Meats Evaluation and Technology

Purpose

The New Jersey FFA Meat Evaluation and Technology Career Development Event is designed to help students develop skills for careers in the meat animal industry. The Meat Evaluation and Technology Career Development Event provides competition that fosters broader analytical skills, critical thinking strategies and a knowledge of meat and meat animal products involved in the industry of meat and animals. During the event, members evaluate meat carcasses and identify various meat cuts.

Objectives

The objectives of the New Jersey FFA Meats Evaluation and Technology Career Development Event are to:

- 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 high school students' analytical skills, critical thinking strategies and understanding of appropriate meat terminology.
- Develop high school students' abilities 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 in high school students.

Event Rules

The complete rules, policies and procedures relevant to all New Jersey FFA Career and Leadership Development Events may be found in the CDE & LDE Event Participation Policy:
https://nj.gov/agriculture/ag_ed/ffa/activity/CDE_LDE_Policy.pdf

- Teams will consist of four members, and all four scores will count toward the team score.
- The team score is comprised of the combined scores of each individual and the team activity in which all team members will participate.
- Official Dress is required for this event.
- Participants are NOT allowed to use (or have visible) electronic devices during the event, unless for medical reasons or a portion of the event requires usage. This includes cell phones, tablets, etc. Participants will be allowed to use calculators, if specified for that event; however, cell phone calculators and graphing calculators are not permitted! Failure to adhere to these rules will result in disqualification.
- All individuals participating will judge in a cooperative manner following the rules set forth by the event coordinator.
- No school/chapter will use Rutgers University or Delaware Valley University facilities or locations for the training of teams. Contact with University faculty and staff is permissible. Penalty will be disqualification.
- This event will be scored using "Scan-tron" sheets. It is important for students to listen to directions and fill out the sheets correctly in order to receive credit. Sample scan-tron sheets are available for practice on the State Activity Guide. This event uses the Meat Evaluation scan-tron sheet.
- There will be no separate alternate teams.

- A student may not compete in more than one event during the New Jersey FFA Winter Career Development Events.
- The State level competition fee of $11 per contestant will be paid by the competing school. If a chapter is at least blue affiliated, registration to state FFA career development events is waived.

Event Format

EQUIPMENT

Materials to be provided by the student:
- Non-programmable calculator
- Two #2 pencils
- Clipboard

Participants are not to bring:
- Cell phones or other electronic devices (unless for medical purposes)

Materials to be provided by the coordinator:
- USDA Beef Grading worksheets (if applicable)
- Blank paper
- Scan sheets

EVENT SNAPSHOT

The event is comprised of the following activities:
- Written Exam (50 questions) – 30 minutes
- Retail Meat Cuts Identification(30 cuts) – 30 minutes
- Evaluation Classes (up to 4) – 60 minutes (two 30-minute rotations)
- Team Activity – 30 minutes

A chapter must have a team of four (4) for team awards. All four (4) scores are used in determining the team's rank.

Scantron will be used to score portions of this event. At the end of this document is a sample of the sheet to be used. You can get practice sheets here: https://www.nj.gov/agriculture/ag_ed/ffa/activity/Scantron-Meats.pdf

INDIVIDUAL ACTIVITIES

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.

*See references section of this handbook for written exam resource material.

Retail Meat Cuts Identification (210 points)

Participants will identify 30 retail meats cuts found on the Meats Identification Card. The official key (Retail Cuts Code Sheet) is located near the end of this handbook. Only the cuts listed are eligible to be used in this event. Participants will be given one point for correct species identification, two points for correct primal cut identification, one point for correct cookery and three points for correct retail name.

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 1/2 inch to 1 1/2 inches in thickness. A chop usually is sized 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 3/4 inch to 1 1/2 inches of thickness cut from various parts of a beef carcass or the shoulder of pork and veal. The size of a steak is often 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.

Evaluation Classes (200–400 points)

Up to four evaluation classes of placing, keep/cull and/or value-based pricing. Class exhibits and formats will be as follows:

- Carcasses (beef or pork).

    Reference: National Pork Board Backfat Recommendation

- Wholesale/subprimal cuts (beef, pork, lamb).

- Retail cuts (beef, pork, lamb).

- Processed meats (cured/smoked center ham slices, sliced bacon, smoked sausage/frankfurter, smoked chops).

    Reference: Processed Meat Class Guidelines

TEAM ACTIVITIES

Each team will be required to complete two 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 100 points.

The coordinator will have the latitude to select the most appropriate activities each year depending on the product available.

Two of the following will be chosen:

- Solve a meat formulation problem
- Utilizing product, photos or diagrams, participants will be asked to identify the following from selected locations on the exhibit:
    - Major muscle groups
    - Major bones

        Reference: Team Activities, Example #1

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

- Completion of a beef value-based pricing scenario.

- Completion of a food safety activity (HACCP principles, sanitation, safe handling, preparation, cookery and standard operating procedures). A potential food safety activity would relate to and be derived from the food safety principles found in the iCEV slides and would test the students' understanding of these principles and ability to use these principles to problem solve as a team.

Scoring

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

Activity	Individual Points	Team Points
Written exam	100	400
Retail meat cuts identification (30 cuts)	210	840
Evaluation Classes (up to 4)	50-200	200-800
Team Activity		100
TOTAL MAXIMUM POINTS POSSIBLE	360-510	1,540-2,140

TIEBREAKERS

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

INDIVIDUAL
1. Written exam
2. ID Retail Meat Cuts
3. Evaluation Class(es) Total

TEAM
1. Team activity score
2. Written Exam
3. Retail Identification total of the team

Awards

Awards will be presented to individuals and the first team based on their rankings at the CDE awards ceremony at the New Jersey State FFA Convention. Awards are sponsored by the New Jersey FFA Foundation, Inc., the New Jersey State FFA Association, and/or the National FFA Organization.

Individual
- Overall Medals
    - Medals – Top three individuals
- H.O. Sampson Certificates (hands-on practicum areas ONLY)
    - Certificate – Top five individuals

Team
- Plaque Sponsored by the National FFA Organization - 1st place

Awards will be presented to individuals and the first team based on their rankings at the CDE awards ceremony at the New Jersey State FFA Convention. The awards are sponsored by the National FFA Foundation and the New Jersey FFA Association.

The 1st place team will represent New Jersey at the National FFA Convention in October.

Request for Reasonable Accommodations

The New Jersey FFA Association is committed to providing equal access to our events and activities for all people. Use this form to request a reasonable accommodation or assistance at least 3 weeks before any state-level events: https://form.jotform.com/NJFFA/accommodations-request. A new form will need to be submitted for each event in which a reasonable accommodation is being requested. This information will be kept confidential and will be used only to process the request. Our staff will review the request upon receipt and contact the requestor with additional information. The association cannot guarantee accommodations or assistance if a form is received less than 3 weeks before an event. Accommodations being requested that require the assistance of another person (nurse, interpreter, scribe, reader, etc.) is the responsibility of the school/requestor. It is also the school/requestor's responsibility to provide any approved equipment to aide in the accommodation process, if applicable.

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, Shopffa.org
  - Retail Meat Desk Reference
  - Retail Meats Field Guide
  - Retail Meats Flashcards
  - Meat Identification Tutorial DVD
  - Meat Buyer's Guide
- National FFA CDE Q&A's, https://www.ffa.org
- North American Meat Institute, https://www.meatbuyersguide.com
  - Meat Buyer's Guide
  - NAMP Meat Posters
  - Beef, Lamb, Pork and Veal Cut Charts
- CEV Multimedia, 1020 SE Loop 289, Lubbock, Texas 79404, (800) 922-9965, https://www.icevonline.com/curriculum
  - Retail Cuts Identification (DVD)
  - Meat Science and Food Safety (DVD) — written exam resource, updated June 2019, slide 3 will indicate the slides that were updated.
- Beef Myology, http://bovine.unl.edu
- National Cattlemen's Beef Association, 9110 E. Nichols Ave. #300, Centennial, Colo. 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, Wis. 53538-0901, 1-800-558-9595
  - Preliminary Yield Grade Rulers (https://www.enasco.com/p/USDA-Preliminary-Cutability-Grade-Ruler%2BC02615N)
  - Beef and Pork Ribeye Grids
- Example Meats Evaluation Websites of Classes and Materials
  - http://aggiemeat.tamu.edu/meat-identification-pictures
  - https://www1.unl.edu/search/?q=meat+identification+pictures&u=https%3A%2F%2Fanimalscience.unl.edu%2F
- USDA Carcass Beef Grades and Standards, copy and paste url into your search bar, https://www.ams.usda.gov/sites/default/files/media/CarcassBeefStandard.pdf
- Announcement of Changes to the U.S. Beef Grade Standards, https://www.ams.usda.gov/content/usda-announces-changes-us-beef-grade-standards

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 of backfat have a higher incidence of bellies that 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.

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-ounce or larger vacuum wrapped 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 to 55 percent lean and 45 to 50 percent 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 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.

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 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, pinholes, 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.

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- 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 inch 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.

Specifications for Evaluating Smoked Chops

DESCRIPTION:

Bone-in, smoked pork chops could consist of loin chops or rib chops. The cured and smoked chops should be free of bruises or blood spots. Chops should exhibit a cured and smoked appearance. The lean meat should possess a fine, smooth texture with a uniform and bright, reddish-pink color. Excessive under-trimming or over-trimming of the chop for any reason is not desirable.

EVALUATION:

Bone-in, smoked pork chops should be evaluated by the following criteria:

- **Cutability:** Chops with a great area of exposed lean, little external fat, and a small amount of bone are desirable. For a smoked, cured chop, the chop should display acceptable muscling as evaluated by the size of the loin eye and tenderloin muscles. Subcutaneous/intramuscular fat should not be excessive. 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 chop with as little color variation 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.

Team Activity Examples

ANATOMY EXAMPLE #1 (50 POINTS)

Utilizing a carcass, primal or subprimal exhibit, participants will be asked to identify the following from selected locations on the exhibit: Note: Example muscle groups and major bones are not inclusive of all muscle groups or bones that may be used in the event.

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

RETAIL CUTS 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 event 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

KEEP/CULL EXAMPLE #3 (50 POINTS)

Utilizing the 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 that will allow participants to make conclusions. Team members will identify the four exhibits to keep and mark them 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 the juiciest, most flavorful and most tender.

Select the four ribeye steaks to be served to your guests.

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

Correct Selection	*					*	*	*
Exhibit Item	1	2	3	4	5	6	7	8
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.

BEEF VALUE-BASED PRICING EXAMPLE #4 (50 POINTS)

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.

Participants will place four exhibits (carcasses or wholesale cuts) or keep/cull (scenario will be provided) based upon value (per hundred weight (cwt)) 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

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			
<500	($27)	Dairy Type *	($5)
00 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.*

Final Placing: 1 – 2 – 3 – 4

MEAT FORMULATION PROBLEM SOLVING EXAMPLE #5 (50 POINTS)

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 degrees 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.

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 degrees F.

- Least-cost determination 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, Oct. 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.

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 based on 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%

*Correct answers— **Solution**: 2. **Questions**: 1. D, 2. B, 3. E, 4. A, 5. B, 6. A, 7. B, 8. C

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	%					

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%	12	0.71	3,550	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	%					

Individual 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

EVALUATION CLASS QUESTIONS EXAMPLES

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?

Unacceptable Questions:

- Which pork carcass had a missing foot?
- Which beef carcass displayed indications of a bruise?
- Which ribeye steak was bigger?

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
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	35	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

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
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
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	F	70	D	Lamb	Loin	Loin Chops	Dry
L	F	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

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 to match. Full points will be earned for a correct answer and 0.1 above or below official yield grade. A two-point deduction will be made for 0.2 to 0.5 above or below official yield grade. A five-point deduction will be made for 0.6 to 0.9 above or below official yield grade. Zero points will be awarded for answers one yield grade above or below the official yield grade. A 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 will be awarded for each correct grade. Each grade 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. A perfect score will be a maximum of forty points for quality grading (10 points each for four carcasses).

4-H / FFA Meat Evaluation
Form #480-4

Incorrect Marks ✓ ✗ ⊖ · **Correct Mark** ⬤

Meat Identification - Retail Cuts

ID #	Species	Primal	Retail First Digit	Retail Second Digit	Cookery
1	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
2	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
3	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
4	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
5	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
6	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
7	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
8	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
9	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
10	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
11	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
12	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
13	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
14	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
15	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
16	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
17	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
18	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
19	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
20	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
21	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
22	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
23	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
24	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
25	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
26	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
27	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
28	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
29	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
30	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
31	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
32	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
33	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
34	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
35	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
36	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
37	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
38	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
39	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M
40	B P L	A B C D E F G / H I J K L M N	0 1 2 3 4 / 5 6 7 8 9	0 1 2 3 4 / 5 6 7 8 9	D M D/M

Species

B Beef   P Pork   L Lamb

Primal Cuts

A Breast	H Rib or Rack
B Brisket	I Round
C Chuck	J Shoulder
D Flank	K Side (Belly)
E Ham or Leg	L Spareribs
F Loin	M Variety Meats
G Plate	N Various Meats

Retail Cuts

Roasts/Pot Roasts

01 American Style
02 Arm Picnic
03 Arm Roast
04 Arm Roast (Bnls)
05 Back Ribs
06 Blade Roast
07 Blade Boston
08 Bottom Round Roast (Bnls)
09 Bottom Round Rump Roast (Bnls)
10 Brisket, Whole (Bnls)
11 Center Loin Roast
12 Center Rib Roast
13 Eye Roast (Bnls)
14 Eye Round Roast
15 Flat Half (Bnls)
16 Frenched Style
17 Fresh Side
18 Leg Roast (Bnls)
19 Loin Roast
20 Mock Tender Roast
21 Petite Tender
22 Rib Roast
23 Rib Roast (Frenched)
24 Ribs (Denver Style)
25 Rump Portion
26 Seven (7) Bone Roast
27 Shank Portion
28 Short Ribs
29 Shoulder Roast (Bnls)
30 Sirloin Roast
31 Sirloin Half
32 Spareribs
33 Square Cut (Whole)
34 Tenderloin (Whole)
35 Tip Roast (Bnls)
36 Tip, Cap Off Roast
37 Top Loin Roast (Bnls)
38 Top Roast (Bnls)
39 Top Round Roast
40 Tri-Tip Roast

Steaks

41 Arm Steak
42 Blade Steak
43 Bottom Round Steak
44 Center Slice
45 Eye Steak (Bnls)
46 Eye Round Steak
47 Flank Steak
48 Mock Tender Steak
49 Porterhouse Steak
50 Ribeye, Lip-On Steak
51 Round Steak
52 Round Steak (Bnls)
53 Sirloin Cutlets
54 Skirt Steak (Bnls)
55 T-Bone Steak
56 Tenderloin Steak
57 Tip, Cap Off Steak
58 Top Blade (Bnls) Flat Iron Steak
59 Top Loin Steak
60 Top Loin (Bnls) Steak
61 Top Round Steak
62 Top Sirloin Steak (Bnls)
63 Top Sirloin Cap Off Steak (Bnls)
64 Top Sirloin Cap Steak (Bnls)

Chops

65 Arm Chop
66 Blade Chop
67 Blade Chop (Bnls)
68 Butterflied Chop (Bnls)
69 Country Style Ribs
70 Loin Chop
71 Rib Chop
72 Rib Chop (Frenched)
73 Sirloin Chop
74 Top Loin Chop
75 Top Loin Chop (Bnls)

Variety Meats

76 Heart
77 Kidney
78 Liver
79 Oxtail
80 Tongue
81 Tripe

Various Meats

82 Beef for Stew
83 Cubed Steak
84 Ground Beef
85 Ground Pork
86 Hocks
87 Sausage Link/Pattie
88 Shank

Smoked/Cured

89 Brisket, Corned
90 Center Slice
91 Ham (Bnls)
92 Hocks
93 Loin Chop
94 Picnic (Whole)
95 Rib Chop
96 Rump Portion
97 Shank Portion
98 Slab Bacon
99 Sliced Bacon

Cookery Methods

D   Dry Heat
M   Moist Heat
D/M Dry or Moist Heat

Agriculture, Food and Natural Resources Content Standards

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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.).	Evaluation classes – placing and value-based Team activity – 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.	Evaluation classes – placing, value-based and keep/cull Team activity – problem solving	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.		
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.	Grading 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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
		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
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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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.02.02. 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.).	Evaluation classes – value-based, keep/cull Team activity – value-based, 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
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.	Evaluation classes – value-based and keep/cull Team activity – value-based, keep/cull and problem solving	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.).	Evaluation classes – value-based and keep/cull Team activity – value-based, keep/cull and problem solving,	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.	Evaluation classes – value-based and keep/cull Questions Team activity – value-based, food safety, keep/cull and problem solving	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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
ABS.04.02.02.b. Identify and assess alternative production systems for a specific agricultural product.	Evaluation classes – value-based and keep/cull Grading Identification Team activity – value-based, keep/cull, food safety and problem solving	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.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.	Evaluation classes – value-based and keep/cull Grading Identification Team activity – value-based and keep/cull	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.	Evaluation classes – value-based and keep/cull Grading Identification Team activity – value-based, keep/cull and problem solving	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.).	Evaluation classes – value-based and keep/cull Identification Team activity – value-based, keep/cull and problem solving	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.).	Evaluation classes – value-based and keep/cull Grading Identification Team activity – value-based and keep/cull	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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
		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
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.).	Evaluation classes – value-based and keep/cull Grading Identification Placing Team activity – value-based and keep/cull	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.	Grading Written exam	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.	Evaluation classes – value-based and keep/cull Grading Identification Team activity – value-based and keep/cull	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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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.	Evaluation classes – value-based and keep/cull Grading Identification Team activity – value-based, keep/cull, food safety and problem solving	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
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.	Evaluation classes – value-based and keep/cull Grading Placing Team activity – value-based, keep/cull, food safety and problem solving Written exam	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.	Evaluation classes – value-based Questions Team activity – value-based	
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.	Evaluation classes – value-based and keep/cull Grading Placing Team activity – value-based and keep/cull	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 Evaluation classes – placing, value-based and keep/cull Team activity – value-based and keep/cull	

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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 – value-based and food safety	AFNR Career Cluster – Animal Systems Pathway, Statement 2 STEM Career Cluster, Statement 4 STEM Career Cluster, Statement 5
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.	Evaluation classes – value-based, keep/cull and placing Team activity – food safety	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	
AS.06.01.02.c. Recommend different uses for an animal species based upon an analysis of local market needs.	Evaluation classes – value-based Team activity – value-based	
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	
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 and 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 Identification Keep/Cull Placing Value-based	STEM Career Cluster, Statement 5
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.	Evaluation classes – placing, keep/cull and value-based Grading Team activity – problem solving	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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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	
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.	Written 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.	Team activity – value-based and problem solving Written exam	
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.	Team activity – food safety Written exam	
CS.03.01.02.b. Analyze existing required regulations within an AFNR workplace.	Team activity – food safety and problem solving Written exam	
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.	Team activity – food safety Written exam	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 businesses.	Team activity – food safety Written exam	
CS.03.03.02.b. Assess various emergency response plan requirements for an AFNR worksite and/or facility.	Team activity – food safety Written exam	
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.	Written exam	
C3.06.04.02.c. Evaluate and select appropriate tools and equipment to complete AFNR tasks.	Written exam	

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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	
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.	Team activity – problem solving Written exam	
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	

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
CRP.04.03.02.c. Model active listening strategies in formal and informal settings.	Team activity – process	
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 assumptions in the workplace and community.		
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	
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	

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
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 and value-based	
CRP.12.01. Performance Indicator: Contribute to team-oriented projects and build 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	
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.	Team activity – food safety Written exam	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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
		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.	Team activity – food safety Written exam	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.	Team activity – food safety Written exam	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.	Team activity – food safety Written exam	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.	Written exam	
FPP.01.03.02.c. Evaluate the effectiveness of a current documentation procedure used within a food products and processing facility and recommend improvements.	Team activity – food safety Written exam	
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.).	Team activity – formulation Written exam	
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.	Evaluation Grading Questions 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.	Evaluation Team activity – food safety Written exam	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.).	Team activity – food safety and anatomy Written exam	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

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
FPP.03.01.04.c. Evaluate and grade food products from different classifications of food products.	Team Activity – value-based, evaluation, grading and identification Written exam	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, evaluation, grading and identification	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.).	Team Activity – value-based, evaluation, grading and identification Written exam	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 3
FPP.03.02.03.a. Identify methods of food preservation and give examples of foods preserved by each method.	Team activity – quality, evaluation and identification Written exam	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 Written 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.	Evaluation Grading Identification Team activity – value-based Written 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.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.	Evaluation Grading Team Activity – value-based and food safety Written exam	HS-ETS1-3 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 2

Measurements Assessed	Event Activities Addressing Measurements	Related Academic Standards
FPP.04.01.02.c. Devise a strategy to create food products that meet a specific consumer trend in a specific market.	Evaluation Grading Team Activity – value-based, formulations and questions Written exam	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.	Grading Evaluation Team Activity - formulation Written exam	HS-ETS1-3 Buying Goods and Services, Benchmarks: Grade 12, Statement 1 Buying Goods and Services, Benchmarks: Grade 12, Statement 2
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.	Grading Evaluation Team Activity - formulation Written exam	NSFL Buying Goods and Services, Benchmarks: Grade 12, Statement 1