



West Virginia University
DAVIS COLLEGE OF AGRICULTURE,
NATURAL RESOURCES AND DESIGN



FOOD SCIENCE CDE

(Revised April 2023)

PURPOSE

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

ELIGIBILITY

The participant must be an active member of a chartered West Virginia FFA Chapter and enrolled in middle or high school FFA chapters. Each chapter may enter one team.

EVENT PROCEDURE

The event will be a team event consisting of four students. All 4 team members scores will be calculated in the team total. A team may compete with less than 4 members. FFA members will wear official dress or professional dress as it pertains to the profession. For example, Black pants white shirt and black apron.

Under no circumstances will any participants be allowed to handle any of the items in the identification portion of the practicums. Any infraction of this rule will result in team elimination from the event.

No FFA advisors/coaches will be allowed in the area of the contest, but arrangements will be made to view the specimens following the contest.

PRACTICUMS

A general knowledge exam, food safety and quality practicum, and sensory evaluation practicum will be used every year.

EVENT MATERIALS

MATERIALS STUDENTS MUST PROVIDE

- Pencils
- Electronic Calculator
- Clipboards

INDIVIDUAL PRACTICUMS

IDENTIFICATION PRACTICUM

GENEML KNOWLEDGE EXAMINATION

The objective questions administered during the food science and technology examination will be designed to determine each team member's understanding of the basic principles of food science and technology. The test will be created using the textbooks and websites specified in the reference section. Team members will work individually to answer each of the 50 questions. Each person will have 60 minutes to complete the examination. Each question will be worth two points. Questions will come from the past 5 years of National Exams.

Middle School members will have 30 minutes to complete 25 questions.

SKILLS PRACTICUM

FOOD SAFETY AND QUALTY

Customer Inquiry- Each participant will be given five scenarios representing general consumer inquiries. Participants must determine if the consumer inquiry reflects a quality or safety issue (2 points) and determine if it is a biological, chemical or physical concern or hazard (3 points). (25 points total)

Food Safety/Sanitation- Each participant will be given five situations (e.g., photos, videos, written scenarios, live demonstrations or a combination). A numbered list of problems will be provided at the beginning of this practicum segment. The list will contain concepts such as good manufacturing practices (GMP), sanitation, food handling/storage and other prerequisite programs. Participants will identify if there is a violation presented in the situation. **Participants will indicate the violation from the bank of violations provided at the beginning of the contest.**

SENSORY EVALUATION

Participants will be asked to complete both of the following activities, using the materials provided.

- Triangle Tests- Three different triangle tests will be conducted. Participants are expected to identify the different samples through flavor, aroma, visual cues and/or textural differences. Answers will be given on the sheet provided. No list will be provided for this segment of the practicum. Each test is worth 5 points.
- Aromas- Each participant will be asked to identify five different aromas from vials provided at each station and record the answer on the sheet provided. A list of potential aromas will be provided to each person. Each sample is worth 4 points.

PROBLEM SOLVING/MATH PRACTICUM

Participants will answer a series of five mathematical questions based on common food science themes. Questions may include nutrition calculations, ingredient quantity, cost benefit analysis, estimation of cost/margin of goods sold, conversions, processing conditions, etc. (25 points per contestant)

SCORING

Practicum	Activity	Individual	Team
General Knowledge	Written Exam	100	400
Food Safety and Quality Practicum	Written Exam	25	100
Customer Inquiry	Written Exam	25	100
Sensory Evaluation	Hands-On	35	140
Problem Solving/Math Practicum	Evaluation	25	100
TOTAL		210	840

***Middle school exam will be 50 points, instead of 100

TIE BREAKERS

In the event of a tie in individual scores, the following events will be used in order to determine award recipients:

INDIVIDUAL

1. Written Exam
2. Food Safety and Quality Practicum

TEAM

1. Total Written Exam
2. Total score for Food Safety and Quality practice

REFERENCES

This list of references is not intended to be all-inclusive. •Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation

National FFA Core Catalog—CDE Questions and Answers <http://shop.ffa.org/cde-qasc1413.aspx>

Mehas and Rodgers, 5th Edition, 2006. Kay Yockey Mehas and Sharon Lesley Rodgers, Glen- coe/McGraw, New York.

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

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

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

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

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

Food Safety Education,
http://www.fsis.usda.gov/food_safety_education/for_kids_&_teens/index.asp

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

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

Aroma Code Sheet	
11	Apple
12	Banana
13	Basil
14	Butter
15	Cherry
16	Chocolate
17	Cinnamon
18	Clove
19	Coconut
20	Coffee
21	Garlic
22	Ginger
23	Grape
24	Lemon
25	Licorice (anise)
26	Lime
27	Maple
28	Molasses
29	Nutmeg
30	Onion
31	Orange
32	Oregano
33	Peppermint
34	Peach
35	Raspberry
36	Sage
37	Smoke (liquid)
38	Strawberry
39	Vanilla
40	Watermelon
41	Wintergreen

Customer Inquiry Scoresheet



Contestant Name _____

Chapter _____

Member Number _____

Team Number _____

		Points Possible	Points Earned
Scenario #1	Check One		
This issue represented in this scenario is a:		2	
Food Quality Issue	<input type="checkbox"/>		
Food Safety Issue	<input type="checkbox"/>		
Is the concern or hazard primarily:	Check One		
Biological	<input type="checkbox"/>	3	
Chemical	<input type="checkbox"/>		
Physical	<input type="checkbox"/>		
Scenario #2	Check One		
This issue represented in this scenario is a:		2	
Food Quality Issue	<input type="checkbox"/>		
Food Safety Issue	<input type="checkbox"/>		
Is the concern or hazard primarily:	Check One		
Biological	<input type="checkbox"/>	3	
Chemical	<input type="checkbox"/>		
Physical	<input type="checkbox"/>		
Scenario #3	Check One		
This issue represented in this scenario is a:		2	
Food Quality Issue	<input type="checkbox"/>		
Food Safety Issue	<input type="checkbox"/>		
Is the concern or hazard primarily:	Check One		
Biological	<input type="checkbox"/>	3	
Chemical	<input type="checkbox"/>		
Physical	<input type="checkbox"/>		

Total
Possible

75 Points

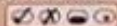
Customer Inquiry Scoresheet

		Points Possible	Points Earned
Scenario #4 This issue represented in this scenario is a: Food Quality Issue Food Safety Issue	Check One <div style="display: flex; align-items: center;"> <input type="checkbox"/> <input type="checkbox"/> </div>	2	
Is the concern or hazard primarily: Biological Chemical Physical	Check One <div style="display: flex; align-items: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>	3	
Scenario #5 This issue represented in this scenario is a: Food Quality Issue Food Safety Issue	Check One <div style="display: flex; align-items: center;"> <input type="checkbox"/> <input checked="" type="checkbox"/> </div>	2	
Is the concern or hazard primarily: Biological Chemical Physical	Check One <div style="display: flex; align-items: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>	3	

Food Science - Form #713-3

Team Name

Incorrect Marks Correct Mark



This sheet is for demonstration and practice only. You must use a real scan sheet for actual competition.

Team #
0
1
2
3
4
5
6
7
8
9

Code
0
1
2
3
4
5
6
7
8
9

Last Name	First Name
A	A
B	B
C	C
D	D
E	E
F	F
G	G
H	H
I	I
J	J
K	K
L	L
M	M
N	N
O	O
P	P
Q	Q
R	R
S	S
T	T
U	U
V	V
W	W
X	X
Y	Y
Z	Z

Objective Test	
1	A B C D E
2	A B C D E
3	A B C D E
4	A B C D E
5	A B C D E
6	A B C D E
7	A B C D E
8	A B C D E
9	A B C D E
10	A B C D E
11	A B C D E
12	A B C D E
13	A B C D E
14	A B C D E
15	A B C D E
16	A B C D E
17	A B C D E
18	A B C D E
19	A B C D E
20	A B C D E
21	A B C D E
22	A B C D E
23	A B C D E
24	A B C D E
25	A B C D E
26	A B C D E
27	A B C D E
28	A B C D E
29	A B C D E
30	A B C D E
31	A B C D E
32	A B C D E
33	A B C D E
34	A B C D E
35	A B C D E
36	A B C D E
37	A B C D E
38	A B C D E
39	A B C D E
40	A B C D E
41	A B C D E
42	A B C D E
43	A B C D E
44	A B C D E
45	A B C D E
46	A B C D E
47	A B C D E
48	A B C D E
49	A B C D E
50	A B C D E

General Knowledge

Sensory Evaluation Practicum

Triangle Tests			
1	2	3	4
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Sensory Evaluation

Aromas									
1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

Problem Solving/Math Practicum

Problem Solving / Math Practicum	
1	A B C D E
2	A B C D E
3	A B C D E
4	A B C D E
5	A B C D E

Food Safety and Quality Practicum

Customer Inquiry	
The issue represented in this scenario is a:	Is the concern or hazard primarily:
Food Quality Issue	Food Safety Issue
Biological	Chemical
Physical	
1	Q S B C P
2	
3	
4	
5	Q S B C P

Product Specification Compliance

1	A B C D E
2	A B C D E
3	A B C D E
4	A B C D E
5	A B C D E

Food Safety and Quality Practicum

