Meats Evaluation CDE

Purpose
The purpose of the Meat Evaluation & Technology Career Development Event is to stimulate interest, encourage proficiency development and recognize student excellence in the meat industry as taught through the agricultural education curriculum. This event is designed to provide members with a better understanding of the meat processing industry and increase their knowledge of retail cuts and their quality.

State Event Superintendent
The superintendent for this event is Mrs. Allison Jennings, Eastern Region Agricultural Education Coordinator, Phone: 252-241-3532 Email: allison_jennings@ncsu.edu

Eligibility and General Guidelines
This event will be held during the North Carolina State FFA Convention. FFA Members may not participate in a Career Development Event that leads to a state level event after July 1, following their high school/early college graduation. This event is open to all FFA chapters and FFA members in good standing. Members winning a previous state event in this area or that have participated in a previous national event in this area are ineligible.

Teams shall consist of three or four members. Four scores will count towards the team total (A three-member team will earn a zero for the 4th score). No alternates are allowed in state events. Any alternate found participating in a state event will result in team disqualification.

FFA members in good standing may also participate as individuals in this event. A chapter may have up to two members participate as individuals as long as the chapter does not have a team participating in the event. Their scores will only count toward individual recognition and will not be tallied as a team score.

The use or possession of cellular phones or any other mobile electronic communication device is prohibited during any state-level career development event. Any violation of this rule by any team member will result in total team disqualification.

FFA members participating in career development events that require the use of calculators may only use non-programmable/graphing calculators that do not have the ability to communicate with other calculators. Calculators will be screened prior to the start of a CDE for acceptability. Students caught using data stored on a calculator or communicating with other calculators will result in a total team disqualification for the event.

Any member found cheating in any state-level career development event will result in total team disqualification for that event.

The North Carolina FFA Association, in keeping with the FFA mission and purposes, does not permit the use of tobacco products, e-cigarettes, vapes, or Juuls at any FFA facility or at any FFA activity.

At the North Carolina FFA State Convention, participation in more than one FFA career development event is permitted if events are not being held concurrently and no special provisions are required to facilitate participation. Members may participate in only one career development event with the exceptions of Creed Speaking and Parliamentary Procedure or Prepared Public Speaking and Parliamentary Procedure, which are held concurrently will allow dual participation and special provisions for flighting.

In compliance with the Americans with Disabilities Act, North Carolina FFA will honor requests for reasonable accommodations made by individuals with disabilities. Please direct accommodation requests through the CDE/LDE Accommodation Request Form. If the accommodation can be made for all and/or doesn't provide an unfair advantage, then every effort will be made to provide the accommodation. Requests can be accommodated more effectively if notice is provided at least 10 days before the event.

Middle School Participation

Middle school students and teams may participate in any Career Development Event or Leadership Development Event. The top three middle school participants will be recognized at the state FFA convention. Middle school participants should designate during registration.

Dress Code

Participants are required to follow the North Carolina FFA Career Development Event Dress Code. Participants are allowed to wear long pants, an appropriate shirt with a collar or an appropriate high school or FFA T-shirt.

The North Carolina FFA Association strives to promote a positive image at all Official FFA Events. The dress code policy was established to address the issue of appropriate attire at all Official FFA Events. Members should adhere to this policy for all events. A ten percent reduction will be applied to all individual scores from a chapter if a participant from that chapter violates the dress code during that career event.

Procedures for Administering the Event

Part 1: Written Test – Multiple-Choice (100pts)
The written test will be comprised of a total of 25 multiple-choice items designed to determine each team member's understanding of the meat science industry. Sections of the reference to be used for the written test are identified in Table 1 at the end of this description.

Part 2: Meats Identification (250 pts)

Students will identify 25 retail meat cuts found on the *4H/FFA Meats Scorecard* (Appendix A) and identify the species, primal, and cooking method for each cut identified. Partial credit is awarded with a point spread of 5 points for the correct cut, 1 point for the correct species, 2 points for the correct primal cut, and 2 points for the correct cooking method. (Appendix B)

Part 3: Placing Classes (200 pts)

1. Students will place 2 classes of Primal or Retail Cuts

2. Students may receive up to 50 points per class by using the *4H/FFA Meats Scorecard* (Appendix A) to place four cuts in each class.

3. In addition, students will take notes on the four cuts of each class in regard to marbling, external fat and amount of bone. Without review, students will answer five questions worth ten points each about the four cuts. This segment is worth a maximum of 50 points per class. (See sample questions in Appendix C).

Part 4: Meat Formulation Problem Solving (80 Points)

Students will be given a situational problem involving the least cost formulation of a batch of a particular meat product (hamburger, wiener, bologna, fresh ground pork, etc.). Students will use the *Pearson Square* (Appendix D) method to correctly formulate the product and answer 8 questions (value of 10 points each) about the formulation. Sample problems are provided in Appendix E.

Part 5. Anatomy Identification (50pts)

Utilizing products, photos or diagrams, students will be asked to identify 5 of the following from selected locations on a carcass, primal or subprimal exhibit (Example in Appendix F):

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

Scoring

Maximum Score	*680*
Written Test	100
Retail Cut Identification	250
Placing Classes	200
Meat Formulation Problem	80
Anatomy Identification	50

Procedure for Determining the State Event Winner When Scores are Tied

In the event a tie score exists, apply the following methods in sequential order until the tie is broken:
1. Compare the total team scores for the retail cut identification and the higher scoring team is the winner.
2. Compare the total team scores for the written test and the higher scoring team is the winner.
3. If these methods fail to break the tie, co-winners will be declared, and a run-off event will be held to determine which team will represent North Carolina at the National FFA Convention. The run-off event will follow the same rules as the state event.

Procedure for Determining the State Event High Scorer When Scores are Tied for individual Participants

In the event a tie score exists, apply the following methods in sequential order until the tie is broken:
1. Compare the individual scores on the retail cut identification and the high scoring individual is the winner.
2. Compare the individual score on the written test and the highest scoring individual is the winner.
3. Compare the individual score on the meat formulation problem and the high scoring individual is the winner.
4. If a tie still exists for individuals, co-high scorers will be declared, and all tied individuals will be recognized.

State Awards

The awards for the state event will be presented annually at the state FFA convention to include a team 1st, 2nd and 3rd place plaque and a travel monetary award. The high scoring individual will receive a plaque.

National Career Development Event Participation

State winning teams advancing to the national career development event will be automatically registered for the national event. It is the responsibility of the FFA Chapter Advisor to complete all necessary national certification and waiver forms and return them to the State FFA Coordinator by the assigned due date.

State winning CDE teams that choose not to participate at the national level should contact the state office by September 1 prior to National Convention. Teams that fail to inform the state office prior to September 1 will be ineligible to participate in that same CDE for the next year (chapters may appeal to the State FFA Board of Directors). Teams that do not compete at the National Convention will be required to pay back the travel award.

There is one reference for the written test. It is the Meat Science and Food Safety DVD available from iCEV Multimedia. Contact information below:

Meat Science and Food Safety DVD

Resources for Written Test

Table 1							
Units from CEV DVD	**Power Point Slides**	**Total Number**	**2021**	**2022**	**2023**	**2024**	**2025**
Legislative and History	6-25	19	19		19		19
Animal Care and Handling	26-42	16	16	16	16	16	16
Meat Nutrition	43-57	14		14		14	
Purchasing Meat	58-99	41	41	41	41	41	41
Meat Storage and Handling	100-123	23	23		23		23
Meat Cookery	124-148	24	24		24		24
Processed Meats	149-172	23		23		23	
Food Safety	173-192	19		19		19	
			123	113	123	113	123

Appendix A

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

Incorrect Marks ✓ ✗ ⊖ · Correct Mark ●

Team Name/Additional Info: This sheet is for demonstration and practice only. You must use a real scan sheet for actual competition.

Placing Classes (Mark one answer in each column!)

#	Order	1	2	3	4	5	6
1	1234						
2	1243						
3	1324						
4	1342						
5	1423						
6	1432						
7	2134						
8	2143						
9	2314						
10	2341						
11	2413						
12	2431						
13	3124						
14	3142						
15	3214						
16	3241						
17	3412						
18	3421						
19	4123						
20	4132						
21	4213						
22	4231						
23	4312						
24	4321						

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

Appendix B

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

Species	Primal	Retail Cut	Cooking Method	Species	Primal	Retail Cut	Cooking Method
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
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

Appendix C

North Carolina Meat Evaluation
Career Development Event

Part III: Placing Class (100 points)

1. Students will use the 4H/FFA Meats Scorecard to place 2 classes of four cuts from the following classes:

   a. **Retail Cuts (beef, pork, lamb)**
   b. **Wholesale/Subprimal cuts (beef, pork, lamb)**

   The placement activity is worth 100 points if both class are placed perfectly according to the Official's placing.

2. In addition, students will take notes on both classes. Without review, students will answer five questions on each class worth ten points per question. This segment is worth a maximum of 100 points.
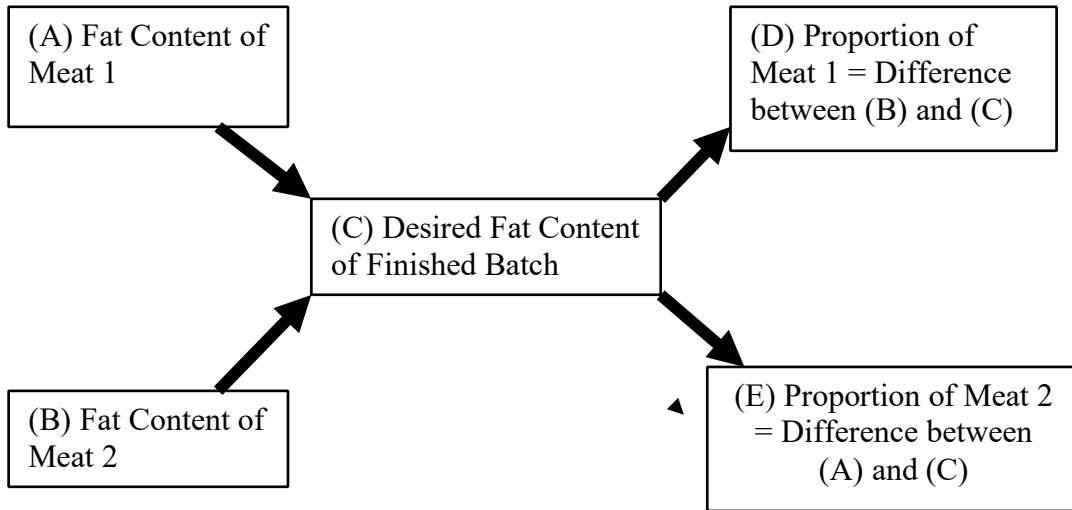
<u>Sample</u> Questions (Steaks)

1.	The chop/steak with the most external fat is:	a.	b.	c.	d.	10 pts.
2.	The chop/steak that has the least bone is:	a.	b.	c.	d.	10 pts.
3.	The chop/steak with the least marbling is:	a.	b.	c.	d.	10 pts.
4.	The chop/steak with the best color is:	a.	b.	c.	d.	10 pts.
5.	The largest of the four chops/steaks is:	a.	b.	c.	d.	10 pts.

Appendix D

Pearson Square Calculation

<table>
<tr>
<td>(A) Fat Content of Meat 1</td>
<td></td>
<td>(D) Proportion of Meat 1 = Difference between (B) and (C)</td>
</tr>
<tr>
<td></td>
<td>(C) Desired Fat Content of Finished Batch</td>
<td></td>
</tr>
<tr>
<td>(B) Fat Content of Meat 2</td>
<td></td>
<td>(E) Proportion of Meat 2 = Difference between (A) and (C)</td>
</tr>
</table>

*To check the set up of the Pearson Square:

The **PERCENTAGE** of each meat component is determined by dividing the proportion of each component by the total meat components and rounding the answer to **four decimal places** as seen below.

Percentage of Meat 1 = D / (Sum of D + E) = .xxxx

Percentage of Meat 2 = E / (Sum of D + E) = .xxxx

Pounds of Meat 1 Needed = % of Meat 1 x Batch Size

Pounds of Meat 2 Needed = % of Meat 2 x Batch Size

To Check: Pounds of Meat 1 + Pounds of Meat 2 = Batch Size

To verify Final Fat Content:

Total lbs. of (Meat 1) x (%fat content) =   Pounds of Fat from Meat 1
Total lbs. of (Meat 2) x (%fat content) =   Pounds of Fat from Meat 2
                                      Total Pounds of Fat in Batch

Total Pounds of Fat in Batch = Percentage of Fat in Final Product
     Batch Size in Pounds

Appendix E **North Carolina Meat Evaluation**
PART IV: MEATS CDE FORMULATION PROBLEM
100 Total Points

SAMPLE PROBLEM 1 AND ANSWER SHEET

Assume Quality Beef Inc. is a meat plant that manufactures ground beef for a chain of retail stores. Quality Beef's mission is to produce a fresh, wholesome product which complies with all meat inspection regulations and which will have three days' shelf life in the meat counter. Each individual retail chain specifies fat content of the ground beef. Quality Beef strives to produce a product at the lowest possible cost to retain financial solvency while complying with federal regulations as well as local store specifications.

USDA Ground Beef Regulations

Ground Beef: *The terms "Ground Beef" and "Chopped Beef" are synonymous. Products so labeled must be made with fresh and/or frozen beef with or without seasoning, without the addition of fat as such, and shall contain no more than 30% fat. It may contain added water, binders, or extenders. It may contain beef cheek meat not to exceed 25%. Heart and tongue are not acceptable ingredients.*

If the name is qualified by the name of a particular cut, such as "Ground Beef Round" or "Beef Chuck, Ground", the product must consist entirely of meat from the particular cut or part.

Industry Guidelines on Ground Beef Manufacture

1. To get the most desirable color and maximum shelf life, all boneless meats used to manufacture ground beef shall be fresh (not frozen), well chilled (temperature no higher than 35°F), and shall arrive at the plant within 96 hours of slaughter.

2. A least-cost determination shall be performed on acceptable meat ingredients to select those meats that produce the lowest cost product that conforms to all ground beef guidelines.

3. To simplify the grinding and blending operation, only two meat ingredients will be used for each batch of ground beef produced.

4. Rounding of decimals: 1 – 4 will be rounded down and 5 – 9 will be rounded up.

Batch Description

Desired Fat Content: 20%
Batch Size: 1,000 lbs.
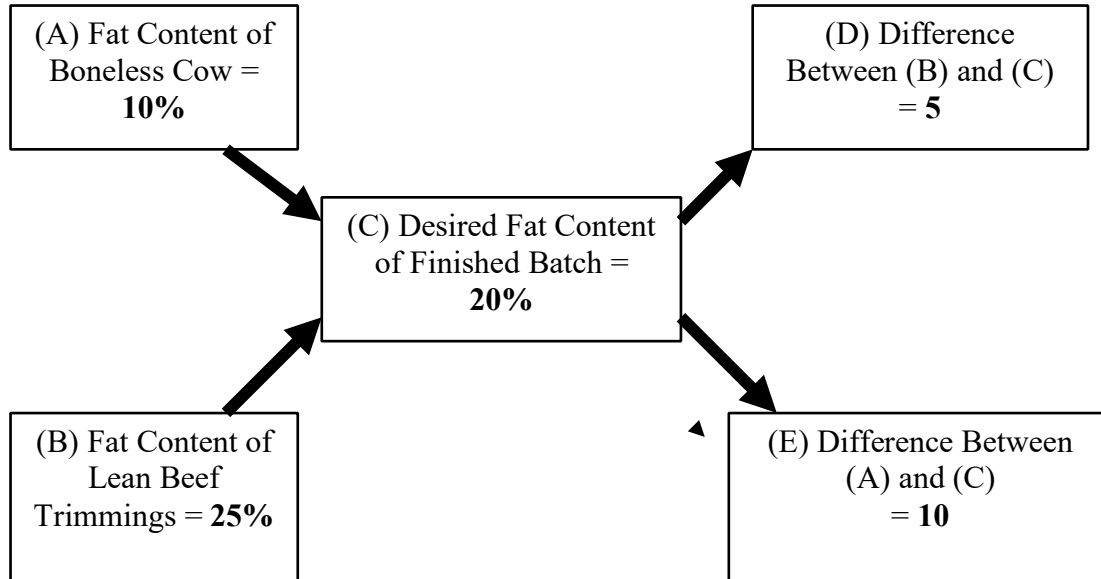Meats:
      1. Boneless cow meat (10% fat @ $0.99/lb.)
      2. 75% lean beef trimmings (25% fat @ $0.79/lb.)

Solution to Sample Problem 1

1. The amounts of the two types of meat that must be blended together to give the desired fat content.

Pearson Square Calculation

(A) Fat Content of Boneless Cow = **10%**	(D) Difference Between (B) and (C) = **5**
(C) Desired Fat Content of Finished Batch = **20%**	
(B) Fat Content of Lean Beef Trimmings = **25%**	(E) Difference Between (A) and (C) = **10**

The difference in A and B = 15 and the sum of D and E = 15 so the Pearson Square is set up properly.

Percentage of Boneless Cow =   **5/15 = .3333 or 33.33%**
Percentage of Lean Beef Trimmings =   **10/15 = .6667 or 66.67%**

Pounds of Boneless Cow Needed = 33.33% x 1,000 lbs. = 333.3 lbs.
Pounds of Lean Beef Trimmings = 66.67% x 1,000 lbs. = 666.7 lbs.

Verify Final Fat Content:

333.3 lbs. of boneless cow x 10% fat content = 33.33 lbs. of fat from boneless cow
666.7 lbs. of beef trimmings x 25% fat content = 166.67 lbs. of fat from beef trim

33.33 + 166.67 = 200/1000 = 20% fat in final product

2. **Questions: These are only sample questions that may or may not be included for the actual problem.**

    NOTE: In an actual situation, overhead cost must also be added to the cost of the ground beef to account for labor, equipment, transportation, etc., but in this exercise the student will only be determining meat cost and need not be concerned with overhead costs.

    Cost per Pound

    Boneless cow meat 0.3333 x $0.99/lb. =   .33
    75% Beef trim   0.6667 x $0.79/lb. = .53
                                              $0.86 lb.

    Cost of Final Product = .86 x 1000 = $860.00

    1. What is the cost of the finished product/lb.? **$.86**

    2. What is the total cost for the final batch of ground beef? **$860.00**

    3. How many total pounds of fat from the Boneless Cow Meat needs to be mixed to produce a 1. 000 ob. bath of ground beef with 20% fat content? **33 lbs. of boneless cow**

    4. What is the desired percentage of fat content of the final product? **20**

    5. Which ingredient is **NOT** allowed in ground beef? **Heart**

    6. According to USDA standards, what is the highest percentage of fat that ground beef can contain? **30**

    7. How many pounds of ground beef will be in the final batch? **1,000**

    8. What is the total pounds of the 75% Beef Trim that is needed to mix a 1,000lb batch of ground beef with 20% fat content? **666.7**

    9. What is the fat content of the final batch of ground beef? **200 lbs.**

    10. What percentage of Boneless cow meat would be used for the proposed batch? **33.33%**

SAMPLE PROBLEM 2 AND ANSWER SHEET

Best Beef Company must operate according to the same government regulations that Quality Beef Inc. and other companies follow. However, **Best Beef** also has its own specific requirements. Determine which available ingredients to use (and at what levels) to make the lowest priced ground beef acceptable to the company management.

USDA Ground Beef Regulations

Ground Beef: *The terms "Ground Beef" and "Chopped Beef" are synonymous. Products so labeled must be made with fresh and/or frozen beef with or without seasoning, without the addition of fat as such, and shall contain no more than 30% fat. It may contain added water, binders, or extenders. It may contain beef cheek meat not to exceed 25%. Heart and tongue are not acceptable ingredients.*

If the name is qualified by the name of a particular cut, such as "Ground Beef Round" or "Beef Chuck Ground" the product must consist entirely of meat from the particular cut or part.

Industry Guidelines on Ground Beef Manufacture

1. To get the most desirable color and maximum shelf life, all boneless meats used to manufacture ground beef shall be fresh (not frozen), well chilled (temperature no higher than 35°F), and shall arrive at the plant within 96 hours of slaughter.

2. A least-cost determination shall be performed on acceptable meat ingredients to select those meats that produce the lowest cost product that meets all ground beef guidelines.

3. To simplify the grinding and blending operation, only two meat ingredients will be used for each batch of ground beef produced.

4. Rounding of decimals: 1 – 4 will be rounded down and 5 – 9 will be rounded up.

Best Beef Specifications

Desired fat content of finished product is **18%**.
Batch size = **5,000 lbs.**
Manufacturing Date = **February 10**
No product over **five days old may be used.**
No variety meat may be used.
No product over 35°F may be used.

BONELESS MEAT INGREDIENTS AVAILABLE

| Meat Product	Slaughter Date	Temperature	Fat Content	Price
Bull meat	February 6	33°F	8%	$1.05
Boneless chuck	February 7	35°F	14%	$1.00
75% lean trim	February 4	32°F	25%	$0.75
50% lean trim	February 6	31°F	50%	$0.55
Beef chuck	February 7	37°F	12%	$0.70
Beef hearts	February 6	32°F	15%	$0.35

Solution to Sample Problem 2

1. Do all potential ingredients meet government regulations and company specifications?

Acceptable	Non Acceptable
Bull meat	75% lean trim is too old
Boneless chuck	Beef chuck got too warm
50% lean trim	Beef hearts are not allowed

2. Therefore, to produce desired fat content, product could be made from either of the following two combinations: Bull meat and 50% lean trim or Boneless chuck and 50% lean trim

3. Use the Pearson Square method to determine which combination will result in the lowest meat cost.
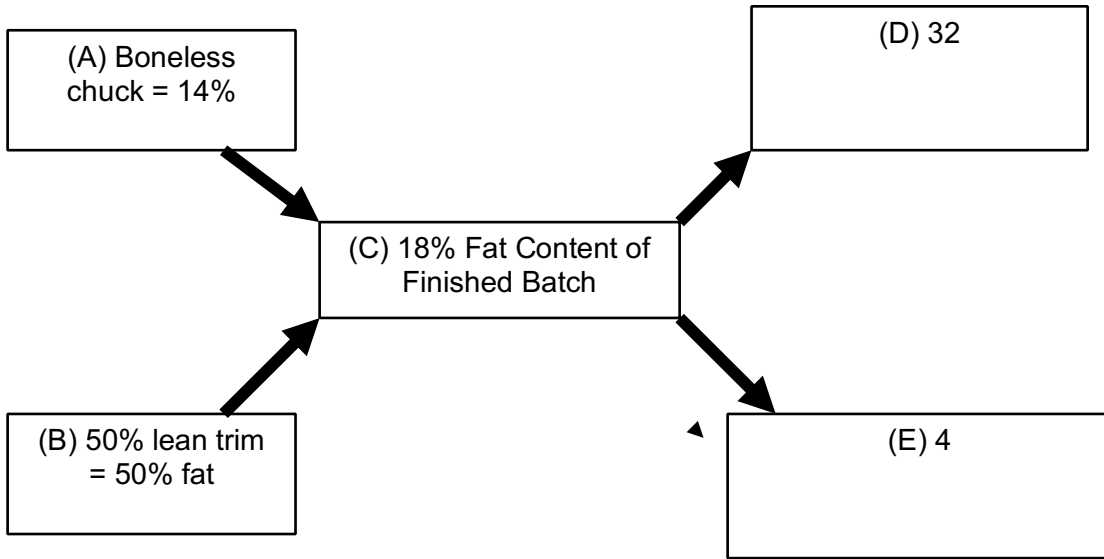
(A) Bull meat = 8%

(D) 32

(C) 18% Fat Content of Finished Batch

(B) 50% lean trim = 50% fat

(E) 10
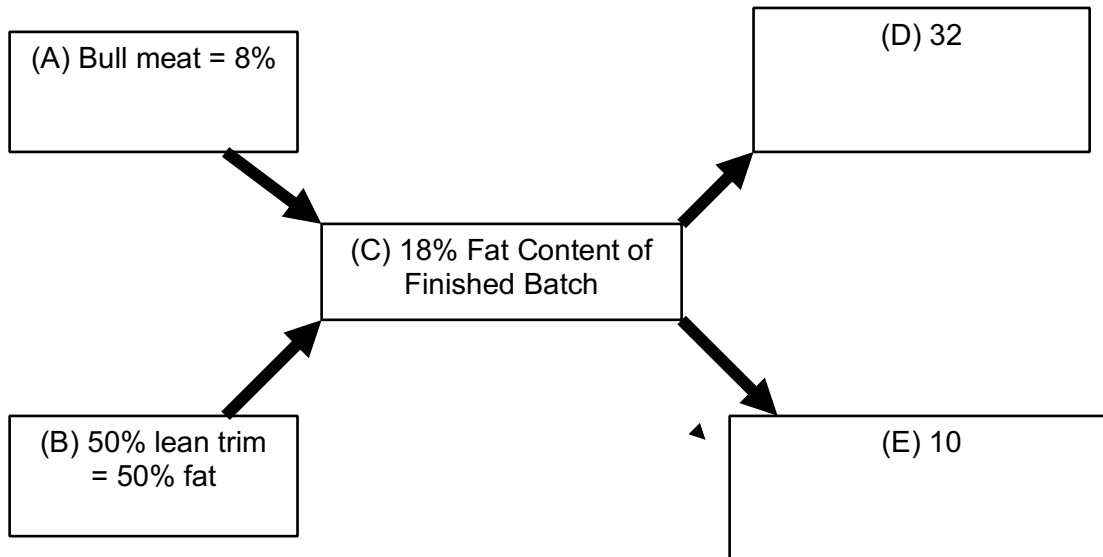
The difference in A and B = 42 and the sum of D and E = 42 so the Pearson Square is set up properly.

Percentage of Bull Meat   = 32/42 = .7619 = 76.19%
Percentage of Lean Trim   = 10/42 = .2381 = 23.81%

Pounds of Bull Meat needed = 76.19% x 5,000 lbs. = 3809.5
Pounds of 50% lean trim (B) = 23.81% x 5,000 lbs. = 1190.5

Verify Final Fat Content
3809.5 lbs. of bull meat x   8% fat content =   304.76
1190.5 lbs. of lean trim x 50% fat content =   595.25

Cost: Bull Meat 0.7619 x $1.05 = $0.799 = $0.80
**   50% trim 0.2381 x $0.55 = $0.130 = $0.13**
                                             $0.93 or $0.93/lb.

(A) Boneless chuck = 14%

(D) 32

(C) 18% Fat Content of Finished Batch

(B) 50% lean trim = 50% fat

(E) 4

The difference in A and B = 36 and the sum of D and E = 36 so the Pearson Square is set up properly.

Percentage of boneless chuck = 32/36 = .8888 = 88.88%
Percentage of Lean Trim   =   4/36 = .1111 = 11.11%

Pounds of boneless chuck needed = 88.88% x 5,000 pounds = 4444
Pounds of 50% lean trim (B) =   11.11% x 5,000 pounds = 555.5

Verify Final Fat Content
4444 lbs. of bull meat x 14% fat content =   622.16
555.5 lbs. of lean trim x 50% fat content) =   277.75

Cost: boneless chuck 0.8888 x $1.00 = $0.888 = $0.89
**   50% trim 0.1111 x $0.55 = $0.061 = $0.16**
** $0.95 or $0.95/lb.**

Final Product: To make the lowest priced ground beef acceptable to the company management.

Meats to be used: Bull Meat …..3,809.5 lbs.
**   50% trim …..1,190.5 lbs.**
Cost of final Product ……………$0.93 lb. or $0.93 x 5,000 = $ 4650.00

Questions: These are only sample questions that may or may not be included for the actual problem.

NOTE: In an actual situation, overhead cost must also be added to the cost of the ground beef to account for labor, equipment, transportation, etc., but in this exercise the student will only be determining meat cost and need not be concerned with overhead costs.

1. What amount of bull meat and 50% beef trim needs to be mixed to produce a 5,000 lb. batch of ground beef with 18% fat content?
    3809.5 lbs. of bull meat and 1190.5 lbs. of 50% beef trim

2. What amount of boneless chuck and 50% beef trim needs to be mixed to produce a 5,000 lb. batch of ground beef with 18% fat content?
    4444 lbs. of boneless chuck and 555.5 lbs. of 50% beef trim

3. How much is saved per pound if bull meat is used instead of boneless chuck?
    $0.02

4. Which ingredient could **NOT** be used because it was kept too warm?
    Beef chuck

5. Which ingredient is too old to be used in the ground beef?
    75% lean trim

6. Which ingredient does not meet USDA standards to be included in ground beef?
    Beef hearts

7. Which ingredient was kept the coldest?
    50% lean trim

8. Which ingredient had the greatest percentage of fat?
    50% lean trim

9. Which ingredient had the least percentage of fat?
    Bull meat

10. How much is the total savings if bull meat is used instead of boneless chuck?
    $100.00

Appendix F

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:

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