must certify that participants are eligible. If an ineligible student participates in any career development event, the member will be disqualified and may result in the disqualification of the team as well.
- E. All students must be certified online by the designated deadline. Once original certification has been completed, no member may be added without first deleting a member.
- F. The national organization will certify National FFA Career Development Event winners for international competition when states request, with the understanding that the state team will provide their own travel expenses.

### **Emergency Conditions**

Under emergency conditions a state team participating in a National FFA Career Development Event may be made up of less than the required members. States must still certify teams prior to the national FFA convention, but fewer than the required members 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, if applicable.

### **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 communications between team members during the team activity portion of a given career development event.
- B. Teams or participants arriving after the career development event has begun may be disqualified or penalized.
- 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 action shall deem the individuals disqualified for that section of the career development event.
- E. 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 competition. Any team, participant, advisor or coach reported and proven to do so will be disqualified from the national event.

### **Additions/Deletions of National Events**

- A. National FFA staff is expected to be proactive in developing new or initiating changes within existing career development events to ensure that they meet the needs of FFA members.
- B. If fifteen (15) state supervisors/executive secretaries develop a proposal for a new career development event, the national FFA staff will conduct a study for the validity of the career development event and make a recommendation to the chief executive officer. Representatives of these states must be from each of the FFA regions. The same process may be used to eliminate a national career development event.
- C. Three years following the initiation of a new career development event, at least fifteen (15) states should be participating. After the next three-year period, at least twenty-six (26) states should be participating in order to retain the event at the national level.

### **Rules Committee/Scoring Appeals Process**

- A. If a written appeal is filed within the seven (7) calendar days after results announcement, national CDE staff will review the appeal. Upon receiving input from team leader and division director, national CDE staff will accept or deny the appeal. The national CDE staff's recommendation will be shared with appeals committee and National FFA Chief Executive Officer for further input, if necessary.
  1. The written appeal must be filed with the Education Division staff responsible for scoring career development events within seven (7) calendar days of the results announcement and accompanied by a \$50 filing fee. The fee will be returned if the appeal is justified.
- B. The appeals committee will be chaired by the National FFA Awards, Recognition and Career Development Events Advisory Committee chairperson who will in turn appoint a representative of each of the following organizations: National Association of Supervisors of Agricultural Education (NASAE), National Association of Agricultural Educators (NAAE) and the American Association for Agricultural Education (AAAE). The National FFA staff responsible for career development events will also serve on the committee.

### **Waiver of FFA Rules**

Any local chapter seeking a waiver of a National FFA policy or procedure must submit in writing to the chapter's state FFA association office. If the request is approved at the state level, it must be forwarded, under the signature of the state advisor or executive secretary, to the career development events education specialist. After study by the appropriate FFA staff, a recommendation to grant or deny the appeal will be forward to the chief executive officer for his/her approval. The request must be submitted to the national FFA staff at least 30 days prior to the scheduled event or due date for which the waiver is requested. This policy does not supersede any current FFA policy for appeals already established for a particular FFA program.



### **Selection of CDE Superintendents and CDE Committee Members**

- A. Nominations for CDE superintendents may come to National FFA staff from the following sources:
  - 1. standing CDE superintendent
  - 2. current CDE committee members
  - 3. state leadership
  - 4. Team Ag Ed partners
- B. CDE superintendents will be selected by national CDE staff and approved by the National FFA Chief Executive Officer.
- C. Each CDE superintendent will serve a three to five year term. At the end of the superintendent's term, a qualified replacement will assume the duties of superintendent.
- D. National FFA staff and CDE superintendents will select qualified individuals to serve on CDE committees. Selection of committee members will be based on:
  - 1. individual qualifications.
  - 2. recommendations from state leaders, current CDE committee members, CDE superintendents or National FFA staff.
  - 3. recommendations from Team Ag Ed partners.
  - 4. current rotational procedures developed by each CDE committee.
  - 5. provide diversity for the committee.
  - 6. commitment to serve a minimum of three years on the committee.
- E. Final approval of new committee members is the responsibility of the National FFA CDE staff with input and recommendations from CDE event superintendent and committee.

### **Sanctioning Events**

Sanctioning of non-national FFA competitive events (those competitive events conducted by organizations other than the National FFA Organization) as National FFA Career Development Events should occur when:

- 1. The highest quality event possible is conducted.
- 2. Organization conducting event and National FFA Organization agree that event can and should be sanctioned.
- 3. Event is recommended by the National FFA Staff responsible for CDEs with input and agreement from the Award and Recognition Advisory Committee and approved by the National FFA Chief Executive Officer.
- 4. National FFA is represented by staff responsible for career development events on the planning and implementation committee for each event.
- 5. Winners of the national sanctioned event will be recognized in the same manner as national career development events winners are currently recognized.

### **Official Dress**

Participants are expected to observe the National FFA Code of Ethics and the proper use of the FFA jacket during career development events. (Please reference the latest edition of the Official FFA Manual.) Official FFA dress is highly recommended for all participants where appropriate and is required for the awards presentation and recognition.

### **Accessibility for All Students**

All special needs requests and appropriate documentation as outlined in the special needs request policy must be submitted at time of certification.

- 1. Special needs policy is posted on the CDE program page at [www.ffa.org/cde](http://www.ffa.org/cde)
- 2. Special needs request due: **August 15**

**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 postmarked 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.

# National FFA Food Science and Technology Career Development Event

A Special Project of the National FFA Foundation

## Important Note

*Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all National FFA Career Development Events.*

## I. Purpose

The food science and technology career development event is designed to promote learning activities in food science and technology related to the food industry and to assist students in developing practical knowledge of principles used in a team decision-making process.

## II. Objectives

- A. To encourage FFA members to gain an awareness of career and professional opportunities in the field of food science and technology.
- B. To provide FFA members with the opportunity to experience group participation and leadership responsibilities in a competitive food science and technology program.
- C. To help FFA members develop technical competence and personal initiative in a food science and technology occupation.

## III. 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 chapter of the handbook 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 CDE handbook.

## IV. Event Rules

- A. Team make-up- The team will consist of four members with all four members' scores being totaled for the team score.
- B. It is highly recommended that participants wear FFA Official Dress for this event.
- C. Any participant in possession of an electronic device, except a calculator, in the event area is subject to disqualification.

## V. Event Format

- A. The food science and technology career development event will consist of four activities: a team product development project, an objective test, a food safety and quality practicum and a sensory evaluation practicum.
- B. All team members will participate in all of the activities. There will be a possible 1,000 total points per team. The team product development project will be worth 400 points per team, the objective test will be worth 50 points per individual and each of the two practicums will be worth 50 points per individual.
- C. *Allergy Information:* Food products used in this event may contain or come in contact with potential allergens. Advisors must submit a special needs request form for participants with any allergies with certification. The event committee will make all reasonable efforts to accommodate students with food allergies.

- D. Each participant must provide:
1. A clipboard that is clean and free of notes.
  2. Two sharpened No. 2 pencils.
  3. Electronic calculator- Calculators used in this event should be non-programmable and non-graphing. Calculators should have only basic functions such as addition, subtraction, multiplication, division, equals, percent, square root, +/- key. No other calculators are allowed to be used during the event including cell phones.
  4. Teams and/or individuals will not be permitted to use electronic media during the event. This includes but is not limited to cell phones, mp3 players, cameras, etc.
- E. Team Product Development Project
1. Each team will receive a product development scenario describing the need for a new or redesigned product that appeals to a potential market segment. The team's task will be to design a new food product or reformulate an existing product based on information contained within the product development scenario.
  2. The team will be responsible for understanding and using the following concepts:
    - a. Formulation of product to meet specified requirements.
    - b. Package design and labeling requirements to reflect the developed product.
    - c. Nutritional fact development.
    - d. Production and packaging equipment.
    - e. Quality control and safety programs, i.e., good manufacturing practices (GMP) and hazard analysis critical control points (HACCP).
    - f. Formulation and costing (ingredient, packaging, etc.).
    - g. Current food trends.
    - h. Market segments.
  3. Each team will be provided with packaging materials, ingredients and necessary ingredient information in order to develop, label and package a product.
  4. The team will have 60 minutes to respond to the product development scenario and reformulate or develop a product, calculate a nutritional label, develop the ingredient statement and information panel and develop the front or principle display panel to reflect the new product.
  5. After this time period, each team member will contribute to a ten minute oral presentation delivered to a panel of judges. No electronic media will be used in the presentation.
  6. Following the presentation there will be a ten minute question and answer period with the judges in which each team member is expected to contribute. All materials will be collected after the presentation.
  7. Total time involved for each team will be 80 minutes. Total number of points possible for this activity will be 400 points.
  8. Product development scenarios will describe a category, platform and market. These may include but are not limited to the following categories, platforms and markets listed below.
    - a. Categories
      - i. Cereal
      - ii. Snacks
      - iii. Meals
      - iv. Side dishes
      - v. Beverages
      - vi. Supplements
      - vii. Condiments
      - viii. Desserts

- b. Platform
    - i. Frozen
    - ii. Refrigerated
    - iii. Shelf-stable
    - iv. Convenience
    - v. Ready to eat
    - vi. Heat and serve
  - c. Market (domestic and international)
    - i. Retail
    - ii. Wholesale
    - iii. Food service
    - iv. Convenience store
9. Example of scenario product from past events:
- a. Ready to eat breakfast cereal for retail
  - b. Refrigerated frozen cookie dough for wholesale
  - c. Yogurt parfait for convenience store
  - d. Refrigerated, heat and serve pizza for retail
  - e. Shelf stable, dried fruit snack mix for retail
10. Evaluation criteria and points for team activity can be found on the team product development project scorecard at the end of this chapter.
- F. Individual Activities
1. Objective Test
- a. The objective questions administered during the food science and technology examination will be designed to determine each team member's understanding of the basic principles of food science and technology. The test will be primarily based on the list of references at the end of this chapter.
  - b. Team members will work individually to answer each of the 50 questions. Each person will have 60 minutes to complete the examination. Each question will be worth 1 point, for a total of 50 points.
2. Practicums—Each team member will complete all parts of both practicums.
- a. Food Safety and Quality Practicum- 50 points
    - i. *Customer Inquiry*- Each participant will be given five scenarios representing general consumer inquiries. Participants must determine if the consumer inquiry reflects a quality or safety issue and determine if it is a biological, chemical or physical concern or hazard. (25 points)
    - ii. *Food Safety/Sanitation*- Each participant will be given ten situations (e.g., photos, videos, written scenarios, live demonstrations or a combination). A numbered list of problems will be provided at the beginning of this practicum segment. The list will contain concepts such as good manufacturing practices (GMP), sanitation, food handling/storage and other pre-requisite programs. Participants will identify if there is a violation presented in the situation. If participants decide that there is a violation, they will indicate the number of the violation from the list of problems provided. (25 points)
  - b. Sensory Evaluation Practicum- 50 points
    - i. *Triangle Tests*- Three different triangle tests will be conducted. Participants are expected to identify the different samples through flavor, aroma, visual cues and/or textural differences. Answers will be given on the sheet provided. No list will be provided for this segment of the practicum. Each test is worth 5 points. (15 points)

- ii. *Flavor Identification*- Three samples will be tasted. Participants will be expected to discern the flavor of each sample by taste. Flavors may include but are not limited to fruits, vegetables, florals, savory, sweeteners, etc. Each sample is worth 5 points. (15 points)
- iii. *Aromas*- Each participant will be asked to identify four different aromas from vials provided at each station and record the answer on the sheet provided. A list of potential aromas will be provided to each person. Each sample is worth 5 points. (20 points)

### Aromas

Cinnamon	Grape
Chocolate	Garlic
Maple	Peppermint
Oregano	Clove
Basil	Nutmeg
Lemon	Ginger
Lime	Molasses
Orange	Wintergreen
Vanilla	Banana
Smoke (liquid)	Coconut
Cherry	Lilac
Pine	Raspberry
Onion	Strawberry
Butter	Licorice (anise)
Menthol	

## VI. Scoring

Section	Time Allowed	Section Points	Total Points
<b>Individual Activities</b>			
Objective Test	60 minutes		50
Food Safety and Quality Practicum			50
Customer Inquiry		25	
Food Safety/Sanitation		25	
Sensory Evaluation			50
Triangle Tests		15	
Flavor Identification		15	
Aromas		20	
<b>Total Individual Points</b>			<b>150</b>
Team Product Development Project	80 minutes		400
Package Design		100	
Product Development		250	
Response to Judges' Questions		50	
Individual Points (150 pts x 4 members)			600
<b>TOTAL TEAM POINTS</b>			<b>1000</b>

## VII. Tiebreakers

- A. Team:** Should a tie occur in the overall team placing, the tie will be broken by the highest team product development project score. If this score does not break the tie, then the highest number of total points earned from the objective test (adding all four team member scores) will break the tie. If a third tiebreaker is needed, the total points earned by the team in the food safety and quality practicum will be used.
- B. Individual:** To identify the high individual for this event in case of a tie, the highest objective test score will be used as the first tiebreaker, followed by the highest food safety and quality practicum score as the second tiebreaker.

## VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at an awards ceremony. Awards are sponsored by a cooperating industry sponsor(s) as a special project, and/or by the general fund of the National FFA Foundation.

## IX. 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>

*Mehas and Rodgers*, 5th Edition, 2006. Kay Yockey Mehas and Sharon Lesley Rodgers, Glencoe/McGraw, New York.

*Food Science and Safety*, 2nd Edition, 2004, George J. Seperich, Pearson Publishers

*Principles of Food Sanitation*, 5th Edition, 2006, Norman G. Marriott and Robert B. Gravani, Springer Science + Business Media, Inc.

Institute of Food Technology website, <http://www.ift.org>

USDA Food Safety and Inspection Service website, <http://www.fsis.usda.gov>

Penn State Kitchen Chemistry: Experiments, resources and materials for educators and students, <http://foodscience.psu.edu/public/kitchen-chemistry>

Food Safety Education, [http://www.fsis.usda.gov/food\\_safety\\_education/for\\_kids\\_&\\_teens/index.asp](http://www.fsis.usda.gov/food_safety_education/for_kids_&_teens/index.asp)

Partnership for Food Safety Education, <http://www.fightbac.org>

FoodSafety.gov, <http://www.foodsafety.gov>



**Food Science and Technology CDE  
Team Product Development Project Scorecard**

State: \_\_\_\_\_

Team #: \_\_\_\_\_

<b>Package Design</b>	<b>Possible Score</b>	<b>Team Score</b>
○ Use and development of nutrition label		
○ Required information present	10	
○ Correct calculations	10	
○ Correct organization	10	
○ Use and development of the ingredient statement		
○ Present	10	
○ Correct order and all ingredients included	10	
○ Location on package	10	
○ Use of principle display panel to convey information		
○ All required components	15	
○ Correct information	15	
○ Location on package	10	
<b>Package Design Subtotal</b>	<b>100</b>	
<b>Product Development Oral Presentation</b>	<b>Possible Score</b>	<b>Team Score</b>
<ul style="list-style-type: none"> <li>• Cost of Goods Sold <ul style="list-style-type: none"> <li>○ Costing</li> <li>○ Accuracy</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Nutrition <ul style="list-style-type: none"> <li>○ Communicate nutritional quality of product</li> <li>○ Apply nutritional quality to health benefits</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Target Audience <ul style="list-style-type: none"> <li>○ Identification of key consumer</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Quality Control <ul style="list-style-type: none"> <li>○ Key quality attribute of consistent product</li> <li>○ Examples: Flavor, color, texture, net weight, size, etc.</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Marketing &amp; Sales <ul style="list-style-type: none"> <li>○ Communicated with future users</li> <li>○ Promotions</li> <li>○ Market location</li> </ul> </li> </ul>	20	

<ul style="list-style-type: none"> <li>• Product               <ul style="list-style-type: none"> <li>o Appearance</li> <li>o Texture</li> <li>o Shelf-life</li> <li>o Interaction of ingredients</li> <li>o Creativity</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Processing               <ul style="list-style-type: none"> <li>o Description of how to make product</li> <li>o Equipment</li> <li>o Flow diagram, unit operations</li> <li>o People</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Packaging               <ul style="list-style-type: none"> <li>o Materials used</li> <li>o Appropriate for use of product</li> <li>o Creativity</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Food Safety               <ul style="list-style-type: none"> <li>o Discussed potential hazards/concerns associated with products</li> </ul> </li> </ul>	20	
<ul style="list-style-type: none"> <li>• Formulation Concepts</li> </ul>		
<ul style="list-style-type: none"> <li>o How well did product match concept/product development scenario</li> </ul>	30	
<ul style="list-style-type: none"> <li>o Category</li> </ul>	5	
<ul style="list-style-type: none"> <li>o Platform</li> </ul>	5	
<ul style="list-style-type: none"> <li>• Quality of Presentation</li> </ul>		
<ul style="list-style-type: none"> <li>o Equitable participation of team members</li> </ul>	5	
<ul style="list-style-type: none"> <li>o Organization</li> </ul>	5	
<ul style="list-style-type: none"> <li>o Use of time allowed</li> </ul>	5	
<ul style="list-style-type: none"> <li>o Professionalism</li> </ul>	5	
<ul style="list-style-type: none"> <li>o Presence &amp; enthusiasm</li> </ul>	5	
<ul style="list-style-type: none"> <li>o Mannerisms</li> </ul>	5	
<b>Product Development Oral Presentation Subtotal</b>	<b>250</b>	
	<b>Possible Score</b>	<b>Team Score</b>
<b>Response to Judges' Questions</b>		
<ul style="list-style-type: none"> <li>• Team Participation in Question Response               <ul style="list-style-type: none"> <li>o All team members contributed</li> </ul> </li> </ul>	25	
<ul style="list-style-type: none"> <li>• Quality of Response               <ul style="list-style-type: none"> <li>o Accuracy</li> <li>o Ability to answer</li> <li>o Originality</li> <li>o Knowledge</li> </ul> </li> </ul>	25	
<b>Response to Judges' Questions Subtotal</b>	<b>50</b>	
<b>TOTAL POINTS</b>	<b>400</b>	

### Food Science and Technology CDE Customer Inquiry Scorecard

Name: \_\_\_\_\_ State: \_\_\_\_\_

Participant #: \_\_\_\_\_

	Points Possible	Points Earned
<b>Scenario # 1</b> This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: (Check only one) Biological _____ Chemical _____ Physical _____	3	
<b>Scenario # 2</b> This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: (Check only one) Biological _____ Chemical _____ Physical _____	3	
<b>Scenario # 3</b> This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: (Check only one) Biological _____ Chemical _____ Physical _____	3	
<b>Scenario # 4</b> This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: (Check only one) Biological _____ Chemical _____ Physical _____	3	
<b>Scenario # 5</b> This issue represented in this scenario is a: Food Quality Issue _____ Food Safety Issue _____	2	
Is the concern or hazard primarily: (Check only one) Biological _____ Chemical _____ Physical _____	3	
<b>TOTAL</b>	<b>25</b>	

## Food Science and Technology CDE Food Safety and Sanitation Scorecard

Name: \_\_\_\_\_ State: \_\_\_\_\_

Participant #: \_\_\_\_\_

**Situation # 1** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

1a) Yes \_\_\_\_\_ 1b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 1c) \_\_\_\_\_

**Situation # 2** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

2a) Yes \_\_\_\_\_ 2b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 2c) \_\_\_\_\_

**Situation # 3** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

3a) Yes \_\_\_\_\_ 3b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 3c) \_\_\_\_\_

**Situation # 4** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

4a) Yes \_\_\_\_\_ 4b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 4c) \_\_\_\_\_

**Situation # 5** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

5a) Yes \_\_\_\_\_ 5b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 5c) \_\_\_\_\_

**Situation # 6** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

6a) Yes \_\_\_\_\_ 6b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 6c) \_\_\_\_\_

**Situation # 7** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

7a) Yes \_\_\_\_\_ 7b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 7c) \_\_\_\_\_

**Situation # 8** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

8a) Yes \_\_\_\_\_ 8b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 8c) \_\_\_\_\_

**Situation # 9** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

9a) Yes \_\_\_\_\_ 9b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 9c) \_\_\_\_\_

**Situation # 10** – The situation depicts a violation of GMP, sanitation and/or food handling/storage (1 point).

10a) Yes \_\_\_\_\_ 10b) No \_\_\_\_\_

If yes, list the item number that would best apply from the list of guidelines provided (1.5 points): 10c) \_\_\_\_\_

**TOTAL:** \_\_\_\_\_ / 25 Possible Points

## Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
	<b>ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.</b>		Math: 1C, 5A, 5C Social Studies: 7h
	ABS.04.01.02.b. Use accounting information to estimate the cost of goods sold and margins on the goods.	team activity	
	<b>ABS.06.01. Performance Indicator: Conduct appropriate market and marketing research.</b>		Social Studies: 7b, 7h
	ABS.06.01.01.b. Apply benefit/cost analysis to marketing in AFNR businesses.	team activity	
	<b>ABS.07.02. Performance Indicator: Develop a production and operational plan.</b>		Language Arts: 4, 5, 6, 12
	ABS.07.02.02.b. Examine legal and industry requirements for a production facility.	team activity, exam	
	<b>BS.03.01. Performance Indicator: Evaluate the application of genetic engineering to improve products of AFNR systems.</b>		Math: 2C Science: A2, C2, E2, F4 Language Arts: 7 and 8
	BS.03.01.02.a. Describe enzymes, the changes they cause in foods and the physical and chemical parameters that affect enzymatic reactions.	exam	
	<b>BS.03.02. Performance Indicator: Perform biotechnology processes used in AFNR systems.</b>		Science: B3, C5, D1, E2 Language Arts: 4
	BS.03.02.02.a. Identify foods produced through fermentation.	exam	
	<b>FPP.01.01. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry.</b>		Science: F1 Language Arts: 7 and 8 Social Studies: 1g and 8c
	FPP.01.01.02.c. Determine appropriate industry response to consumer concerns to assure a safe and wholesome food supply.	consumer inquiry	
	<b>FPP.01.02. Performance Indicator: Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.</b>		Language Arts: 12 Social Studies: 6c and 8f
	FPP.01.02.01.a. Explain the purposes of organizations that are part of or regulate the food products and processing industry.	exam	

<b>FPP.02.02. Performance Indicator: Implement Hazard Analysis and Critical Control Point (HACCP) procedures to establish operating parameters.</b>		Science: F5 Language Arts: 8
	<b>FPP.02.02.01.a.</b> Describe contamination hazards (physical, chemical and biological) associated with food products and processing.	consumer inquiry, exam
	<b>FPP.02.02.02.a.</b> Identify the seven principles of HACCP.	team activity, exam
<b>FPP.02.03. Performance Indicator: Apply safety and sanitation procedures in the handling, processing and storing of food products.</b>		Science: A2 and F5
	<b>FPP.02.03.01.a.</b> Explain techniques and procedures for the safe handling of food products.	team activity, exam, consumer inquiry, safety/sanitation
	<b>FPP.02.03.02.b.</b> Perform quality-assurance tests on food products.	sensory
<b>FPP.03.01. Performance Indicator: Apply principles of science to food processing to provide a safe, wholesome and nutritious food supply.</b>		Science: A2, B3 and F1
	<b>FPP.03.01.02.b.</b> Explain how the chemical and physical properties of foods influence nutritional value and eating quality.	team activity, exam
	<b>FPP.03.01.05.b.</b> Describe the purpose of common food additives.	exam
	<b>FPP.03.01.06.c.</b> Prepare and label foods according to the established standards of regulatory agencies.	team activity
	<b>FPP.03.01.07.b.</b> Plan and create a new food product.	team activity
<b>FPP.04.03. Performance Indicator: Process, preserve, package and present food and food products for sale and distribution.</b>		Math: 1C, 4A and 4B Science: F1
	<b>FPP.04.03.01.c.</b> Use weights and measures to formulate and package food products.	team activity, exam
	<b>FPP.04.03.02.a.</b> Explain methods and materials for processing foods for sale as fresh-food products.	team activity
	<b>FPP.04.03.03.b.</b> Explain the processes of food preservation methods.	team activity, exam
	<b>FPP.04.03.04.a.</b> Explain techniques for preparing ready-to-eat food products.	team activity
	<b>FPP.04.03.05.b.</b> Select and utilize packaging materials in storing processed foods and raw food products.	team activity
	<b>FPP.04.03.06.a.</b> Identify and explain storage conditions to preserve product quality.	team activity, exam

<b>CS.01.01. Performance Indicator: Action: Exhibit the skills and competencies needed to achieve a desired result.</b>		Social Studies: 4d and 4h
	CS.01.01.01.c. Work independently and in group settings to accomplish a task.	all event
	CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.	team activity
	CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.	team activity
<b>CS.02.04. Performance Indicator: Mental Growth: Demonstrate the effective application of reasoning, thinking and coping skills.</b>		Math: 6C Science: A4 Language Arts: 4 and 8
	CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.	team activity, safety & quality
	CS.02.04.02.c. Implement effective problem solving strategies.	team activity, safety & quality
<b>CS.03.01. Performance Indicator: Communication: Demonstrate oral, written and verbal skills.</b>		Language Arts: 4, 5 and 12
	CS.03.01.01.b. Select the appropriate form of technical and business writing or communication for a specific situation.	team activity
	CS.03.01.03.c. Make effective business presentations.	team activity
<b>CS.03.02. Performance Indicator: Decision Making –Analyze situations and execute an appropriate course of action.</b>		Science: A1 and A5 Social Studies: 1c and 4h
	CS.03.02.02.c. Use problem-solving skills.	team activity, sensory, safety & quality
<b>CS.06.01. Performance Indicator: Observe required regulations to maintain/improve safety health and environmental management systems.</b>		Science: F4 and F5 Social Studies: 3g
	CS.06.01.01.a. Examine major health, safety, and environmental management system components in AFNR organizations.	quality & safety, exam

**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
  - 1C. Compute fluently and make reasonable estimates.
2. Standard and Expectations: Algebra
  - 2C. Use mathematical models to represent and understand quantitative relationships.
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.
  - 5C. Develop and evaluate inferences and predictions that are based on data.
6. Standard and Expectations: Problem Solving
  - 6C. Apply and adapt a variety of appropriate strategies to solve problems.

**Science**

- A. Content Standard: Science as an Inquiry
  - A1. Identify questions and concepts that guide scientific investigation.
  - A2. Design and conduct scientific investigations.
  - A4. Formulate and revise scientific explanations and models using logic and evidence.
  - A5. Recognize and analyze alternative explanations and models.
- B. Content Standard: Physical Science
  - B3. Chemical reactions.
- C. Content Standard: Life Science
  - C2. Molecular basis of heredity.
  - C5. Matter, energy and organization in living systems.
- D. Content Standard: Earth and Space Science
  - D1. Energy in the earth system.
- 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.
  - 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 synthesize 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.
12. Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

**Social Studies**

1. Thematic Strand: Culture
  - 1c. apply an understanding of culture and an integrated whole that explains the functions and interactions of language, literature, the arts, traditions, beliefs and values and behavior patterns;
  - 1g. construct reasoned judgments about specific cultural responses to persistent human issues;
3. Thematic Strand: People, Places and Environments
  - 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;
4. Thematic Strand: Individual Development and Identity
  - 4d. apply concepts, methods and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception and personality;
  - 4h. work independently and cooperatively within groups and institutions to accomplish goals;
6. Thematic Strand: Power, Authority and Governance
  - 6c. analyze and explain ideas and mechanisms to meet needs and wants of citizens, regulate territory, manage conflict, establish order and security and balance competing conceptions of a just society;
7. Thematic Strand: Production, Distribution and Consumption
  - 7b. analyze the role that supply and demand, prices, incentives and profits play in determining what is produced and distributed in a competitive market system;
  - 7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;
8. Thematic Strand: Science, Technology and Society
  - 8c. analyze how science and technology influence the core values, beliefs and attitudes of society, and how the core values, beliefs and attitudes of society shape scientific and technological change;
  - 8f. formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.