MEATS EVALUATION AND TECHNOLOGY

2017-2021

NATIONAL FFA
CAREER AND LEADERSHIP
DEVELOPMENT EVENTS

IMPORTANT NOTE

Please thoroughly read the introduction section located
on *FFA.org/cdeintro* for complete rules and procedures that are
relevant to all National FFA Career/Leadership Development Events.

Objectives

- Develop employment skills for students who are interested in exploring
  or pursuing career opportunities in the meat animal industry.

- Assist the local agricultural education instructor in motivating students
  to become knowledgeable consumers of meat animal products and/or
  involved in the industry of meat animal marketing and merchandising.

- Develop broader analytical skills, critical thinking strategies and an
  understanding of appropriate meat terminology for high school students.

- Develop the ability to evaluate meat animal products in order
  to optimize economic returns to producers and industry as well
  as to meet the needs of the consumer.

- Develop cooperation and communication skills.

Event Rules

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

Participants will report for instructions to the team orientation meeting at the time and place indicated in the current year's team orientation packet.

CLOTHING

Participants must come to the event prepared to work in a cold storage facility (approximately 0º C) for approximately three hours. Participants are required to wear protective clothing:

- Hard hats

- Clean, white frocks

- Hairnets

- Warm clothing and proper footwear (must be closed toed footwear)

- No jewelry or exposed body piercings or alterations

- No chewing of gum or candy

While official dress is not worn during the event, it is recommended for awards presentation activities.

All participants are expected to be prompt at their stations throughout the event; no provision will be made for tardiness and will cause late participants to lose event points.

No conversation will be allowed between participants after the individual activities begin. Conversation among participants constitutes disqualification.

Participants and official judges are to make their placing and identifications without handling the exhibit.

Two minutes stand back time on placing classes will be utilized when applicable.

Event Format

The event is comprised of the following activities:

- Individual activities consist of written exam, retail meat cuts identification, Beef Quality and Yield Grading, evaluation classes, ten questions (from two of the evaluation classes).

- Team activities consists of meat formulation problem solving, value based pricing, anatomy, keep/cull, retail identification scenario and/or food safety/sanitation scenario.

EQUIPMENT

- Each participant will be provided two No. 2 pencils, a clean clipboard and an electronic calculator.

- Participants must not bring any blank paper, notes, USDA Beef Grading worksheet, any electronic communication items, purses or backpacks. Blank paper, USDA Beef Grading worksheet sheets and scan forms will be provided by the committee.

INDIVIDUAL ACTIVITIES

BEEF QUALITY AND YIELD GRADING
Participants will quality grade and yield grade two to four beef carcasses (20 points per carcass).

40 POINTS (TWO CARCASSES)
60 POINTS (THREE CARCASSES)
80 POINTS (FOUR CARCASSES)

- **Quality Grading:** Participants may use the worksheet provided for Beef Grading. The participant should complete the section of answers for quality grading on the computerized scorecard. Ten points are awarded for each correct grade. Each will be scored for the applicable adjacent grade as follows: 10, 8, 5, 0. However, in the case of "B" Maturity, Select High and Select Low will be awarded zero points.

- **Yield Grading:** Participants may use the worksheet provided for Beef Grading. Participant is to calculate the final "Yield Grade" to the nearest one-tenth of a grade. Ten points are awarded for each correct grade. The participant should complete the section of answers for yield grading on the computerized scorecard.

Full points will be earned for 1/10th above or below official yield grade. A two point deduction will be made for 2/10th – 5/10th above or below official yield grade. A five point deduction for 6/10th – 9/10th above or below official yield grade. Zero points will be awarded for answers one yield grade above or below the official yield grade.

Official United States Department of Agriculture Yield Grades are 1.0 – 5.9.

SCORING EXAMPLE

Official Yield Grade (FYG Official) = 2.2

FYG 2.1- 2.3 = full points (10)

FYG 1.7 – 2.0 or 2.4-2.7 = minus 2 points

FYG 1.3 – 1.6 or 2.8 – 3.1 = minus 5 points

Zero points for any FYG a full yield grade above or below official FYG

EVALUATION CLASSES (200–400 POINTS)

Four to eight evaluation classes will be formatted as placing, keep/cull and/or value based pricing. Class exhibits and formats will be as follows:

- Carcasses (beef or pork)
  - Backfat Recommendations for Placing Unribbed Pork Carcasses
- Wholesale/subprimal cuts (beef, pork, lamb)
- Retail cuts (beef, pork, lamb)
- Processed meats (cured/smoked center ham slices, shank or rump portion of ham, boneless ham, sliced bacon, fresh pork sausage, smoked sausage)
  - Reference: Guidelines for placing processed meats

Placing class (50 points/class)

Class will be comprised of four exhibits that must be ranked first to last.

Keep/cull class (50 points/class)

Participants will be provided with a scenario that is an industry standard or situation. Participants will be given time to review the scenario and then time to evaluate the meat product and make a selection based on the provided information.

- Reference: Keep Cull Class Example

Value-based pricing (50 points/class)

Participants will place four exhibits (carcasses or wholesale cuts or subprimal cuts) based upon value (per hundred weight) derived from the pricing structure provided on the pricing sheet. The prices will reflect current market values. Pricing sheet will be provided to each participant.

- Reference: Value Based Pricing Class Example

QUESTION CLASSES (50 POINTS)

Two of the evaluation classes will be selected for questions. A total of ten questions will be asked covering both classes; typically five questions per class but it could vary if needed to make the best possible questions. Participants will be given a short time period to study their notes before answering questions after they have observed and placed the classes. Participants will not be able to use their notes when answering questions. Questions will be worth five points each.

Guidelines for Questions:

- All questions must be written in a manner that they can be answered by only one of the following responses: 1, 2, 3, 4

- Questions should pertain to the criteria and differences used in placing the class (Trimness, Muscling, Quality and/or Sex). Questions that do not relate to the placing of the class or are not significant to the overall evaluation are not desirable questions and should not be used if possible.

- When asking questions about the differences within a class, the differences must be visually distinguishable.

- A separate scan form will be used for questions during the event.

RETAIL MEAT CUTS IDENTIFICATION (210 POINTS)

Participants will identify 30 retail meats cuts found on the "Meats Identification Card." The official key (Retail Cuts Coding) is located at the end of this chapter of the hand-book. Only the cuts listed are eligible to be used in this event. Participants will be given one point for correct species identification, two point for correct primal cut identification, one point for correct cookery and three points for correct retail name. Answers will be recorded on a computerized scan form/sheet.

Clarification of Terms for Retail Identification

Chop: Smaller, flat cuts of meat, usually from the pork, veal
or lamb rib, loin or shoulder, generally ranging from ½" to 1½"
in thickness. A chop usually is of a size to be a single meal portion.

Slice: A section of meat, usually less than one inch thick, taken from
the center or either side of center of the leg of pork, lamb
or veal.

Steak: A flat cut of meat, larger than a chop, ranging from ¾"
to 1½" of thickness cut from various parts of a beef carcass,
or the shoulder of pork and veal. The size of a steak often
is sufficient to provide more than one portion.

Roast (Meat Cut): Cuts of meat larger than steaks, chops or
slices (usually two or more inches thick). This cut is intended
to serve more than two people.

WRITTEN EXAM (100 POINTS)

Each participant will be given a 50 question written exam relating
to meat storage and handling, cookery, nutrition, food safety (HACCP
principles, bio-security and personal safety), processed meats,
legislation and history, purchasing meat and animal care and handling.
Questions could include multiple choice, true/false or situation based
questions. Value per question will be based on question type.

• See references for written exam resource material.

TEAM ACTIVITIES

Each team will be required to complete four problems from the list provided below. Any given area below may be used more than once in any given year. Both product and process will be scored for a total of 220 points.

The committee will have the latitude to select the most appropriate activities each year in regards to the product available.

- Meat Formulation and/or Quality Control Problem Solving

  The following criteria are standards for meat formulation in the industry:

  - **Freezing:** Freezing of red meat is considered 28° F and below

  - **Freshness:** Start counting from the date of processing (zero hour) back toward slaughter date. For example, processing Oct. 26 with a 72 hour freshness specification means Oct. 25, 24 and 23 are good dates; Oct. 22 or earlier are unacceptable dates

- Utilizing product, photos or diagrams participants will be asked to identify the following from selected locations on the exhibit

  - Major Muscle groups

  - Major bones

  - Utilizing Retail Identification cuts, the participants will work as a team to solve a meats problem. A scenario will be provided which will allow participants to apply meats concepts to all of cuts from the Meat Identification list

  - Utilizing keep/cull class(es), the participants will work as a team to appraise a class of retail cuts

  - Value Based Pricing scenario (Beef, Pork, and/or Lamb)

- Food safety (HACCP principles, sanitation, safe handling, preparation, cookery and standard operating procedures)

Scoring

The event will be divided in the following sections and scored as follows:

Individual Activities	Possible Maximum Points
Written exam	100
Retail meat cuts identification (30 cuts)	210
Beef quality and yield grading (2 or 4 carcasses)	40–80
Evaluation of 4-8 classes	200–400
Ten questions (from two of the evaluation classes)	50
Total possible points per individual	600–840
Team activity	220
Total maximum points possible per team	2,020–2,740

TIEBREAKERS

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

INDIVIDUAL

1. Identification retail meat cuts

2. Grading

3. Class questions

TEAM

1. Team activity score

2. Retail Identification total of the team

3. Grading total of the team

4. Class questions total of the team

Awards

*Awards will be presented at the awards ceremony to teams as well
as individuals based upon their rankings.*

Awards are sponsored by a cooperating industry sponsor(s) as a special
project, and/or by the general fund of the National FFA Foundation.

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 – *www.shop.FFA.org*
    - Retail Meat Instructional Materials/Instructor Combo Pack
    - Retail Meat Team Combo Pack
    - Retail Meats Field Guide
    - Retail Meats Flash Cards
    - Meat Identification Tutorial CD-ROM
    - Meat Buyer's Guide
    - NAMP Meat Posters
    - Beef, Lamb, Pork and Veal Cut Charts
    - Meats Evaluation Scan Forms
    - FFA Learn-National FFA CDE Q&A's *www.FFA.org*
- CEV Multimedia, 1020 SE Loop 289, Lubbock, TX 79404, (800) 922-9965
    - Retail Cuts Identification (DVD)
    - Meat Science and Food Safety (DVD) - written exam resource
- Beef Myology - *http://bovine.unl.edu*
- National Cattlemen's Beef Association, 9110 E. Nichols Ave. #300, Centennial, CO 80112, (303) 694-0305/1-800-368-3138
    - USDA Marbling Photographs
    - Guide to Identifying Meat Cuts
    - *https://store.beef.org/*

- American Meat Science Association (AMSA), 2441 Village Green Place, Champaign, Illinois 61874, (800) 517-2672

  - *http://www.meatscience.org/students/meat-judging-program*

  - Email: information@meatscience.org

  - USDA Marbling Photographs

  - Meat Evaluation Handbook

- Art Services, Inc., 3015 Earl Place, N.E., Washington, D.C., 20018, (202) 526-5607

  - Beef Ribeye Grids

- NASCO, 901 Janesville Avenue, P.O. Box 901, Fort Atkinson, WI 53538-0901, 1-800-558-9595

  - Preliminary Yield Grade Rulers (*http://www.enasco.com/ product/C02615N*)

  - Beef and Pork Ribeye Grids

- Example Meats Evaluation Websites of Classes and Materials

  - *http://aggiemeat.tamu.edu/meat-identification-pictures*

  - *http://animalscience.unl.edu/ ANSCExentensionMeatScienceLearningAids*

TEAM PRACTICUM EXAMPLES

TEAM PRACTICUM EXAMPLE #1 (50 POINTS)

Utilizing carcass, primal or subprimal exhibit, participants will be asked to identify the following from selected locations on the exhibit:

Major muscle groups:

- Longissimus dorsi

- Infraspinatus

- Spinalis dorsi

- Psoas major

- luteus medius

- Biceps femoris

- Semitendinosus

- Semimembranosus

Major bones:

- Scapula

- Humerus

- Femur

- Thoracic vertebrae

- Lumbar vertebrae

Example Scenario:

Specific areas on one or more carcasses or wholesale/subprimal cuts or retail cuts will be identified. Based on the identified areas, participants will confer with team members to answer the following items.

1. Find the area on the carcass marked "A". Which of the following muscles can be found within this area of the carcass?

    a. Biceps femoris

    b. Longissimus dorsi

    c. Semimembranosus

    d. Semitendinosus

2. On the Porterhouse steak at station #1, name the muscle
   identified by the tag "A":

   a. Spinalis dorsi

   b. Gluteus medius

   c. Semitendinosus

   d. Psoas major

3. On the Chuck Roast at station #2, name the bone
   specified by tag "B":

   a. Femur

   b. Lumbar vertebrae

   c. Scapula

   d. Humerus

TEAM PRACTICUM EXAMPLE #2 (50 POINTS)

Utilizing the Retail Identification cuts provided, the participants will work as a team to solve a meats problem. A scenario will be provided which will allow participants to apply meats concepts from present cuts.

Example of possible questions: 2–10 questions

The Retail Identification cuts utilized in the CDE represent the product you have available in your present meats operation. With this in mind, communicate with your teammates to fill the following orders.

- The organizer of a family reunion is planning the annual event. The family wants a low-cost beef cut that can be cooked, shredded and smothered in BBQ sauce. Which cut is most appropriate?

  a. Retail Cut #9

  b. Retail Cut #12

  c. Retail Cut #23

  d. Retail Cut #29

TEAM PRACTICUM EXAMPLE #3 (50 POINTS)

Utilizing keep/cull class(es), the participants will work as a team to appraise a class of subprimal or retail cuts. A scenario will be provided which will allow participants to make conclusions. Team members will identify the four exhibits to keep and mark it appropriately on a computerized scorecard form to fit the scenario given to them by the officials.

Example Scenario:

As a consumer, you arrive at a supermarket meat counter with the objective of selecting ribeye steaks for a social gathering being hosted at your house. The guests include your immediate supervisor from work and her husband. Consequently, you wish to select the steaks that are most juicy, flavorful and tender. Refer to the Keep/Cull section from Individual Activities for further instructions.

TEAM PRACTICUM EXAMPLE #4 (50 POINTS)

Value Based Pricing Class (Beef, Pork or Lamb)

Example Scenario:

As a team you will review a Grid Pricing Sheet given by the officials. Team members are to evaluate, communicate and reach a conclusion on the correct placing of the class based on the value of the carcasses or wholesale/primal cuts. Refer to the Value Based Pricing Class section from individual activities for more information.

Individual and Team Activity Examples

WRITTEN TEST EXAMPLES

Sample Questions:

- What is the maximum amount of fat that ground beef may contain?

    *A.   30%

    B.   10%

    C.   40%

    D.   20%

- What is the least desirable method of thawing frozen meat?

    *A.   Defrosting at room temperature

    B.   Defrosting in refrigerator

    C.   Defrosting in a microwave

    D.   Cooking from frozen state

Correct answer

MEAT FORMULATION PROBLEM SOLVING

Participants will be given a situational problem involving the least cost formulation of a batch of particular meat products (hamburger, wiener, bologna, etc.,). This problem will be worth 50 points and consist of procedural questions and the actual determination of the least cost price.

- **Freezing:** Freezing of red meat is considered 28°F and below.

- **Freshness:** Start counting from the date of processing (zero hour) back toward slaughter date. For example, processing on Oct. 26 with a 72-hour freshness specification means Oct. 25, 24 and 23 are good dates; Oct. 22 or earlier are unacceptable dates.

Meat Formulation Problem Solving

USDA Food Standards and Labeling Policy for Ground Beef:

- May not contain added fat.

- Maximum total fat 30 percent.

- Cheek meat is permitted up to 25 percent and must be declared in the ingredients statement. For more than 25 percent, show as "Ground Beef and Cheek Meat," all the same size. Beef of skeletal origin, or from the diaphragm or esophagus (weasand) may be used in the preparation of chopped beef, ground beef or hamburger. Heart meat and tongue meat as organ meats are not acceptable ingredients in chopped beef, ground beef or hamburger.

Specifications on ground beef for this activity:

- No variety meats may be used.

- No product more than five days old may be used.

- All fresh products must be stored at a temperature not to exceed 34° F.

- Least cost determined should be performed on acceptable ingredients to select the lowest cost product that meets all ground beef guidelines.

You have received an order with the following specifications:

- Desired fat content of finished product = 20%

- Batch size = 5,000 lbs.

- Manufacture date = Wednesday, October 20, 2016

AVAILABLE INGREDIENTS

PRODUCT	Slaughter Date	Temp. °F	% Fat Content	$ Price/ lb.
Beef Heart	October 15	33°	4	.41
80% Trimmings	October 16	35°	20	1.40
75% Trimmings	October 17	34°	25	1.28
Beef Flank	October 14	33°	2	.91
Chuck Tender	October 17	33°	16	1.58
Pork Trimmings	October 18	34°	15	.86
Ribeye Roll	October 18	34°	12	2.12
Bull Product	October 16	34°	8	1.74

Instructions: Carefully read each item and possible answers. Mark the correct answer on the appropriate form. Completely fill the chosen oval to indicate your answer.

Solution: Which of the following was the correct formulation for this problem?

1. 75% Trimmings and Beef Heart

2. **75% Trimming and Bull Product**

3. 75% Trimming and Chuck Tender

4. 75% Trimming and Ribeye Roll

5. 80% Trimmings and Beef Heart

6. 80% Trimmings and Bull Product

7. 80% Trimmings and Chuck Tender

8. Beef Heart and Beef Flank

9. Chuck Tender and Bull Product

10. The correct solution is not listed

1. What was the total cost of the correct final batch?

    A. $2,523

    B. $4,544

    C. $5,356

    D. $7,067

    E. $7,240

2. What was the price per pound of the correct final batch?

    A. $1.28

    B. $1.41

    C. $1.45

    D. $1.74

    E. $7.67

3. What was the percentage of lean in the correct final batch?

    A.   17%

    B.   20%

    C.   29%

    D.   71%

    E.   80%

4. What percentage of the correct final batch was Chuck Tender?

    A.   0%

    B.   16%

    C.   29%

    D.   56%

    E.   71%

5. How much Bull Product was in the correct final batch?

    A.   0 lbs.

    B.   1,450 lbs.

    C.   2,523 lbs.

    D.   3,550 lbs.

    E.   4,544 lbs.

6. Which ingredient was excluded on the basis of temperature?

    A.   80% Trimmings

    B.   Beef Flank

    C.   Beef Hearts

    D.   Bull Product

    E.   Pork Trimmings

7. How much fat was in the correct final batch?

    A.   0 lbs.

    B.   1,000 lbs.

    C.   2,000 lbs.

    D.   4,000 lbs.

    E.   5,000 lbs.

8. What percentage of the correct final batch was from 75% Trimmings?

    A.   0%

    B.   29%

    C.   71%

    D.   75%

    E.   100%

Calculations for Formulation Problem

Batch size = 5,000 Lbs.									
	Ingredient Name	Price/Lb.	Fat content	Desired fat%	Multiples	Proportion of batch	Lbs. of batch		Cost
Ingredient with most fat =	75% Trimmings	$1.28	25%	20%	4	0.44	2,200	Lbs.	$2,216
Ingredient with least fat =	Chuck Tender	$1.58	16%		5	0.56	2,800	Lbs.	$4,424
				Sum=	9		Total cost of batch =		$7,240
							Price per pound =		$1.45
Possible questions:	Amount of fat=	1,000	Lbs.						
	Amount of lean=	4,000	Lbs.						
	Percentage of fat =	20	%						
	Percentage of lean =	80	%						

Batch size = 5,000 Lbs									
	Ingredient Name	Price/Lb.	Fat content	Desired fat%	Multiples	Proportion of batch	Lbs. of batch		Cost
Ingredient with most fat =	75% trimmings	$1.28	25%	20%	8	0.62	3,100	Lbs.	$3,968
Ingredient with least fat =	Ribeye Roll	$2.12	12%		5	0.38	1,900	Lbs.	$4,028
				Sum=	13		Total cost of batch =		$7,996
							Price per pound =		$1.60
Possible questions:	Amount of fat=	1,000	Lbs.						
	Amount of lean=	4,000	Lbs.						
	Percentage of fat =	20	%						
	Percentage of lean =	80	%						

Calculations for Formulation Problemcontinued

Batch size =									
	Ingredient Name	Price/Lb.	Fat content	Desired fat%	Multiples	Proportion of batch	Lbs. of batch		Cost
Ingredient with most fat =	75% Trimmings	$1.28	25%	20%	12	0.17	3550	Lbs.	$4,544
Ingredient with least fat =	Bull product	$1.74	8%		5	0.29	1,450	Lbs.	$2,523
				Sum=	17		**Total cost of batch =**		**$7,067**
							Price per pound =		**$1.41**
Possible questions:	Amount of fat=	1,000	Lbs.						
	Amount of lean=	4,000	Lbs.						
	Percentage of fat =	20	%						
	Percentage of lean =	80	%						

National Pork Board Backfat Recommendation

NOTE: Policy Statement-Backfat Recommendations for Placing Unribbed Pork Carcass Classes — The National Pork Board has published live and carcass specifications for the "ideal" market hog, known as Symbol III (National Pork Board, 2005).

Pork carcasses with less than 0.60 inches backfat have a higher incidence of bellies which are too thin for high quality bacon production and also tend to have unacceptably low marbling levels and less palatable pork. If this situation is presented in competition, students would be expected to evaluate the given carcass or carcasses against contemporaries within the class and rank accordingly.

KEEP CULL EXAMPLE

Select the four ribeye steaks to be sold to a high value "white table cloth" restaurant that advertises superior quality.

Scoring: Four meat products to be kept will have an aggregate score of 50 points.

CORRECT SELECTION	*					*	*	*
Exhibit Item	a	b	c	d	e	f	g	h
Points Possible	12	8	5	5	4	18	11	9

*The four correct selections will add up to 50 points. The culled items will have a lesser value than the fourth place item kept.

Value Based Pricing Example

Participants will place or keep/cull (scenario will be provided) four exhibits (carcasses or wholesale cuts) based upon value (per hundred weight) derived from the pricing structure provided on the pricing sheet. The prices will reflect current market values. Pricing sheet will be provided to each participant.

Carcasses exhibiting dairy type are ineligible for Yield Grade 1 or 2 premiums. Carcasses classified as Hardbone will exhibit C, D or E skeletal maturity and should be yield graded only. Carcasses with blood splash or Dark Cutter are ineligible for quality grading and should be yield graded only. A bruise is classified as an area located on the carcass where excess trimming has been performed and a major portion of the major muscle groups in the chuck, rib, loin or round has been removed.

A SAMPLE BEEF CARCASS PRICING SHEET (TRAINING AID)

Values in parentheses are discounts and should be subtracted from the Carcass Base Price, which is established based on the exhibits USDA Quality and Yield Grade. Prices on the Grid Pricing Sheet may change from year to year.

Example Class:

Carcass #1: Carcass Weight = 758 pounds

Quality Grade = Choice –

Yield Grade = 2.5

Base Value = $125.00

No Discounts

Carcass Value = $125.00

Carcass #2: Carcass Weight = 976 pounds

Quality Grade = Choice +/o

Yield Grade = 3.9

Base Value = $127.00

Weight Discounts = minus $4.00

Carcass Value = $123.00

Carcass #3: Carcass Weight = 758 pounds

Quality Grade = Choice +/o

Yield Grade = 3.2

Base Value = $127.00

Dairy Discounts = minus $5.00

Carcass Value = 122.00

Carcass #4: Carcass Weight = 843 pounds

Quality Grade = Ineligible due to being a Dark Cutter

Yield Grade = 3.5

Base Value = $92.00

Bruise on Left Side Loins extending into the Longissimus dorsi muscle = minus $10.00

Carcass Value = $82.00

Final Placing: 1 – 2 – 3 - 4

Pricing Sheet Example

Prices based on the USDA Beef Carcass Price Equivalent Index and the USDA National Carcass Premiums and Discounts

BASE PRICE ($/CWT.)

	Prime	Choice +/o	Choice -	Select	Standard	Hardbone	Dark Cutter/ Blood splash
YG 1	$136	$130	$126	$119	$110	$96	$92
YG 2	$134	$128	$125	$117	$108	$96	$92
YG 3	$133	$127	$123	$116	$107	$96	$92
YG 4	$121	$115	$112	$104	$95	$84	$81
YG 5	$113	$108	$104	$97	$87	$77	$73

DISCOUNTS ($/CWT.)

Carcass Weight			
<500	($27)	Dairy Type *	($5)
500 to 549	($16)	Bruise	($10) per side **
550 to 599	($4)		
900 to 949	($2)		
950 to 999	($4)		
1000 and up	($19)		

Notes

*Carcasses exhibiting dairy type are ineligible for YG1 and YG2 premiums

**Maximum discount of $20 per carcass for bruising

Examples of Questions
For Evaluation Classes

Sample Acceptable Questions:

- Which beef carcass had the largest ribeye?

- Which pork carcass had the least backfat opposite the last rib?

- Which ribeye steak exhibited the brightest colored lean?

- Which ham was trimmest beneath the butt face?

- Which beef rib exhibited the most marbling in the blade face?

Sample Unacceptable Questions:

- Which pork carcass had a missing foot?

- Which beef carcass displayed indications of a bruise?

- Which ribeye steak was bigger?

**NATIONAL FFA
CAREER AND LEADERSHIP
DEVELOPMENT EVENTS**

Retail Cuts Code Sheet with Cookery

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
B	B	89	M	Beef	Brisket	Corned	Moist
B	B	15	M	Beef	Brisket	Flat Half, Bnls	Moist
B	B	10	M	Beef	Brisket	Whole, Bnls	Moist
B	C	26	M	Beef	Chuck	7-bone Pot-roast	Moist
B	C	03	M	Beef	Chuck	Arm Pot-Roast	Moist
B	C	04	M	Beef	Chuck	Arm Pot-Roast, Bnls	Moist
B	C	06	M	Beef	Chuck	Blade Roast	Moist
B	C	13	D/M	Beef	Chuck	Eye Roast, Bnls	Dry/Moist
B	C	45	D	Beef	Chuck	Eye steak, Bnls	Dry
B	C	20	M	Beef	Chuck	Mock Tender Roast	Moist
B	C	48	M	Beef	Chuck	Mock Tender Steak	Moist
B	C	21	D	Beef	Chuck	Petite Tender	Dry
B	C	29	D/M	Beef	Chuck	Shoulder Pot Roast (Bnls)	Dry/Moist
B	C	58	D	Beef	Chuck	Top Blade Steak (Flat Iron)	Dry
B	D	47	D/M	Beef	Flank	Flank Steak	Dry/Moist
B	F	49	D	Beef	Loin	Porter House Steak	Dry
B	F	55	D	Beef	Loin	T-bone Steak	Dry
B	F	34	D	Beef	Loin	Tenderloin Roast	Dry
B	F	56	D	Beef	Loin	Tenderloin Steak	Dry
B	F	59	D	Beef	Loin	Top Loin Steak	Dry
B	F	60	D	Beef	Loin	Top Loin Steak, Bnls	Dry
B	F	64	D	Beef	Loin	Top Sirloin Cap Steak, Bnls	Dry
B	F	63	D	Beef	Loin	Top Sirloin Steak, Bnls Cap Off	Dry
B	F	62	D	Beef	Loin	Top Sirloin Steak, Bnls	Dry
B	F	40	D	Beef	Loin	Tri Tip Roast	Dry
B	G	28	M	Beef	Plate	Short Ribs	Moist
B	G	54	D/M	Beef	Plate	Skirt steak, Bnls	D/M
B	H	22	D	Beef	Rib	Rib Roast	Dry
B	H	13	D	Beef	Rib	Ribeye Roast, Bnls	Dry
B	H	45	D	Beef	Rib	Ribeye Steak, Bnls	Dry
B	H	50	D	Beef	Rib	Ribeye Steak, Lip-On	Dry
B	I	08	D/M	Beef	Round	Bottom Round Roast	Dry/Moist
B	I	09	D/M	Beef	Round	Bottom Round Rump Roast	Dry/Moist
B	I	43	M	Beef	Round	Bottom Round Steak	Moist
B	I	14	D/M	Beef	Round	Eye Round Roast	Dry/Moist
B	I	46	D/M	Beef	Round	Eye Round Steak	Dry/Moist
B	I	51	M	Beef	Round	Round Steak	Moist

Retail Cuts Code Sheet with Cookery continued

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
B	I	52	M	Beef	Round	Round Steak, Bnls	Moist
B	I	36	D/M	Beef	Round	Tip Roast – Cap Off	Dry/Moist
B	I	57	D	Beef	Round	Tip Steak – Cap Off	Dry
B	I	39	D	Beef	Round	Top Round Roast	Dry
B	I	61	D	Beef	Round	Top Round Steak	Dry
B	N	82	M	Beef	Various	Beef for Stew	Moist
B	N	83	D/M	Beef	Various	Cubed Steak	Dry/Moist
B	N	84	D	Beef	Various	Ground Beef	Dry
P	E	44	D/M	Pork	Ham/Leg	Pork Fresh Ham Center Slice	Dry/Moist
P	E	25	D/M	Pork	Ham/Leg	Pork Fresh ham Rump Portion	Dry/Moist
P	E	27	D/M	Pork	Ham/Leg	Pork Fresh ham Shank Portion	Dry/Moist
P	E	91	D	Pork	Ham/Leg	Smoked Ham, Bnls	Dry
P	E	90	D	Pork	Ham/Leg	Smoked Ham, Center Slice	Dry
P	E	96	D	Pork	Ham/Leg	Smoked Ham, Rump Portion	Dry
P	E	97	D	Pork	Ham/Leg	Smoked Ham, Shank Portion	Dry
P	E	32	D	Pork	Ham/Leg	Tip Roast, Bnls	Dry
P	E	38	D	Pork	Ham/Leg	Top Roast, Bnls	Dry
P	F	05	D/M	Pork	Loin	Back Ribs	Dry/Moist
P	F	66	D/M	Pork	Loin	Blade Chops	Dry/Moist
P	F	67	D/M	Pork	Loin	Blade Chops, Bnls	Dry/Moist
P	F	06	D/M	Pork	Loin	Blade Roast	Dry/Moist
P	F	68	D	Pork	Loin	Butterflied Chops Bnls	Dry
P	F	11	D	Pork	Loin	Center Loin Roast	Dry
P	F	12	D	Pork	Loin	Center Rib Roast	Dry
P	F	70	D	Pork	Loin	Loin Chops	Dry
P	F	71	D	Pork	Loin	Rib Chops	Dry
P	F	73	D	Pork	Loin	Sirloin Chops	Dry
P	F	53	D	Pork	Loin	Sirloin Cutlets	Dry
P	F	30	D	Pork	Loin	Sirloin Roast	Dry
P	F	93	D	Pork	Loin	Smoked Pork Loin Chop	Dry
P	F	95	D	Pork	Loin	Smoked Pork Loin Rib Chop	Dry
P	F	34	D	Pork	Loin	Tenderloin, Whole	Dry
P	F	74	D	Pork	Loin	Top Loin Chops	Dry
P	F	75	D	Pork	Loin	Top Loin Chops, Bnls	Dry
P	F	37	D	Pork	Loin	Top Loin Roast, Bnls	Dry
P	J	02	D/M	Pork	Shoulder	Arm Picnic, Whole	Dry/Moist
P	J	03	D/M	Pork	Shoulder	Arm Roast	Dry/Moist
P	J	41	D/M	Pork	Shoulder	Arm Steak	Dry/Moist
P	J	07	D/M	Pork	Shoulder	Blade Boston Roast	Dry/Moist
P	J	42	D/M	Pork	Shoulder	Blade Steak	Dry/Moist
P	J	94	D/M	Pork	Shoulder	Smoked Picnic, Whole	Dry/Moist
P	K	98	D	Pork	Side	Slab Bacon	Dry
P	K	99	D	Pork	Side	Sliced Bacon	Dry

Retail Cuts Code Sheet with Cookerycontinued

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
P	K	17	M	Pork	Side/Belly	Fresh Side	Moist
P	L	32	D/M	Pork	Spareribs	Pork Spareribs	Dry/Moist
P	N	85	D	Pork	Various	Ground Pork	Dry
P	N	86	M	Pork	Various	Hock	Moist
P	N	83	D/M	Pork	Various	Pork Cubed steak	Dry/Moist
P	N	87	D	Pork	Various	Pork Sausage Links	Dry
P	N	87	D	Pork	Various	Sausage	Dry
P	N	92	M	Pork	Various	Smoked Pork Hock	Moist
P	N	69	D/M	Pork	Various	Country Style Ribs	Dry/Moist
L	A	24	D/M	Lamb	Breast	Ribs (Denver Style)	Dry/Moist
L	E	01	D	Lamb	Leg	American Style Roast	Dry
L	E	44	D	Lamb	Leg	Center Slice	Dry
L	E	16	D	Lamb	Leg	Frenched Style Roast	Dry
L	E	18	D	Lamb	Leg	Leg Roast, Bnls	Dry
L	E	73	D	Lamb	Leg	Sirloin Chops	Dry
L	E	31	D	Lamb	Leg	Sirloin Half	Dry
L	E	70	D	Lamb	Loin	Loin Chops	Dry
L	E	19	D	Lamb	Loin	Loin Roast	Dry
L	H	71	D	Lamb	Rib	Rib Chops	Dry
L	H	72	D	Lamb	Rib	Rib Chops Frenched	Dry
L	H	22	D	Lamb	Rib	Rib Roast	Dry
L	H	23	D	Lamb	Rib	Rib Roast, Frenched	Dry
L	J	65	D/M	Lamb	Shoulder	Arm Chops	Dry/Moist
L	J	66	D/M	Lamb	Shoulder	Blade Chops	Dry/Moist
L	J	33	D/M	Lamb	Shoulder	Square Cut	Dry/Moist
L	N	88	M	Lamb	Various	Shank	Moist
B	M	76	D/M	Beef	Variety	Heart	Dry/Moist
L	M	76	D/M	Lamb	Variety	Heart	Dry/Moist
P	M	76	D/M	Pork	Variety	Heart	Dry/Moist
B	M	77	D/M	Beef	Variety	Kidney	Dry/Moist
L	M	77	D/M	Lamb	Variety	Kidney	Dry/Moist
P	M	77	D/M	Pork	Variety	Kidney	Dry/Moist
B	M	78	D/M	Beef	Variety	Liver	Dry/Moist
L	M	78	D/M	Lamb	Variety	Liver	Dry/Moist
P	M	78	D/M	Pork	Variety	Liver	Dry/Moist
B	M	79	M	Beef	Variety	Oxtail	Moist
B	M	80	D/M	Beef	Variety	Tongue	Dry/Moist
L	M	80	D/M	Lamb	Variety	Tongue	Dry/Moist
P	M	80	D/M	Pork	Variety	Tongue	Dry/Moist
B	M	81	M	Beef	Variety	Tripe	Moist

NATIONAL FFA
CAREER AND LEADERSHIP
DEVELOPMENT EVENTS

USDA BEEF GRADING WORKSHEET

CARCASS YIELD GRADING

CARCASS NO.	PYG		Carcass Weight	Required REA	Rib Eye Area		% KPH		FYG
	Est.	Adj.			Est.	Adj.	Est.	Adj.	
1									
2									
3									
4									

Identify the final yield grade (to the nearest tenth) and complete the scan form correspondingly. Full points will be earned for a correct answer and 1/10th above or below official yield grade. A two point deduction will be made for 2/10th – 5/10th above or below official yield grade. A four point deduction for 6/10th – 9/10th above or below official yield grade. Zero points will be awarded for answers one yield grade above or below the official yield grade. Perfect score will be a maximum of forty points for each yield grading (ten points for four carcasses).

CARCASS QUALITY GRADING

CARCASS NO.	Age		Marbling	Quality Grade
	Skeletal Maturity	Lean Adj.		
1				
2				
3				
4				

- Prime High
- Prime Average
- Prime Low
- Choice High
- Choice Average
- Choice Low
- Select High
- Select Low
- Standard High
- Standard Low
- Commercial High
- Commercial Average
- Commercial Low
- Utility High
- Utility Average
- Utility Low

The participant should establish the quality grades for each carcass according to USDA standards. Each participant should complete the section of answers for quality grading on the computerized scorecard.

Canner and Cutter grades will not be used in the event. Ten points are awarded for each correct grade. Each will be scored for the applicable adjacent grade as follows: 10, 8, 5, 0. Yet, in the case of "B" Maturity; Select High and Select Low will be awarded zero points. Perfect score will be a maximum of forty points for quality grading (10 points each for four carcasses).

Processed Meat Class Guidelines: Specifications for Evaluating Slice Bacon

DESCRIPTION:

The term "bacon" is used to describe the cured belly of a swine carcass. Sliced bacon describes slices of cured pork belly that are normally found in 12 oz. or larger vacuum packages in retail stores. The product entry should be judged as an entire package and the bacon slices should be uniform in length and shape. Firm, dry (but not overly dry) slices are desirable, while wet, oily slices are not desirable. The presence of purge or exudate (water in the package or excess on the product's surface) suggests that the bacon slices were generated from a lower quality belly.

EVALUATION:

Sliced bacon should be evaluated by the following criteria:

- **Fat-to-lean ratio:** The ideal fat-to-lean ratio of sliced bacon is approximately 50-55% lean and 45-50% fat. This is determined by averaging the fat vs. lean of several slices.

- **Lean and fat color:** The color of the lean portion of the bacon slices should be a desirable reddish-pink, cured color. The color should also be uniform among all muscles within each bacon slice, as well as among all of the bacon slices. A bright white fat is also desirable.

- **Physical defects:** Any signs of visual oiliness/greasiness should downgrade the bacon slices exhibit. Also, lean/fat separation, tiger-striping (light colored vertical stripes observed perpendicular to the direction of the lean and fat), and shattering/cracking of fat is also considered a defect. Finally, bacon slices should be uniform in conformation. Rectangular shaped slices devoid of "v" or valley shaped regions are non-desirable.

Processed Meat Class Guidelines: Specifications for Evaluating Frankfurters/Smoked Sausage

DESCRIPTION:

Frankfurters (Coarse Ground & Emulsified) and Small Diameter Smoked and Cooked Sausages are generally smoked, and the external appearance should be a golden, mahogany color.

The product entry should be judged as a whole, and links should be consistent in length and diameter. For natural and collagen casing products, the ends should not be excessively trimmed and/or there should not be excessive casing twists at the ends of the sausage. Smoke streaks and spots should be downgraded. The internal appearance is evaluated by cutting a link in half lengthwise to expose the interior of the sausage. Internal attributes should include a deep, reddish-pink, cured color with uniform particle size and ingredient distribution.

EVALUATION:

Frankfurters and Small Diameter Smoked and Cooked Sausages should be evaluated by the following criteria:

- **External appearance:** The external appearance should be desirable. A golden, mahogany color should exist. The color should be uniform throughout each and all of the links. The links should be very uniform in shape and size (including diameter). If spices (such as a black pepper) or non-meat ingredients (e.g., cheese) are present on the surface, they should be uniformly dispersed throughout. Any noticeable defects (e.g. greasiness, pin holes, wrinkles, touch-marks, etc.) should downgrade the exhibit.

- **Internal appearance:** The internal appearance should be desirable. For beef and/or pork sausages, a deep, reddish-pink cured color should exist. For poultry sausages, a light reddish-pink color is

desired. The texture of the sausage should not be too dry or too wet. Too much connective tissue should be downgrade the exhibit. The lean and fat particle size should be uniform throughout the sausage. If spices/non-meat ingredients are visually present, they should be uniform in size and uniformly distributed throughout the sausage. Any air pockets, voids, unidentified objects (such as hard cartilage or bone) should downgrade the exhibit.

Processed Meat Class Guidelines: Specifications for Evaluating Center-cut Ham Slices

DESCRIPTION:

Bone-in, center-cut ham slices are removed from the center section of bone-in hams. The cured and smoked center ham slice should be free of skin, bruises, blood clots and lymph glands. Ham slices should be approximately round and exhibit a cured and smoked appearance. The lean meat should possess a fine, smooth texture with a uniform and bright, reddish-pink color (a slightly two toned or iridescent color is permissible). Excessive under-trimming or over-trimming of the ham slice for any reason is not desirable.

EVALUATION:

Bone-in, center-cut ham slices should be evaluated by the following criteria:

- **Cutability:** Ham slices with a great area of exposed lean, little external/internal fat, and a small amount of bone are desirable. For a smoked, cured ham, the center slice should display acceptable muscling as evaluated by the depth and width of the cushion and forecushion areas. Subcutaneous fat and intermuscular fat ("fat pockets") should not be excessive. No more than 1/8 in. of subcutaneous fat should be present. The size of the bone should be included in the evaluation, as a larger bone is less desirable.

- **Color:** A uniform dark, reddish-pink cured color should be observed on all muscle surfaces. This cured color should be uniform throughout the entire ham slice with as little color variation between muscles as possible.

- **Physical defects:** "Blood splashing" (specks or spots of blood), uncured spots, "two toning," or "greening" should not be present on the exposed cut surface. The texture of the exposed cut surface

should be smooth and fine. Coarse texture may be the result of using meat of carcasses from mature animals or from inadequate cooking. The cut surface should be firm and non-exudative with no separation of muscle groups. The pickle pocket should be as small as possible with the least amount of sinewy appearance.

Market Pricing Information
Based on Current Market Quotations and Conditions

PORK CARCASSES/WHOLESALE PRICING

As a team students will evaluate each pork carcass or center cut loin and calculate the percent Fat Free Lean Index (FFLI), using the Fat Free Lean Index (FFLI) formula; Pounds of Fat Free Lean = 8.5876 - (21.8957 x 10th rib fat thickness) + (3.0047 X loin eye area) + (.4650 x hot carcass weight); Percentage Fat Free Lean = (Pounds of Fat Free Lean/ hot carcass weight) x 100. Students will use pricing structure provided on the pricing sheet to establish a final carcass/wholesale value and answer questions or rank exhibits on value from highest to lowest. (**NOTE:** When center-cut loins are used, estimated hot carcass weight will be provided.)

1. **THE BASE WHOLESALE PRICE FOR PORK CARCASSES = $68.00/CWT.**

   Use the Lean Value Table for adjustments to the base wholesale price. (The values within this table are percentages of the base wholesale pork carcass price listed above. They are determined by % muscle and warm carcass weight.)

% Muscle in Carcass

Hot Carc. Weight	58.0 +	56.0 57.9	54.0 55.9	52.0- 53.9	50.0- 51.9	48.0- 49.9	46.0- 47.9	44.0- 45.9	<44.0
<149	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	68.0%	68.0%	65.0%
150-159	93.0%	95.0%	100.0%	97.0%	94.0%	94.0%	92.0%	89.0%	82.0%
160-169	97.0%	100.0%	100.0%	100.0%	98.0%	97.0%	97.0%	90.0%	83.0%
170-179	100.0%	102.0%	102.0%	100.0%	100.0%	100.0%	98.0%	91.0%	84.0%
180-189	100.0%	102.0%	104.0%	102.0%	100.0%	100.0%	98.0%	91.0%	84.0%
190-199	102.0%	104.0%	104.0%	104.0%	102.0%	100.0%	98.0%	91.0%	84.0%
200-209	102.0%	104.0%	106.0%	106.0%	104.0%	102.0%	98.0%	91.0%	84.0%
210-219	102.0%	106.0%	106.0%	106.0%	104.0%	102.0%	98.0%	90.0%	83.0%
220-229	102.0%	104.0%	104.0%	104.0%	102.0%	100.0%	95.0%	88.0%	81.0%
230-239	100.0%	102.0%	102.0%	102.0%	100.0%	98.0%	92.0%	85.0%	78.0%
240-250	95.0%	100.0%	100.0%	98.0%	96.0%	93.0%	88.0%	81.0%	74.0%
>250	95.0%	95.0%	94.0%	92.0%	90.0%	88.0%	83.0%	76.0%	69.0%

2. **CALCULATE AN INDIVIDUAL PRICE FOR EACH CARCASS ON A $/CWT. <u>WHOLESALE</u> <u>CARCASS</u> BASIS.**

3. **IF THE MUSCLE QUALITY IS NOT THE NORMAL**

   RFN (Reddish pink, firm, non-exudative), subtract the following amounts from the final value $/cwt of each carcass:

   - PSE (Pale, soft, exudative) = $8.00/cwt.

   - DFD (Dark, firm, dry) = $4.00/cwt.

   Example:

   Exhibit A

   Hot Carcass Weight = 192

   10th rib Fat = .8

   LEA = 7.8

   Quality = RFN

   Exhibit B

   Hot Carcass Weight = 211

   10th rib Fat = .5

   LEA = 9.8

   Quality = PSE

   Example:

   Pounds of Fat Free Lean = 8.5876 - (21.8957 x .8) + (3.0047 X 7.8) + (.4650 x 192); Percentage Fat Free Lean = (103.78/192) x 100 = 54.1%

   Value = 68.00(base price) x 104.00% (FFLI) = $70.72

   Example:

   Pounds of Fat Free Lean = 8.5876 - (21.8957 x .5) + (3.0047 X 9.8) + (.4650 x 211); Percentage Fat Free Lean = (125.20/211) x 100 = 59.3%

   Value = 68.00(base price) x 102.00% (FFLI) – 8.00 (PSE Quality = $61.36

TEAM PRACTICUM EXAMPLE (50 POINTS)

Utilizing the provided pricing sheet, as a team evaluate each pork carcass or center-cut loin wholesale cuts and calculate the percent at Free Lean Index (FFLI), using the Fat Free Lean Index (FFLI) formula; Pounds of Fat Free Lean = 8.5876 - (21.8957 x 10th rib fat thickness) + (3.0047 X loin eye area) + (.4650 x hot carcass weight); Percentage Fat Free Lean = (Pounds of Fat Free Lean/ hot carcass weight) x 100. Students will use pricing structure provided on the pricing sheet to establish a final carcass/wholesale value and answer questions or rank exhibits on value from highest to lowest.

What was the final price of Exhibit A on a $/cwt. wholesale carcass basis?

A. $70.72

B. $61.36

C. $62.72

D. $66.72

E. $15.00

What was the percent boneless closely retail cuts value for Exhibit A?

A. 54.1%

B. 49.8%

C. 59.3%

D. 61.3%

E. 42.9%

What is the total dollar value of Exhibit A?

A. $135.78

B. $100.00

C. $122.00

D. $500.00

E. $327.50

What is the total dollar value of Exhibit B?

A. $129.47

B. $186.58

C. $123.00

D. $122.00

E. $100.00

What was the percent boneless closely retail cuts value for Exhibit 2?

A. 50.0%

B. 35.7%

C. 40.8%

D. 59.3%

E. 45.8%

TEAM PRACTICUM EXAMPLE (50 POINTS)

Example Scenario: As a team you will review the current pricing information given by officials. Team members are to evaluate, communicate and reach a conclusion on the correct placings of the class based on the value of the pork carcass hundred pounds carcass.

Exhibit 1: $70.72

Exhibit 2: $61.63

Exhibit 3: $71.72

Exhibit 4:$59.58

Placing: 7

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CAREER AND LEADERSHIP
DEVELOPMENT EVENTS

Agriculture, Food and Natural Resources Content Standards

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
ABS.01.01. Performance Indicator: Apply micro- and macroeconomic principles to plan and manage inputs and outputs in an AFNR business.		
ABS.01.01.01.b. Apply microeconomic principles to calculate values associated with different inputs and outputs in AFNR businesses (e.g., price, point of equilibrium, opportunity costs, marginal costs, etc.).	Team Activity – Value Based, Evaluation Classes – Placing and Value Based	CCSS.ELA-Literacy.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.ID.C.7 CCSS.MATH.CONTENT.HSS.IC.B.6 Financial Investing: Benchmarks: Grade 12, Statement 9
ABS.01.01.02.c. Analyze the impact of the current macroeconomic environment on decisions related to AFNR businesses	Team Activity – Problem Solving, Evaluation Classes – Placing, Value Based and Keep/Cull	CCSS.ELA-Literacy.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.ID.C.7 CCSS.MATH.CONTENT.HSS.IC.B.6 Financial Investing: Benchmarks: Grade 12, Statement 9
ABS.01.02. Performance Indicator: Read, interpret, evaluate and write statements of purpose to guide business goals, objectives and resource allocation.		
ABS.01.02.01.b. Assess approaches to create statements of purpose for AFNR businesses.	Team Activity – Food Safety	CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9 CCSS.ELA-LITERACY.RI.9-10.4 CCSS.ELA-LITERACY.RI.11-12.4
ABS.01.03. Performance Indicator: Devise and apply management skills to organize and run an AFNR business in an efficient, legal and ethical manner.		

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
ABS.01.03.02.b. Assess how local, state, federal, international and industry regulations positively and negatively affect the management and operation of AFNR businesses.	Team Activity – Food Safety and Problem Solving, Grading	CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9 CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.RI.9-10.4 CCSS.ELA-LITERACYRI.11-12.4 CCSS.ELA-LITERACY. L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 Earning Income: Benchmarks: Grade 12, Statements 1 Earning Income: Benchmarks: Grade 12, Statements 2 Earning Income: Benchmarks: Grade 12, Statements 4 Protecting and Insuring: Benchmarks: Grade 12, Statements 8 Protecting and Insuring: Benchmarks: Grade 12, Statements 9 Protecting and Insuring: Benchmarks: Grade 12, Statements 10 Protecting and Insuring: Benchmarks: Grade 12, Statements 12
ABS.01.03.03.b. Analyze the importance of using ethical standards and develop methods to communicate ethical standards within AFNR businesses.	Team Activity – Food Safety and Problem Solving	CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9 CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.RI.9-10.4 CCSS.ELA-LITERACYRI.11-12.4 CCSS.ELA-LITERACY. L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 Earning Income: Benchmarks: Grade 12, Statements 1 Earning Income: Benchmarks: Grade 12, Statements 2 Earning Income: Benchmarks: Grade 12, Statements 4 Protecting and Insuring: Benchmarks: Grade 12, Statements 8 Protecting and Insuring: Benchmarks: Grade 12, Statements 9 Protecting and Insuring: Benchmarks: Grade 12, Statements 10 Protecting and Insuring: Benchmarks: Grade 12, Statements 12

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
ABS.02.01. Performance Indicator: Apply fundamental accounting principles, systems, tools and applicable laws and regulations to record, track and audit AFNR business transactions (e.g., accounts, debits, credits, assets, liabilities, equity, etc.).		
ABS.02.01.01.b. Evaluate the implementation of accounting systems and procedures used for record keeping in AFNR businesses	Team Activity – Food Safety	CCSS.MATH.CONTENT.HSS.IC.B.6 CCSS.MATH.CONTENT.HSN.Q.A.1 Earning Income: Benchmarks: Grade 12, Statements 7 Earning Income: Benchmarks: Grade 12, Statements 8
ABS.02.01.02.c. Recommend and select tools and services to track, record and audit AFNR business transactions that meet business needs and priorities (e.g., electronic and paper based systems, etc.).	Team Activity – Food Safety	CCSS.MATH.CONTENT.HSS.IC.B.6 CCSS.MATH.CONTENT.HSN.Q.A.1 Earning Income: Benchmarks: Grade 12, Statements 7 Earning Income: Benchmarks: Grade 12, Statements 8
ABS.02.01.03.a. Identify and examine applicable laws and regulations related to recording, tracking and auditing AFNR business transactions (e.g., Generally Accepted Accounting Principles, data security, etc.	Team Activity – Problem Solving, Food Safety, Identification and Keep/Cull	CCSS.MATH.CONTENT.HSS.IC.B.6 CCSS.MATH.CONTENT.HSN.Q.A.1 Earning Income: Benchmarks: Grade 12, Statements 7 Earning Income: Benchmarks: Grade 12, Statements 8
ABS.02.01.03.a. Identify and examine applicable laws and regulations related to recording, tracking and auditing AFNR business transactions (e.g., Generally Accepted Accounting Principles, data security, etc.	Team Activity – Problem Solving, Food Safety, Identification and Keep/Cull	CCSS.MATH.CONTENT.HSS.IC.B.6 CCSS.MATH.CONTENT.HSN.Q.A.1 Earning Income: Benchmarks: Grade 12, Statements 7 Earning Income: Benchmarks: Grade 12, Statements 8
ABS.02.02. Performance Indicator: Assemble, interpret and analyze financial information and reports to monitor AFNR business performance and support decision-making (e.g., income statements, balance sheets, cash-flow analysis, inventory reports, break-even analysis, return on investment, taxes, etc.).		
ABS.02.02.02.c. Create recommendations to improve management of inventory in AFNR businesses (e.g., maintaining optimal levels, calculating costs of carrying input and output inventory, supply chain management, etc.).	Evaluating Class – Value Base, Keep/Cull, Team Activity – Value Base, Problem Solving and Keep/Cull	CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.MATH.CONTENT.HSS.ID.C.7 CCSS.MATH.CONTENT.HSS.IC.B.6 CCSS.MATH.CONTENT.HSN.Q.A.1 Savings: Benchmarks: Grade 12, Statements 3 Savings: Benchmarks: Grade 12, Statements 4 Savings: Benchmarks: Grade 12, Statements 6 Savings: Benchmarks: Grade 12, Statements 7 Financial Investing: Benchmarks: Grade 12, Statement 2

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
ABS.03.01. Performance Indicator: Develop, assess and manage cash budgets to achieve AFNR business goals.		
ABS.03.01.01.b. Examine and interpret cash budgets for AFNR businesses.	Team Activity – Value Base, Keep/Cull and Problem Solving, Evaluating Class – Value Base and Keep/Cull	CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA- LITERACY.RST.9-10.4 CCSS.ELA- LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.IC.B.6
ABS.03.01.01.b. Examine and interpret cash budgets for AFNR businesses.	Team Activity – Value Base, Keep/Cull and Problem Solving, Evaluating Class – Value Base and Keep/Cull	CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA- LITERACY.RST.9-10.4 CCSS.ELA- LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.IC.B.6
ABS.03.01.01.b. Examine and interpret cash budgets for AFNR businesses	Team Activity – Value Base, Keep/Cull and Problem Solving, Evaluating Class – Value Base and Keep/Cull	CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA- LITERACY.RST.9-10.4 CCSS.ELA- LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.IC.B.6
ABS.03.01.02.b. Examine and identify strategies to manage components of cash budgets to minimize liabilities and maximize profit in AFNR businesses (e.g., delayed payment of expenses, prepayment of expenses, etc.).	Team Activity – Value Base, Keep/Cull and Problem Solving, Evaluating Class – Value Base and Keep/Cull	CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA- LITERACY.RST.9-10.4 CCSS.ELA- LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.IC.B.6
ABS.04.02. Performance Indicator: Develop production and operational plans for an AFNR business.		
ABS.04.02.01.c. Make recommendations to improve operational plans for an AFNR business based on best practices.	Team Activity – Value Base, Food Safety, Keep/Cull and Problem Solving, Evaluating Class – Value Base and Keep/Cull, Questions	AFNR Career Cluster – Agribusiness Systems Pathway, Statement 3 CCSS.ELA-LITERACY.ELA-W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4
ABS.04.02.02.b. Identify and assess alternative production systems for a specific agricultural product.	Team Activity – Value Base, Keep/Cull, Food Safety and Problem Solving, Evaluating Class – Value Base and Keep/Cull, Identification and Grading	AFNR Career Cluster – Agribusiness Systems Pathway, Statement 3 CCSS.ELA-LITERACY.ELA-W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
ABS.05.01. Performance Indicator: Analyze the role of markets, trade, competition and price in relation to an AFNR business sales and marketing plans.		
ABS.05.01.01.b. Analyze the role of trade and price in the market structure as it relates to AFNR businesses.	Team Activity – Value Base and Keep/Cull, Evaluating Class – Value Base and Keep/Cull, Grading and Identification	AFNR Career Cluster, Statement 7 AFNR Career Cluster – Agribusiness Systems Pathway, Statement 1 Financial Investing: Benchmarks: Grade 12, Statement 13
ABS.05.02. Performance Indicator: Assess and apply sales principles and skills to accomplish AFNR business objectives.		
ABS.05.02.01.b. Apply the sales process to AFNR businesses and communicate ways of accomplishing the businesses' goals and objectives.	Team Activity – Value Base, Keep/Cull and Problem Solving, Evaluating Class – Value Base, and Keep/Cull, Grading and Identification	CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 Buying Goods & Services: Benchmarks: Grade 12, Statements 1 Buying Goods & Services: Benchmarks: Grade 12, Statements 3 Buying Goods & Services: Benchmarks: Grade 12, Statements 4 Buying Goods & Services: Benchmarks: Grade 12, Statements 5
ABS.05.02.02.b. Assess different responses/customer reactions that could be presented during different types of sales calls used in AFNR businesses (e.g., competitor prices, competing products, post-sale service, complaints about product, etc.).	Team Activity – Value Base, Keep/Cull and Problem Solving, Evaluating Class – Value Base and Keep/Cull, Identification	CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 Buying Goods & Services: Benchmarks: Grade 12, Statements 1 Buying Goods & Services: Benchmarks: Grade 12, Statements 3 Buying Goods & Services: Benchmarks: Grade 12, Statements 4 Buying Goods & Services: Benchmarks: Grade 12, Statements 5
ABS.05.03. Performance Indicator: Assess marketing principles and develop marketing plans to accomplish AFNR business objectives.		
ABS.05.03.01.b. Assess alternative marketing strategies as related to marketing principles for AFNR businesses (e.g. value-adding, branding, niche marketing, etc.).	Team Activity – Value Base and Keep/Cull, Evaluating Class – Value Base and Keep/Cull, Grading and Identification	AFNR Career Cluster – Agribusiness Systems Pathway, Statement 4 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 Buying Goods & Services: Benchmarks: Grade 12, Statements 1 Buying Goods & Services: Benchmarks: Grade 12, Statements 3 Buying Goods & Services: Benchmarks: Grade 12, Statements 4 Buying Goods & Services: Benchmarks: Grade 12, Statements 7

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
ABS.05.03.02.b. Compare and contrast the strategies of marketing for products and services used in AFNR businesses (e.g., direct marketing, commodities, etc.).	Team Activity – Value Base and Keep/Cull, Evaluating Class – Value Base and Keep/Cull, Grading, Placing and Identification	AFNR Career Cluster – Agribusiness Systems Pathway, Statement 4 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 Buying Goods & Services: Benchmarks: Grade 12, Statements 1 Buying Goods & Services: Benchmarks: Grade 12, Statements 3 Buying Goods & Services: Benchmarks: Grade 12, Statements 4 Buying Goods & Services: Benchmarks: Grade 12, Statements 7
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution on production practices and the environment.		
AS.01.01.01.b. Evaluate and describe characteristics of animals that developed in response to the animal's environment and led to their domestication.	Exam and Grading	HS-LS4–3
AS.01.02. Performance Indicator: Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.		
AS.01.02.01.c. Evaluate the effectiveness of different production methods and defend the use of selected methods using data and evidence.	Team Activity – Value Base and Keep/Cull, Evaluating Class – Value Base and Keep/Cull, Grading and Identification	AFNR Career Cluster, Statement 1 AFNR Career Cluster – Animal Systems Pathway, Statement 3 STEM Career Cluster, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 3
AS.01.02.02.b. Calculate costs of marketing versus predicted increases in sales.	Team Activity – Problem Solving	AFNR Career Cluster, Statement 1 AFNR Career Cluster – Animal Systems Pathway, Statement 3 STEM Career Cluster, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 3
AS.01.03. Performance Indicator: Analyze and apply laws and sustainable practices to animal agriculture from a global perspective.		
AS.01.03.01.b. Analyze the structure of laws governing animal industries, international trade and animal production policies.	Team Activity – Problem Solving, Food Safety, Value Base and Keep/Cull, Evaluating Class – Value Base and Keep/Cull, Grading and Identification	AFNR Career Cluster, Statement 2 AFNR Career Cluster – Animal Systems Pathway, Statement 1 STEM Career Cluster, Statement 1, 4 CCSS.ELA-Literacy.W.9-10.9b CCSS.ELA-Literacy.W.11-12.9b CCSS.ELA-Literacy.RI.9-10.1 CCSS.ELA-Literacy.RI.11-12.1 HS-ETS1–1

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
AS.02.01. Performance Indicator: Demonstrate management techniques that ensure animal welfare.		
AS.02.01.01.c. Implement and evaluate quality-assurance programs and procedures for animal production	Team Activity – Food Safety	HS-ETS1-2
AS.02.01.02.c. Devise, implement and evaluate safety procedures and plans for working with animals by species using information based on animal behavior and responses.	Team Activity – Food Safety and Problem Solving	HS-ETS1-2
AS.02.02. Performance Indicator: Analyze procedures to ensure that animal products are safe for consumption.		
AS.02.02.01.c. Select, evaluate and defend the use of specific tools, technology or equipment used to perform animal husbandry and welfare tasks.	Team Activity – Food Safety, Problem Solving, Keep/Cull and Value Based, Evaluating Class – Value Based, Keep/Cull and Placing, Exam and Grading	HS-ETS1-2
AS.02.02.02.c. Research and evaluate programs to assure the safety of animal products for consumption.	Team Activity – Food Safety	HS-ETS1-2
AS.04.01. Performance Indicator: Evaluate animals for breeding readiness and soundness.		
AS.04.01.01.a. Identify and categorize the male and female reproductive organs of the major animal species	Team Activity – Value Based, Questions, Evaluating Class – Value Based	NA
AS.04.02. Performance Indicator: Apply scientific principles to select and care for breeding animals.		
AS.04.02.01.b. Compare and contrast the use of genetically superior animals in the production of animals and animal products.	Team Activity – Value Base and Keep/Cull, Evaluating Class – Value Base and Keep/Cull, Placing, and Grading	CCSS.MATH.CONTENT.HSS.MD.A.3 HS–LS3-2 HS–LS3-3
AS.04.03 Performance Indicator: Apply scientific principles to breed animals.		
AS.04.03.04.b. Compare and contrast quantitative breeding value differences between genetically superior animals and animals of average genetic value.	Questions, Grading, Evaluating Class – Placing, Value Based and Keep/Cull, Team Activity – Value Based and Keep/Cull	NA
AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.		
AS.05.01.02.c. Select, use and evaluate equipment, technology and handling procedures to enhance sustainability and production efficiency.	Team Activity – Food Safety and Value Based	AFNR Career Cluster – Animal Systems Pathway, Statement 2 STEM Career Cluster, Statement 4 STEM Career Cluster, Statement 5

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
AS.05.02. Performance Indicator: Comply with government regulations and safety standards for facilities used in animal production.		
AS.05.02.01.c. Evaluate facility designs and make recommendations to ensure that it meets standards for the legal, safe, ethical, economical and efficient production of animals.	Team Activity – Food Safety – Evaluating Class - Value Base and Keep/Cull and Placing	CCSS.ELA-Literacy.W.9-10.9b CCSS.ELA-Literacy.W.11-12.9b
AS.05.02.02.c. Evaluate the impact of laws pertaining to animal systems.	Team Activity – Food Safety, Problem Solving and Value Based	CCSS.ELA-Literacy.W.9-10.9b CCSS.ELA-Literacy.W.11-12.9b
AS.06.01. Performance Indicator: Classify animals according to taxonomic classification systems and use (e.g. agricultural, companion, etc.).		
AS.06.01.01.c. Assess taxonomic characteristics and classify animals according to the taxonomic classification system.	Identification, Team Activity - Identification	NA
AS.06.01.02.c. Recommend different uses for an animal species based upon an analysis of local market needs.	Team Activity _ Value Based – Evaluating Class – Value Based	NA
AS.06.01.03.b. Analyze the visual characteristics of an animal or animal product and select correct classification terminology when referring to companion and production animals.	Entire Event	NA
AS.06.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.		
AS.06.02.03.c. Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.	Grading, Team Activity – Anatomy, Identification	HS-LS1-2
AS.06.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.		
AS.06.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction	Grading, Value Based, Keep/Cull, Placing and Identification	STEM Career Cluster, Statement 5

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
AS.06.03.02.c. Choose, implement and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition and management) to produce consistently high-quality animals that are well suited for their intended purposes.	Team Activity – Problem Solving and Grading, Evaluating Class – Placing, Keep/Cull and Value Based	STEM Career Cluster, Statement 5
AS.06.03.03.c. Evaluate and select animals to produce superior animal products based on industry standards.	Entire Event	STEM Career Cluster, Statement 5
AS.07.02. Performance Indicator: Analyze biosecurity measures utilized to protect the welfare of animals.		
AS.07.02.01.c. Design and evaluate a biosecurity plan for an animal production operation.	Team Activity – Food Safety	NA
CS.01.02. Performance Indicator: Examine technologies and analyze their impact on AFNR systems.		
CS.01.02.01.c. Solve problems in AFNR workplaces or scenarios using technology.	Team Activity – Problem Solving	
CS.01.02.02.c. Evaluate the importance of technology use and how it impacts AFNR systems.	Exam	
CS.02.01. Performance Indicator: Research geographic and economic data related to AFNR systems.		
CS.02.01.02.c. Devise a strategy to solve a problem in an AFNR system using a set of economic data.	Team Activity – Value Based	
CS.02.02. Performance Indicator: Examine the components of the AFNR systems and their impact on the local, state, national and global society and economy.		
CS.02.02.03.b. Assess the economic impact of an AFNR system on a local, state, national and global level.	Exam, Team Activity – Value Based and Problem Solving	
CS.03.01. Performance Indicator: Identify required regulations to maintain and improve safety, health and environmental management systems.		
CS.03.01.01.b. Assess health, safety and environmental procedures to comply with regulatory and safety standards.	Exam, Team Activity – Food Safety	
CS.03.01.02.b. Analyze existing required regulations within an AFNR workplace	Exam, Team Activity – Food Safety and Problem Solving	

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
CS.03.02. Performance Indicator: Develop a plan to maintain and improve health, safety and environmental compliance and performance.		
CS.03.02.01.b. Analyze health and safety performance plans of an AFNR business.	Exam, Team Activity – Food Safety	AFNR Career Cluster, Statement 6
CS.03.03. Performance Indicator: Apply health and safety practices to AFNR worksites.		
CS.03.03.01.b. Analyze and summarize current health and safety practices of AFNR business.	Exam, Team Activity – Food Safety	
CS.03.03.02.b. Assess various emergency response plan requirements for an AFNR worksite and/or facility.	Exam, Team Activity – Food Safety	
CS.03.03.02.b. Assess various emergency response plan requirements for an AFNR worksite and/or facility.	Exam, Team Activity – Food Safety	
CS.03.04. Performance Indicator: Use appropriate protective equipment and demonstrate safe and proper use of AFNR tools and equipment.		
CS.03.04.01.b. Analyze and summarize protective equipment requirements on various AFNR tools and equipment.	Exam	
C3.06.04.02.c. Evaluate and select appropriate tools and equipment to complete AFNR tasks.	Exam	
CS.06.02. Performance Indicator: Explain the connection and relationships between different AFNR systems on a national and global level.		
CS.06.02.01.b. Analyze differences between AFNR systems on a national and global scale.	Team Activity – Problem Solving	
CRP.01.01. Performance Indicator: Model personal responsibility in the workplace and community.		
CRP.01.01.01.b. Analyze and predict how personal responsibility impacts the workplace and community.	Team Activity Process	
CRP.01.01.02.c. Model personal responsibility in workplace and community situations.	Team Activity - Process	

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
CRP.01.02 Performance Indicator: Evaluate and consider the near-term and long-term impacts of personal and professional decisions on employers and community before taking action.		
CRP.01.02.01.b. Assess the pros and cons of personal decisions based on their anticipated impact on self and others.	Team Activity - Process	
CRP.01.02.02.b. Analyze the pros and cons of professional decisions based upon impact on employers and community.	Team Activity – Process	
CRP.02.01. **Performance Indicator:** Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community.		
CRP.02.01.01.c. Apply academic knowledge and skills to solve problems in the workplace and reflect upon the results achieved.	Entire Event	
CRP.02.02. **Performance Indicator:** Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community.		
CRP.02.02.01.c. Apply technical concepts to solve problems in the workplace and reflect upon the results achieved.	Entire Event	
CRP.04.01. **Performance Indicator:** Speak using strategies that ensure clarity, logic, purpose and professionalism in formal and informal settings.		
CRP.04.01.01.b. Analyze use of verbal and non-verbal communication strategies in workplace situations.	Team Activity - Process	
CRP.04.02. **Performance Indicator:** Produce clear, reasoned and coherent written communication in formal and informal settings.		
CRP.04.02.02.c. Compose clear and coherent written documents (e.g., agendas, audio-visuals, drafts, forms, etc.) for formal and informal settings.	Exam, Team Activity- Problem Solving	
CRP.04.03. **Performance Indicator:** Model active listening strategies when interacting with others in formal and informal settings.		
CRP.04.03.01.b. Apply active listening strategies (e.g., be attentive, observe non-verbal cues, ask clarifying questions, etc.).	Team Activity – Process	
CRP.04.03.02.c. Model active listening strategies in formal and informal settings.	Team Activity - Process	

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
CRP.05.01. Performance Indicator: Assess, identify and synthesize the information and resources needed to make decisions that positively impact the workplace and community.		
CRP.05.01.01.c. Evaluate workplace and community decision-making processes and devise strategies for improvement.	Team Activity - Process	
CRP.05.01.02.c. Evaluate workplace and community situations and recommend the information and resources needed to support good decisions.	Team Activity - Process	
CRP.05.01.03.c. Synthesize information and resources and apply to workplace and community situations to make positive decisions.	Team Activity - Process	
CRP.05.02. Performance Indicator: Make, defend and evaluate decisions at work and in the community using information about the potential environmental, social and economic impacts.		
CRP.05.02.01.b. Apply a structured decision-making process to improve workplace and community situations.	Team Activity - Process	
CRP.06.01. Performance Indicator: Synthesize information, knowledge and experience to generate original ideas and challenge		
CRP.06.01.01.b. Synthesize information, knowledge and experiences to generate ideas for workplace and community situations.	Team Activity - Process	
CRP.08.01. Performance Indicator: Apply reason and logic to evaluate workplace and community situations from multiple perspectives.		
CRP.08.01.01.b. Apply steps for critical thinking to a variety of workplace and community situations.	Team Activity - Process	
CRP.08.02. Performance Indicator: Investigate, prioritize and select solutions to solve problems in the workplace and community.		
CRP.08.02.02.b. Apply decision-making processes to generate possible solutions to solve workplace and community problems.	Entire Event	
CRP.08.03. Performance Indicator: Establish plans to solve workplace and community problems and execute them with resiliency.		
CRP.08.03.02.b. Create plans to solve workplace and community problems.	Team Activity	

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
CRP.09.01. Performance Indicator: Model characteristics of ethical and effective leaders in the workplace and community (e.g. integrity, self-awareness, self-regulation, etc.).		
CRP.09.01.02.c. Model characteristics and actions of ethical and effective leaders in workplace and community situations (e.g., integrity, self-awareness, etc.).	Team Activity - Process	
CRP.09.03. Performance Indicator: Demonstrate behaviors that contribute to a positive morale and culture in the workplace and community (e.g., positively influencing others, effectively communicating, etc.).		
CRP.09.03.02.c. Model respectful and purposeful behaviors that contribute to positive morale and culture in the workplace and community (e.g., effectively communicating, recognizing accomplishments of others, etc.).	Team Activity - Process	
CRP.11.01. Performance Indicator: Research, select and use new technologies, tools and applications to maximize productivity in the workplace and community.		
CRP.11.01.01.b. Analyze advantages and disadvantages of new technologies, tools and applications to maximize productivity in the workplace and community.	Team Activity – Problem Solving	
CRP.11.01.02.b. Select, apply and use new technologies, tools and applications in workplace and community situations to maximize productivity.	Team Activity – Problem Solving, Value Based	
CRP.12.01. Performance Indicator: Contribute to team-oriented projects and builds consensus to accomplish results using cultural global competence in the workplace and community.		
CRP.12.01.02.b. Apply consensus building techniques to accomplish results in team-oriented situations.	Team Activity - Process	
CRP.12.02. Performance Indicator: Create and implement strategies to engage team members to work toward team and organizational goals in a variety of workplace and community situations (e.g., meetings, presentations, etc.).		
CRP.12.02.01.b. Assess team dynamics and match strategies to increase team member engagement.	Team Activity - Process	

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
FPP.01.01. Performance Indicator: Analyze and manage operational and safety procedures in food products and processing facilities.		
FPP.01.01.01.b. Analyze and document attributes and procedures of current safety programs in food products and processing facilities.	Exam, Team Activity – Food Safety	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 AFNR Career Cluster, Statement 6 Manufacturing Career Cluster – Maintenance, Installation and Repair Pathway Statement 2 Manufacturing Career Cluster – Maintenance, Installation and Repair Pathway Statement 4 Manufacturing Career Cluster – Production Pathway 2 Manufacturing Career Cluster – Production Pathway 3
FPP.01.01.02.c. Devise strategies to maintain equipment and facilities for food products and processing systems.	Team Activity – Food Safety	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 AFNR Career Cluster, Statement 6 Manufacturing Career Cluster – Maintenance, Installation and Repair Pathway Statement 2 Manufacturing Career Cluster – Maintenance, Installation and Repair Pathway Statement 4 Manufacturing Career Cluster – Production Pathway 2 Manufacturing Career Cluster – Production Pathway 3
FPP.01.02. Performance Indicator: Apply food safety and sanitation procedures in the handling and processing of food products to ensure food quality.		
FPP.01.02.01.c. Identify sources of contamination in food products and/or processing facilities and develop ways to eliminate contamination.	Exam, Team Activity – Food Safety	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2
FPP.01.02.02.c. Examine, interpret and report outcomes from safe handling procedures and results from quality assurance tests.	Exam, Team Activity – Food Safety	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2
FPP.01.02.03.c. Interpret and evaluate results of quality assurance tests on food products and examine steps to implement corrective procedures.	Exam, Team Activity – Food Safety	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2
FPP.01.03. Performance Indicator: Apply food safety procedures when storing food products to ensure food quality.		
FPP.01.03.01.b. Analyze characteristics of food products and determine appropriate storage procedures.	Exam	

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
FPP.01.03.02.c. Evaluate the effectiveness of a current documentation procedure used within a food products and processing facility and recommend improvements	Exam, Team Activity – Food Safety	
FPP.02.03. Performance Indicator: Apply principles of human behavior to develop food products to provide a safe, wholesome and nutritious food supply for local and global food systems.		
FPP.02.03.02.c. Design new food products that meet a variety of goals (e.g., consumer preferences, market, nutritional needs, regulatory requirements, etc.).	Exam, Team Activity – Formulation	
FPP.03.01. Performance Indicator: Implement selection, evaluation and inspection techniques to ensure safe and quality food products.		
FPP.03.01.01.c. Outline procedures to assign quality and yield grades to food products according to industry standards.	Grading, Questions, Evaluation, Team Activity – Value Based	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 Buying Goods and Services, Benchmarks: Grade 12, Statement 7
FPP.03.01.02.b. Assemble procedures to perform quality-control inspections of raw food products for processing.	Exam, Team Activity – Food Safety, Evaluation	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 Buying Goods and Services, Benchmarks: Grade 12, Statement 7
FPP.03.01.03.a. Identify and describe protocols for inspection and harvesting techniques for animal food products (e.g., pre-mortem and post-mortem inspections, Food Safety Inspection Service guidelines (FSIS), etc.).	Exam, Team Activity – Food Safety, Anatomy	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 Buying Goods and Services, Benchmarks: Grade 12, Statement 7
FPP.03.01.04.c. Evaluate and grade food products from different classifications of food products.	Exam, Team Activity – Value Based, Evaluation, Grading, Identification	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 Buying Goods and Services, Benchmarks: Grade 12, Statement 7
FPP.03.02. Performance Indicator: Design and apply techniques of food processing, preservation, packaging and presentation for distribution and consumption of food products.		
FPP.03.02.01.b. Compare weights and measurements of products and perform conversions between units of measure.	Team Activity- Value Based, Grading, Identification and Evaluation	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 3
FPP.03.02.02.c. Evaluate food quality factors on foods prepared for different markets (e.g., shelf life, shrinkage, appearance, weight, etc.).	Exam, Team Activity – Value Based, Evaluation, Grading, Identification	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 3

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
FPP.03.02.03.a. Identify methods of food preservation and give examples of foods preserved by each method.	Exam, Team Activity – Quality, Evaluation, Identification	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 3
FPP.03.03. Performance Indicator: Create food distribution plans and procedures to ensure safe delivery of food products.		
FPP.03.03.02.a. Examine the various paths food products take to get from food processing centers to consumers.	Identification, Team Activity – Food Safety and Exam	AFNR Career Cluster, Statement 7 AFNR Career Cluster – Food Products and Processing Pathway, Statement 3 Manufacturing Career Cluster – Logistics and Inventory Control, Pathway 2 Manufacturing Career Cluster – Manufacturing Product Process Development Pathway, Statement 1 Manufacturing Career Cluster – Manufacturing Product Process Development Pathway, Statement 2 Transportation, Distribution and Logistics Career Cluster, Statement 3 CCSS.ELA-Literacy.W.9-10.2 CCSS.ELA-Literacy.W.11-12.2 HS-ETS1-2
FPP.03.03.03.c. Propose distribution plans for food products that meet specific market demands.	Exam, Identification, Evaluation, Grading, Team Activity – Value Based	AFNR Career Cluster, Statement 7 AFNR Career Cluster – Food Products and Processing Pathway, Statement 3 Manufacturing Career Cluster – Logistics and Inventory Control, Pathway 2 Manufacturing Career Cluster – Manufacturing Product Process Development Pathway, Statement 1 Manufacturing Career Cluster – Manufacturing Product Process Development Pathway, Statement 2 Transportation, Distribution and Logistics Career Cluster, Statement 3 CCSS.ELA-Literacy.W.9-10.2 CCSS.ELA-Literacy.W.11-12.2 HS-ETS1-2
FPP.04.01. Performance Indicator: Examine the scope of the food industry by evaluating local and global policies, trends and customs for food production.		
FPP.04.01.01.b. Analyze the similarities and differences amongst policies and legislation that affect the food products and processing system in the U.S. or around the world.	Exam, Evaluation, Grading, Team Activity – Value Based, Food Safety	HS-ETS1-3 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 2
FPP.04.01.02.c. Devise a strategy to create food products that meet a specific consumer trend in a specific market.	Exam, Evaluation, Grading, Team Activity – Value Based, Formulations, Question	HS-ETS1-3 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 2
FPP.04.01.03.b. Analyze food production and distribution outcomes based on cultural customs.	Exam, Grading, Evaluation, Team Activity - Formulation	HS-ETS1-3 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 2

Agriculture, Food and Natural Resources Content Standards continued

Measurement Assessed	Where measured in event	Academic Content Standards Addressed
FPP.04.02. Performance Indicator: Evaluate the significance and implications of changes and trends in the food products and processing industry in the local and global food systems.		
FPP.04.02.01.b. Analyze and document significant changes and trends in the food products and processing industry.	Exam, Evaluation, Grading, Team Activity – Formulation	NSFL Buying Goods and Services, Benchmarks: Grade 12, Statement 1
FPP.04.02.02.a. Identify and explain environmental and safety concerns about the food supply.		NSFL Buying Goods and Services, Benchmarks: Grade 12, Statement 1
FPP.04.02.03.b. Evaluate desirable and undesirable outcomes of emerging technologies used in the food products and processing systems.		NSFL Buying Goods and Services, Benchmarks: Grade 12, Statement 1
FPP.04.03.01.b. Evaluate the changes in the food products and processing industry brought about by industry organizations or regulatory agencies.		NSFL Buying Goods and Services, Benchmarks: Grade 12, Statement 1
FPP.04.03.02.b. Assess the application of industry standards in the food products and processing industry.		NSFL Buying Goods and Services, Benchmarks: Grade 12, Statement 1

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