National FFA Poultry Evaluation 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 National FFA Poultry Evaluation Career Development Event encourages learning through activities relative to production and management, processing, marketing and food safety and quality of poultry products.

II. Objectives

A. The National FFA Poultry Evaluation Career Development Event provides opportunities for the participant to:
   1. make accurate observations and logical decisions.
   2. discuss and justify decisions (orally and written).
   3. communicate industry and product terminology.
   4. promote USDA standards of product quality.
   5. identify consumer preferences for products.
   6. recognize economic importance of value-added products.
   7. collaborate with others to analyze industry scenarios.
   8. demonstrate the use of appropriate information technology used in the poultry industry.

B. Specifically, participants will:
   1. evaluate and select live meat-type chickens and orally defend the selection.
   2. evaluate and place live egg-type hens and orally defend the selection.
   3. evaluate and grade ready-to-cook carcasses and parts of chickens and turkeys.
   4. evaluate, grade and place ready-to-cook carcasses of chickens or turkeys and orally defend the placing.
   5. evaluate and grade individual shell eggs for interior quality.
   6. evaluate and grade individual shell eggs for exterior quality and indicate factors governing the grading.
   7. evaluate pre-cooked further processed poultry meat products and indicate factors governing the evaluation.
   8. identify poultry carcass parts.
   9. complete a written examination on poultry production, management and science.
   10. perform a team activity related to poultry science.

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: Teams may consist of three or four members. Team ranking is determined by combining the scores of the top three students from each team. Teams that have fewer than three members are not eligible for team awards, but students may receive individual awards.
B. Humane Treatment of Live Animals: All live animals must be treated with the utmost care and respect. Violation of this rule will automatically disqualify an offending team member from the event. The supervision, interpretation and enforcement of this rule will be the responsibility of the event superintendent or his/her designee.
C. Each team will report to the team orientation meeting for instructions at the specified time and place listed in the current year's team orientation packet. No participant, coach or advisor may enter the event area before the specified time.
D. Each team will receive computer scan sheets during the National FFA Poultry Evaluation Career Development Event team orientation meeting.
E. Participants will have ten minutes per class to complete Classes 1 through 12. An appropriate amount of time, as determined by the event officials, will be provided for Classes 13 and 14. A warning signal will inform the participants when time expires for each class. Participants will have approximately one minute to move from class to class.
F. Any participant in possession of any electronic device is subject to disqualification.

V. Event Format

A. Equipment
   1. **Materials provided by the participant:** Each participant must have two clean, sharpened No. 2 pencils and an electronic calculator. Calculators permissible for use in this event are those that are battery operated, non-programmable and silent. **A calculator may have the following functions: addition, subtraction, multiplication, division, equals, percent, square root, +/- key and one memory register. Calculators that are capable of storing equations, definitions and/or terms are not permitted.** Participant use of unauthorized electronic devices will result in disqualification.
   2. **Materials provided by the event officials:** Participants will be provided a clipboard for the purpose of providing storage of the scan sheet during the event. No other containers or devices (e.g. student provided clipboards, folders or envelopes) will be permitted for participant use during the event. In addition, participants will be provided a standard form ("Official Notes of National FFA Poultry Career Development Event Placings/ Grades") and clean sheets of paper for recording decisions made during the event. This document will serve as a participant's personal record of decisions made during the event.
   3. **NO OTHER MATERIALS** will be permitted. Participants attempting to use unauthorized materials will be disqualified.

B. Individual Activities

Live Poultry

1. Each participant will place a class of four market broilers. Each participant will be permitted to "handle" the birds, as long as the birds are inspected in a professional and humane manner. Participants may not remove the broilers from the holding unit.
2. Each participant will place a class of four egg-type hens. The birds will be Single-Comb White Leghorns, or commercial strains of Leghorn-type (inbred cross). The birds may have trimmed beaks. Each participant will be permitted to "handle" the birds, as long as the birds are inspected in a professional and humane manner.

3. Each participant will present oral reasons for either the placing class of market broilers or for the class of egg-type hens. The class for which participants should develop oral reasons for presentation will be clearly identified during the event. Participants will have ten minutes to prepare and two minutes to present their oral reasons. Reasons should include current USDA and poultry industry terminology and standards.

Class #	Points
1. Market broilers	50
2. Egg-type hens	50
3. Oral reasons for Class 1 or 2	50

Ready-to-Cook Poultry

4. Each participant will grade a class of ten ready-to-cook chicken **and/or** turkey carcasses **and/or** parts. Criteria for grading will be derived from USDA standards for chicken carcasses weighing two pounds to six pounds and for turkey carcasses weighing six to sixteen pounds or carcasses weighing greater than sixteen pounds. Four categories may be used, including the USDA quality grades A, B, C and the category NG (nongradable). Participants may not touch any carcass or part; doing so will result in disqualification. If used, the shackle holding a carcass may be rotated to show the entire carcass.
5. Each participant will place a class of four ready-to-cook chicken or turkey carcasses. Criteria for placing will be derived from USDA standards relative to poultry weight classes. Participants may not touch any carcass; doing so will result in disqualification. If used, the shackle holding a carcass may be rotated to show the entire carcass.
6. Each participant will present oral reasons for their placing of the class of ready-to-cook chicken or turkey carcasses. Participants will have ten minutes to prepare and two minutes to present their reasons. Reasons should include current USDA and poultry industry terminology and standards.

Class #	Points
4.Ten chicken and/or turkey carcasses and/or parts for quality grading	50
5. Four RTC carcasses for placing	50
6. Oral reasons for Class 5	50

Shell Eggs

7. Each participant will grade a class of ten white (or white-tint) shell eggs. Criteria for grading will be derived from USDA standards for interior quality of market eggs. The USDA quality grades will be AA, A, B and Loss. Participants must candle the eggs to determine the appropriate USDA quality grade, but improper handling of eggs will result in disqualification.
8. Each participant will grade a class of fifteen shell eggs (white, brown or other). Criteria for grading will be derived from USDA standards for exterior quality of market eggs. The USDA quality grades will be AA/A, B and NG (nongradable). Criteria for grading may include decisions related to the following quality factors: **Soundness** (unbroken, check, dented check or leaker); **Stains** (slight/moderate stain or prominent stain); **Adhering Dirt or Foreign Material**; **Egg Shape** (approximately normal shape, unusual or decidedly misshapen); **Shell Texture** (large calcium deposits, body check or pronounced ridges); **Shell Thickness** (pronounced thin spots); **No Defect**.
9. Each participant will determine written factors for the grading of the exterior chicken eggs. The written factors will relate to the criteria used for grading exterior quality of eggs.

Class #	Points
7. Ten white-shell eggs for interior quality grading	50
8. Fifteen chicken eggs for exterior quality grading	50
9. Evaluation criteria for Class 8	50

Further Processed Poultry

10. Each participant will determine written quality factors for a class of ten boneless further processed poultry meat products (e.g. precooked, poultry meat patties, tenders, nuggets or other boneless products). Criteria for evaluation will include coating defects, color defects, consistency of shape/size, broken and/or incomplete products, cluster/marriages and evidence of foreign material. Participants may not touch any product; doing so will result in disqualification.
11. Each participant will determine written quality factors for a class of ten bone-in further processed poultry meat products (e.g., precooked, bone-in wings or other bone-in poultry meat products). Criteria for evaluation will include coating defects, color defects, consistency of size, broken products, miscut products, mixed products and evidence of foreign material. Participants may not touch any product; doing so will result in disqualification.
12. Each participant will identify ten poultry parts. Poultry parts to be identified will be randomly selected and consistent with those used in the chicken processing and merchandising industries. The participant may not touch any part; doing so will result in disqualification.

Class #	Points
10. Boneless Further Processed Poultry Meat Products	50
11. Bone-In Further Processed Poultry Meat Products	50
12. Ten chicken carcass parts for identification	50

Poultry Management Written Exam

13. Each participant will complete a 30 item written examination on poultry production, management, anatomy and physiology. Five or more items will require mathematical calculations. Examination items will be developed from information found in the references (see Section IX).

Class #	Points
13. Written Examination	150

C. Team Activity – 200 points

For the team activity, all members of a team will work collaboratively to perform an activity related to poultry science. Team members will observe **and/or** be provided information about a poultry industry situation or problem scenario(s). Then, team members will answer up to 25 questions related to the information gained from the situation/scenario and from reference material studied in preparation for the career development event. The team activity may require participants to use information technology that is appropriate for the poultry industry (e.g. computers, software applications, Internet resources and related technologies). Specific information about the team activity will be made available to coaches in the team orientation packet as needed.

VI. Scoring

	Individual	Team
Twelve Classes	600	1800
Written Exam	150	450
Total Individual Points Possible	**750**	**2,250**
Team Activity		200
Total Team Points Possible		**2,450**

VII. Tiebreakers

If ties occur, the following classes will be used in order to determine the ranking of award recipients:

1. Written Management Exam
2. Evaluation of Live Birds

VIII. Awards

Awards will be presented to individuals and/or teams based upon their rankings at the 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.

Available from Instructional Materials Service (IMS), Texas A&M University, 2588 TAMUS, College Station, TX 77843-2588 (Phone: 979-845-6601; FAX: 979-845-6608; ims@tamu.edu; http://www-ims.tamu.edu/).

- Poultry Grading Manual - Agriculture Handbook Number 31 (latest USDA edition) (IMS Catalog #0414)
- Egg-Grading Manual - Agriculture Handbook Number 75 (latest USDA edition) (IMS Catalog #0417)

National FFA Core Catalog

- Poultry Science Manual for National FFA Career Development Events. (sixth edition) (IMS Catalog #0418-5) (or from the National FFA Core Catalog, product number PSM-06, online at http://shop.ffa.org/poultry-science-manual-p38844.aspx). All examination items will be derived from this reference.
- The Hormel Computing Slide is available through the National FFA Core Catalog, Item #HCSS, 888-332-2668 or online at http://shop.ffa.org/hormel-computing-slide-p38052.aspx
- Poultry Evaluation Scan Form—http://shop.ffa.org/poultry-evaluation-scan-form-p38843.aspx
- CDE Q&A's—http://shop.ffa.org/cde-qas-c1413.aspx

FFA Learn

- 2005 & 2006 CDE Q&A's —https://ffa.learn.com/learncenter.asp?id=178409&page=31

X. Examples - Scoring Format Summary

A. Placing Classes

Class 1, 2 and 5 are placing classes. Each class has a value of 50 points per participant.
The event superintendent obtains the "official placing" of the class and the "basis of grading" from the judge. The "basis of grading" is the numerical difference or "cut" between each of the three pairs—top, middle and bottom—in the placing class. The three "cuts" are totaled; the total cannot exceed 15 points. From the judge's information and the directions printed on the Hormel Computing Slide, the correct scores are obtained for all (24) possible placings (refer to references section for the source of the computing slide). The computer scoring system uses the

Hormel Scoring format when calculating a participant's score for each placing class.

B. Oral Reasons Classes

Class 3 and Class 6 are oral reasons for Class 1 or 2 and Class 5, respectively. Each class has a value of 50 points per participant. The score is based on oral reasons scorecard (refer to the "Presenting Oral Reasons" section of the Poultry Science Manual for National FFA Career Development Events, sixth edition).

C. Grading Classes

Classes 4, 7 and 8 are grading classes. Each class has a value of 50 points per participant.

1. **Class 4 – Scoring for Parts and Carcass Grading**

Participant's Grade	Official Grade			
	A	B	C	NG
A	5	3	1	0
B	3	5	3	0
C	1	3	5	0
NG	0	0	0	5

As shown above, Class 4 is scored based on the USDA quality grades A, B, C and the category NG. Each correct grade receives a score of five points. If the item is graded one quality grade below or above the correct grade, two points will be deducted to obtain a score of three points. If the item is graded two quality grades below or above the correct grade, four points are deducted to obtain a score of one point. However, if the "NG" line is "crossed" (i.e., an incorrect judgment), all five points are deducted to obtain a score of zero points. (Adapted from information provided by Don Sheets, Retired, Kansas Board of Agriculture, Topeka, Kansas.)

2. **Class 7 – Scoring for Interior Egg Quality Grading**

Participant's Grade	Official Grade			
	AA	A	B	Loss
AA	5	3	1	0
A	3	5	3	0
B	1	3	5	0
Loss	0	0	0	5

As shown above, Class 7 is scored based on the USDA quality grades AA, A, B and Loss. In the case of Class 7, each correct grade receives a score of five points. If the item is graded one quality grade below or above the correct grade, two points will be deducted to obtain a score of three points. If the item is graded two quality grades below or above the correct grade, four points are deducted to obtain a score of one point. However, if the "Loss" line is "crossed" (i.e., an incorrect judgment), all five points are deducted to obtain a score of zero points.

3. Class 8 – Scoring for Exterior Egg Quality Grading

Participant's Grade	Official Grade		
	AA/A	B	NG
AA/A	3	2	0
B	2	3	0
NG	0	0	3

As shown above Class 8 is scored based on the USDA quality grades AA/A, B and NG (nongradable). In the case of Class 8, each correct grade receives a score of three points. If the item is graded one quality grade below or above the correct grade, one point will be deducted to obtain a score of two points. However, if the "NG" line is "crossed" (i.e., an incorrect judgment), all three points are deducted to obtain a score of zero points.

Exterior Egg Quality Score Card

Egg Number	Class 8 Exterior Quality Grades		
	AA/A	B	NG
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

D. Written Factors Classes

Class 9 is written factors for Class 8 and has a value of 50 points per participant. Classes 10 and 11 are written factors for further processed poultry meat products and have a value of 50 points per class for each participant.

For Class 9 each item is evaluated for twelve different quality factors. For Class 10, each item is evaluated for seven different quality factors. For Class 11, each item is evaluated for eight different quality factors. Each item may be determined to have "no defect" or to have one or more defects.

For each correct match with the judge, zero points are deducted.
For each "defect" or "no defect" missed or added, two (2) points are deducted.
No score will be less than zero.

1. Class 9 – Egg Exterior Quality Written Factors

Defect	Class 9 Egg Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Checked															
Dented Checked															
Leaker															
Slight/Moderate Stain															
Prominent Stain															
Adhering Dirt/Foreign Material															
Decidedly Misshapen															
Large Calcium Deposits															
Body Check															
Pronounced Ridges															
Pronounced Thin Spots															
No Defect															

2. Class 10 – Boneless Further Processed Poultry Meat Products

Defect	Class 10 Product Number									
	1	2	3	4	5	6	7	8	9	10
Coating Void										
Inconsistent Color										
Inconsistent Shape/Size										
Broken/Incomplete										
Cluster/Marriages										
Foreign Material										
No Defect										

3. Class 11 – Bone-In Further Processed Poultry Meat Products

Defect	Class 11 Product Number									
	1	2	3	4	5	6	7	8	9	10
Coating Void										
Inconsistent Color										
Inconsistent Size										
Broken/Broken Bone										
Miscut										
Mixed Products										
Foreign Material										
No Defect										

E. Identification Class

Class 12 is an identification class consisting of ten poultry carcass parts. The class has a value of 50 points per participant. Each correct answer receives a score of five points.

F. Written Examination Class

Class 13 is an examination consisting of 30 multiple-choice items. The class has a value of 150 points per participant. Each correct answer receives a score of five points.

G. Team Activity Class

Class 14 is a team activity containing up to 25 questions. The class has a value of 200 points **per team.** Each correct answer receives a score of 10 points. (Note: This class does not apply to individual participant scores.)

SAMPLE SCORECARD FOR IDENTIFICATION OF PARTS

Directions: Darken the poultry carcass part that you consider correct for each of the ten items.

Part No.	1	2	3	4	5	6	7	8	9	10
Half	o	o	o	o	o	o	o	o	o	o
Front Half	o	o	o	o	o	o	o	o	o	o
Rear Half	o	o	o	o	o	o	o	o	o	o
Whole breast with ribs	o	o	o	o	o	o	o	o	o	o
Bnls., skinless whole breast with rib meat	o	o	o	o	o	o	o	o	o	o
Whole breast	o	o	o	o	o	o	o	o	o	o
Bnls., skinless whole breast	o	o	o	o	o	o	o	o	o	o
Split breast with ribs	o	o	o	o	o	o	o	o	o	o
Bnls., skinless split breast with rib meat	o	o	o	o	o	o	o	o	o	o
Split breast	o	o	o	o	o	o	o	o	o	o
Bnls., skinless split breast	o	o	o	o	o	o	o	o	o	o
Breast quarter	o	o	o	o	o	o	o	o	o	o
Breast quarter without wing	o	o	o	o	o	o	o	o	o	o
Tenderloin	o	o	o	o	o	o	o	o	o	o
Wishbone	o	o	o	o	o	o	o	o	o	o
Leg quarter	o	o	o	o	o	o	o	o	o	o
Leg	o	o	o	o	o	o	o	o	o	o
Thigh w/ back portion	o	o	o	o	o	o	o	o	o	o
Thigh	o	o	o	o	o	o	o	o	o	o
Bnls., skinless thigh	o	o	o	o	o	o	o	o	o	o
Drumstick	o	o	o	o	o	o	o	o	o	o
Bnls., skinless drum	o	o	o	o	o	o	o	o	o	o
Wing	o	o	o	o	o	o	o	o	o	o
Drumette	o	o	o	o	o	o	o	o	o	o
Wing portion	o	o	o	o	o	o	o	o	o	o
Liver	o	o	o	o	o	o	o	o	o	o
Gizzard	o	o	o	o	o	o	o	o	o	o
Heart	o	o	o	o	o	o	o	o	o	o
Neck	o	o	o	o	o	o	o	o	o	o
Paws	o	o	o	o	o	o	o	o	o	o

Poultry Evaluation CDE
Sample Scorecard for Oral Reasons: Broiler or Egg-Type Hens and R-T-C Turkey Carcasses

* To be used as a scoring guide by the official judges.	Possible Points	Participant's Score
1. IMPORTANCE OF POINTS COVERED		
a. Did the participant actually tell why one bird/carcass was selected/placed over another, or did the participant only vaguely describe the birds/carcasses?	5	
b. Did the participant stress the crucial differences, or did he/she make stereotypic ("canned") comparisons of various factors?	8	
c. Did the participant tell all there was to tell of importance, or were there other significant reasons that should have been given for the selection/placing?	5	
TOTAL POINTS	18	
2. APPEARANCE AND DELIVERY		
a. Did the participant stand still on two feet and face the judge?	2	
b. Did the participant speak clearly, distinctly and loud enough to be heard?	2	
c. Did the participant have an appropriate opening and closing statement?	2	
d. Did the participant speak smoothly without long pauses?	2	
e. Was the participant confident? Was the participant convincing?	4	
TOTAL POINTS	12	
3. PROPER USE OF TERMS		
a. Did the participant use relevant terminology properly?	4	
b. Did the participant understand the terms used?	3	
c. Was the participant able to define the terms used? (Participants may be asked to define terms used.)	3	
TOTAL POINTS	10	
4. ACCURACY OF STATEMENTS		
a. Did the participant describe the birds/carcasses based on their actual visual appearance?	5	
b. Did the participant present accurate statements?	5	
TOTAL POINTS	10	
GRAND TOTAL OF POINTS	50	

Appendix A: AFNR Career Cluster Content Standards

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.01.01. Performance Indicator: Apply principles of capitalism in the business environment.			Social Studies: 7b and 7g
	ABS.01.01.01.a. Recognize principles of capitalism as related to AFNR businesses.	exam	
ABS.01.02. Performance Indicator: Apply principles of entrepreneurship in businesses.			Social Studies: 7d
	ABS.01.02.01.a. Describe the meaning, importance and economic impact of entrepreneurship.	exam	
ABS.02.03. Performance Indicator: Apply appropriate management skills to organize a business.			Language Arts: 12 Social Studies: 7f
	ABS.02.03.01.a. Identify organizational structures and chains of command in AFNR businesses.	exam	
	ABS.02.03.02.a. Identify appropriate local, state, federal, international and industry regulations for AFNR businesses.	exam, USDA grading, parts ID	
ABS.03.01. Performance Indicator: Prepare and maintain all files needed to accomplish effective record keeping.			Math: 5A and 6B Language Arts: 8
	ABS.03.01.01.b. Analyze records to improve efficiency and profitability of an AFNR business.	exam, team activity	
ABS.04.01. Performance Indicator: Use accounting fundamentals to accomplish dependable bookkeeping and fiscal management.			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.	exam, team activity	
ABS.05.01. Performance Indicator: Maintain and interpret financial information (income statements, balance sheets, inventory, purchase orders, accounts receivable and cash-flow analyses) for businesses.			Math: 1C, 5A and 5C Language Arts: 8
	ABS.05.01.04.a. Calculate percentages, ratios and related business applications.	exam, team activity	
ABS.07.01. Performance Indicator: Prepare a step-by-step production plan that identifies needed resources.			Language Arts: 4, 5 and 8
	ABS.07.01.01.b. Identify and assess alternative production systems and ways products can be produced.	exam, team activity	
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution.			Science: C3 Social Studies: 7h
	AS.01.01.01.b. Evaluate and describe characteristics of animals that developed in response to the animals' environment and led to their domestication.	exam	
	AS.01.01.02.b. Outline the development of the animal industry and the resulting products, services and careers.	exam, team activity	

AS.02.01. Performance Indicator: Classify animals according to hierarchical taxonomy and agricultural use.			Science: C3
	AS.02.01.01.c. Classify animals according to the taxonomical classification system.	exam	
	AS.02.01.02.c. Appraise and evaluate the economic value of animals for various applications in the agriculture industry.	placing, grading, evaluation, exam, team activity	
AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.			Science: C1, C5 and F2
	AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	exam, oral reasons	
	AS.02.02.03.a. Describe the basic functions of animal cells in growth and reproduction.	exam	
	AS.02.02.04.c. Explain the importance and uses made of animal tissues in the agriculture industry.	all classes	
	AS.02.02.05.a. Describe the properties, locations, functions and types of animal organs.	exam	
	AS.02.02.06.c. Explain the impact of animal body systems on performance, health, growth and reproduction.	exam, team activity, live bird classes	
AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.			Science: C5
	AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction.	live bird classes	
	AS.02.03.02.b. Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics.	live bird classes	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.			Science: C4, F1 and F5
	AS.03.01.01.a. Explain methods of determining animal health and disorders.	exam, team activity	
	AS.03.01.02.b. Diagnose illnesses and disorders of animals based on symptoms and problems caused by diseases, parasites and physiological disorders.	exam, team activity	
	AS.03.01.03.b. Evaluate preventive measures for controlling and limiting the spread of diseases, parasites and disorders among animals.	exam, team activity	
	AS.03.01.05.a. Identify and describe zoonotic diseases.	exam, team activity	
AS.03.02. Performance Indicator: Provide for the biosecurity of agricultural animals and production facilities.			Science: F5 and F6 Social Studies: 9d
	AS.03.02.01.a. Explain the importance of biosecurity to the animal industry.	exam, team activity	

AS.04.01. Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals.			Math: 1C and 6B Science: A4 and C5
	AS.04.01.01.a. Compare and contrast common types of feedstuffs and the roles they play in the diets of animals.	exam, team activity	
	AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	exam	
AS.04.02. Performance Indicator: Prescribe and administer animal feed additives and growth promotants in animal production.			Science: C5
	AS.04.02.01.a. Explain the purpose and benefits of feed additives and growth promotants in animal production.	exam	
AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.			Science: C1 and C3
	AS.05.01.01.b. Describe the functions of major organs in the male and female reproductive systems.	exam, live bird classes	
AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness.			Science: C6
	AS.05.02.01.c. Evaluate and select animals for reproductive readiness.	live bird classes	
	AS.05.02.02.a. Discuss the importance of efficient and economic reproduction in animals.	exam	
AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.			Math: 6C Science: A4, C2 and E2
	AS.05.03.01.b. Explain the advantages of using genetically superior animals in the production of animals and animal products.	oral reasons, exam, live bird classes	
	AS.05.03.02.a. Define natural and artificial breeding methods.	exam, team activity	
	AS.05.03.05.a. Discuss the uses and advantages and disadvantages of natural breeding and artificial insemination.	exam, team activity	
AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.			Science: F1 and F5
	AS.06.02.01.b. Discuss consumer concerns with animal production practices relative to human health.	exam, team activity	
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.			Science: C6 and F6
	AS.07.01.01.a. Identify facilities needed to house and produce each animal species safely and efficiently.	exam, team activity	
	AS.07.01.02.b. Explain how modern equipment and handling facilities enhance the safe and economic production of animals.	live bird classes	

AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.			Science: C4 and F4
	AS.08.01.01.a. Evaluate the effects of animal agriculture on the environment.	exam	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.			Science: C6 and F4
	AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	exam, team activity, live bird class reasons	
BS.01.01. Performance Indicator: Distinguish major innovators, historical developments and potential applications of biotechnology in agriculture.			Science: E2, F6 and G3 Language Arts: 8 Social Studies: 2b, 8a, 8c and 8e
	BS.01.01.02.a. Investigate current applications of biotechnology in agriculture.	exam	
	BS.01.01.03.c. Assess the future impact agricultural biotechnology could have on world populations.	exam	
ESS.04.01. Performance Indicator: Use pollution control measures to maintain a safe facility environment.			Science: F4 and F5
	ESS.04.01.01.a. Identify types of pollution and distinguish between point source and nonpoint source pollution.	exam	
	ESS.04.01.02.a. Describe ways in which pollution can be managed and prevented.	exam	
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.	exam	
ESS.04.05. Performance Indicator: Manage hazardous materials to assure a safe facility and to comply with applicable regulations.			Science: F4 and F5
	ESS.04.05.01.b. Describe risks related to hazardous materials and describe health and safety practices to reduce risks from hazardous materials.	exam	
FPP.01.01. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry.			Science: F1 Language Arts: 7 and 8 Social Studies: 1g and 8c
	FPP.01.01.01.a. Discuss the history and describe and explain the components (e.g., processing, distribution, byproducts) of the food products and processing industry.	exam	
	FPP.01.01.02.a. Identify and explain environmental and safety concerns about the food supply.	exam	

FPP.01.02. Performance Indicator: Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.			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	
	FPP.01.02.02.b. Discuss the application of industry standards in the food products and processing industry.	further processed and ready to cook classes, exam	
FPP.02.02. Performance Indicator: Implement Hazard Analysis and Critical Control Point (HACCP) procedures to establish operating parameters.			Science: F5 Language Arts: 8
	FPP.02.02.01.a. Describe contamination hazards (physical, chemical and biological) associated with food products and processing.	exam	
FPP.02.03. Performance Indicator: Apply safety and sanitation procedures in the handling, processing and storing of food products.			Science: A2 and F5
	FPP.02.03.01.a. Explain techniques and procedures for the safe handling of food products.	exam	
	FPP.02.03.02.b. Perform quality-assurance tests on food products.	egg classes, further processed classes	
FPP.03.01. Performance Indicator: Apply principles of science to food processing to provide a safe, wholesome and nutritious food supply.			Science: A2, B3 and F1
	FPP.03.01.04.a. Discuss common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals).	exam	
FPP.04.01. Performance Indicator: Utilize harvesting, selection and inspection techniques to obtain quality food products for processing.			Science: F1 Language Arts: 12
	FPP.04.01.01.c. Assign quality and yield grades to food products according to industry standards.	grading classes	
	FPP.04.01.02.b. Perform quality-control inspections of raw food products for processing.	carcass classes, parts grading	
	FPP.04.01.03.a. Identify and describe accepted animal treatment and harvesting techniques.	exam	
	FPP.04.01.04.c. Conduct pre-mortem and post-mortem inspections of animals.	all placing classes, team activity	
FPP.04.02. Performance Indicator: Evaluate, grade and classify processed food products.			Science: F1 Language Arts: 8
	FPP.04.02.01.c. Evaluate, grade and classify processed meat, egg, poultry, fish and dairy products.	all classes	
FPP.04.03. Performance Indicator: Process, preserve, package and present food and food products for sale and distribution.			Math: 1C, 4A and 4B Science: F1
	FPP.04.03.02.c. Evaluate foods prepared for the fresh-food market based on factors such as shelf life, shrinkage, appearance and weight.	ready to cook classes, egg classes	
	FPP.04.03.04.c. Evaluate ready-to-eat food products.	further processed classes	
	FPP.04.03.06.a. Identify and explain storage conditions to preserve product quality.	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.
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
    6B. Solve problems that arise in mathematics in other contexts.
    6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

A. Content Standard: Science as an Inquiry
    A2. Design and conduct scientific investigations.
    A4. Formulate and revise scientific explanations and models using logic and evidence.
B. Content Standard: Physical Science
    B3. Chemical reactions.
C. Content Standard: Life Science
    C1. The cell.
    C2. Molecular basis of heredity.
    C3. Biological evolution.
    C4. Interdependence of organisms.
    C5. Matter, energy and organization in living systems.
    C6. Behavior of organisms.
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.
    F4. Environmental quality.
    F5. Natural and human-induced hazards.
    F6. Science and technology in local, national and global challenges.

G. Content Standard: History and Nature of Science
G3. Historical perspectives.

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.
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
   1g. construct reasoned judgments about specific cultural responses to persistent human issues;
2. Thematic Strand: Time, Continuity and Change
   2b. apply key concepts such as time, chronology, causality, change, conflict and complexity to explain, analyze and show connections among patterns of historical change and continuity;
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
   7f. compare how values and beliefs influence economic decisions in different societies;
   7g. compare basic economic systems according to how rules and procedures deal with demand, supply, prices, the role of government, banks, labor and labor unions, savings and investments and capital;
   7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issues;
   7d. describe relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions and corporations;
   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;
8. Thematic Strand: Science, Technology and Society
   8a. identify and describe both current and historical examples of the interaction and interdependence of science, technology and society in a variety of cultural settings;
   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;

8e. recognize and interpret varied perspectives about human societies and the physical world using scientific knowledge, ethical standards and technologies from diverse world cultures;

8f. formulate strategies and develop policies for influencing public discussions associated with technology-society issues, such as the greenhouse effect.

9. Thematic Strand: Global Connections

9d. analyze the causes, consequences, and possible solutions to persistent, contemporary and emerging global issues, such as health, security, resource allocation, economic development and environmental quality;