

Iowa FFA Food Science CDE 2016**Multiple Choice**

Place your answers onto the scantron sheet. When you submit, be sure to attach your name sticker to the scantron sheet.

- _____ 1. The United States is the largest exporter of which two items?
a. milk and sugar
b. oranges and apples
c. potatoes and carrots
d. cereal grains and soybeans
- _____ 2. The periodic table arranges elements by the number of _____ in their outermost energy levels.
a. neutrons
b. atoms
c. protons
d. electrons
- _____ 3. Covalent bonds are formed by the sharing of a pair of _____.
a. atoms
b. neurons
c. electrons
d. protons
- _____ 4. Hydrogen bonds are formed when a hydrogen atom is shared between two _____.
a. molecules
b. atoms
c. elements
d. neutrons
- _____ 5. Organic chemistry involves molecules that contain which element?
a. carbon
b. nitrogen
c. oxygen
d. calcium
- _____ 6. Which of the following is the source of carbohydrates?
a. wheat
b. beef
c. milk
d. eggs
- _____ 7. _____ is the most common polysaccharide added to food products.
a. Water
b. Salt
c. Glucose
d. Starch
- _____ 8. How many cups of water do humans require per day?
a. 1 to 3
b. 10 to 12
c. 5 to 9
d. 7 to 11
- _____ 9. The RDA is revised approximately every _____ years.
a. five
b. ten
c. two
d. three
- _____ 10. _____ percent of the adult body is made up of water.
a. Fifty-five
b. Sixty-five
c. Seventy-five
d. Eighty-five
- _____ 11. Fat contributes about _____ calories per gram.
a. 9
b. 10
c. 8
d. 7
- _____ 12. Most vitamins are measured in _____.
a. milligrams
b. grams
c. liters
d. kilograms

Name _____

School Post Office _____

- _____ 13. Fruits and vegetables are graded based on their _____ and _____.
a. size, shape
b. color, size
c. smell, shape
d. smell, color
- _____ 14. _____ standards help ensure food quality.
a. National
b. Quality
c. Packing
d. Legal
- _____ 15. _____ are the largest of the microorganisms but are still single cells, and some produce spores.
a. Yeast
b. Bacteria
c. Molds
d. Ameba
- _____ 16. Microbes that prefer cold temperatures are _____.
a. mesophilic
b. thermophilic
c. psychrophilic
d. obligative
- _____ 17. Most bacteria are killed at _____° to _____°F, but spores are not.
a. 150, 175
b. 180, 200
c. 160, 200
d. 175, 200
- _____ 18. _____ is the transfer of heat from one particle to another by contact.
a. Conduction
b. Convection
c. Radiation
d. Combustion
- _____ 19. Household refrigerators usually run at _____° to _____°F.
a. 45.5, 50.2
b. 40.5, 44.6
c. 35.3, 37.7
d. 21.4, 26.5
- _____ 20. Foods high in _____ or other solutes dry more slowly.
a. protein
b. salt
c. sugar
d. water
- _____ 21. _____ is when water goes from a solid to a gas without passing through the liquid phase.
a. Transfusion
b. Sublimation
c. Evaporation
d. Condensation
- _____ 22. Sun-dried _____ are the best known of all dried foods.
a. tomatoes
b. peppers
c. raisins
d. mushrooms
- _____ 23. To dry fruits out-of-doors, humidity below _____ percent is best.
a. 60
b. 70
c. 80
d. 90
- _____ 24. _____ are used in medical research and therapy in many hospitals and universities.
a. Radioisotopes
b. Microwaves
c. Satellites
d. Mice
- _____ 25. Irradiation causes undesirable flavor changes in _____ products.
a. dairy
b. grain
c. meat
d. vegetable

Name _____

School Post Office _____

- ____ 26. Fermentation microorganisms produce ____ and growth factors in the food.
- a. minerals
 - b. vitamins
 - c. calories
 - d. energy
- ____ 27. Fermentation is stopped by pasteurizing and ____.
- a. cooling
 - b. heating
 - c. stirring
 - d. settling
- ____ 28. Sour cream usually has a fat content between ____ percent.
- a. 1 and 2
 - b. 3 and 8
 - c. 10 and 11
 - d. 12 and 30
- ____ 29. Vinegar usually has an acetic acid content of between 4 and ____ percent.
- a. 6
 - b. 7
 - c. 8
 - d. 9
- ____ 30. ____ are the most heavily used additives.
- a. Minerals
 - b. Vitamins
 - c. Gums
 - d. Sweeteners
- ____ 31. Sequestrants are ____ agents.
- a. cheating
 - b. chelating
 - c. chilling
 - d. charcoal
- ____ 32. ____ dissolve in water and are made as powders, granules (small hard pieces), liquids, or other special-purpose forms.
- a. Dyes
 - b. Lakes
 - c. Sweeteners
 - d. Gums
- ____ 33. ____ make a food acid or sour.
- a. Flavorings
 - b. Texturings
 - c. Colorings
 - d. Acidulants
- ____ 34. The outside of the steel can is protected from rust by a thin layer of ____.
- a. tin
 - b. copper
 - c. aluminum
 - d. silver
- ____ 35. Paper used for ____ cartons must come from sanitary virgin pulp.
- a. milk
 - b. apple juice
 - c. orange juice
 - d. butter
- ____ 36. Commercial laminates with as many as ____ layers can be custom-designed for packaging a specific product.
- a. eight
 - b. three
 - c. ten
 - d. five
- ____ 37. All raw milk must be processed within ____ hours of receipt at the processing plant.
- a. 24
 - b. 36
 - c. 48
 - d. 72
- ____ 38. ____ is made by churning pasteurized cream.
- a. Butter
 - b. Ice cream
 - c. Yogurt
 - d. Milk

Name _____

School Post Office _____

- _____ 39. Acid coagulated _____ cheeses may include cottage cheese, quark, and cream cheese.
- a. fresh
 - b. white
 - c. aged
 - d. foreign
- _____ 40. _____ milk is a traditional milk fermented with *Lactobacillus acidophilus* (LA).
- a. Skim
 - b. Whole
 - c. Acidophilus
 - d. Butter
- _____ 41. _____ are sides of fish cut lengthwise away from the backbone.
- a. Fillets
 - b. Nuggets
 - c. Steaks
 - d. Sticks
- _____ 42. The _____ is the large central portion of the kernel and contains most of the starch.
- a. aleurone
 - b. bran
 - c. endosperm
 - d. germ
- _____ 43. Potato starch begins to _____ at a lower temperature than cornstarch.
- a. hydrolize
 - b. gelatinize
 - c. enlarge
 - d. separate
- _____ 44. _____ flour has a slightly higher percentage of gluten and a much stronger and more elastic gluten than other types of flour.
- a. Bread
 - b. Cake
 - c. Pastry
 - d. Rice
- _____ 45. _____ are plant portions generally high in water and fiber.
- a. Tubers
 - b. Stems
 - c. Roots
 - d. Bulbs
- _____ 46. The use of U.S. grade standards for fruits and vegetables is _____ in most cases.
- a. required
 - b. helpful
 - c. confusing
 - d. voluntary
- _____ 47. _____ fruits produce ethylene gas during ripening.
- a. Nonclimacteric
 - b. Climacteric
 - c. Orange
 - d. Tree
- _____ 48. _____ is a selective process that can be controlled to produce various levels of hardening.
- a. Winterization
 - b. Bleaching
 - c. Hydrogenization
 - d. Degumming
- _____ 49. _____ organisms tolerate low temperatures and can grow under refrigeration.
- a. Psychrophilic
 - b. Mesophilic
 - c. Psychrotrophic
 - d. Thermotrophic
- _____ 50. Of the microorganisms, _____ are the greatest threat to food safety.
- a. viruses
 - b. parasites
 - c. fungi
 - d. bacteria

Iowa FFA Food Science CDE 2016**Answer Section****MULTIPLE CHOICE**

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

2016 Iowa FFA Food Science CDE

Food Safety and Quality Section

Response to Consumer Complaint

The Consumer Affairs Department at Homeland Grocery has received the following letter from a customer. Please respond to the consumer's complaint. Your response should contain the answers presented by the consumer. Please be concise and courteous in your response. Your response will be scored based on the identification of problem, identification of correct solution, completeness and correctness of your response, courteousness, conciseness (limit to 1 page), and appropriate grammar and correct spelling.

Dear Sirs:

We are loyal customers to your store and love all your store brand products. I purchased your store brand of powder mix of lemonade for a family picnic this past weekend. The lemonade was loved by many of the guest but shortly after drinking we started having a tickling sensation in our throats and some people began coughing. Not everyone got this sensation but some people did. When I looked at the powder mix, I noticed pink specks in the powder similar to sugar granules. My husband thought something may have been added to the powder as the base was yellow but we could not determine what it was. My husband thought this was unsafe and told me to throw it away. Is the lemonade mix safe to drink? We decided to throw out the powdered mix, but wanted to ask a few questions in case we see this problem again.

- 1. What caused the tingling sensation in some of our guest throats?*
- 2. What are the pink specks in the lemonade mix?*
- 3. Will I get sick from drinking the lemonade?*
- 4. Is there anything I can do to correct the problem or should I just throw it out?*
- 5. What will your company do to make sure that there are no more pink specks in the future?*

I look forward to hearing from you.

*Thank you.
Amber Craig*

	Points Possible	Points Received
Identification of Problem	15	
Presentation of Solution	15	
Courteousness of Response	10	
Conciseness (less than 1 page)	5	
Grammar and spelling	5	
	50	

FFA Food Science Consumer Complaint Response

June 9, 2016
50 points

Chapter Name _____

Name _____

Contestant Number _____

Score _____/50_____

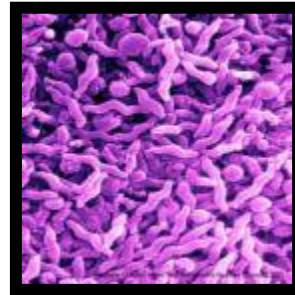
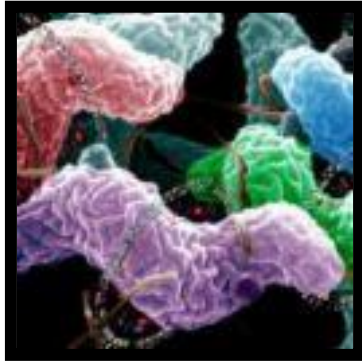
Complete your response in the box below:

2016 Iowa FFA Food Science CDE

Food Safety and Sanitation Section

In this segment of the contest, you will be given pictures/graphics to view in reference to common problems that exist within the food industry. Your task for each set of pictures and/or graphics are to: (a) identify the problem and (b) select the most appropriate solution to the problem. There will be five (5) sets of food safety and/or sanitation concerns with each question valued at 10 points for a total of 100 possible points.

Set #1:



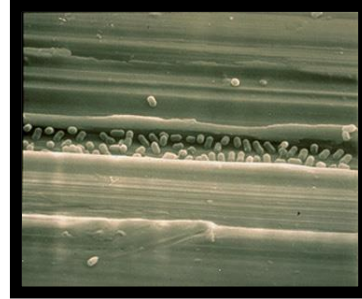
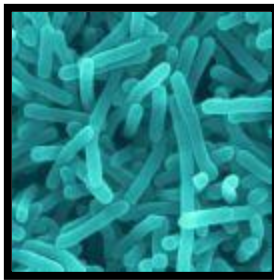
Question 1: These pictures most represent which of the following food industry concerns:

- a. Listeria
- b. antibiotics in food
- c. Salmonella
- d. rodent control
- e. Campylobacter

Question 2: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Home canned products need to use higher level acids, follow strict hygienic procedures, and prepare foods using high temperatures.
- b. Increased regulations; over-use promotes emergence of resistant bacteria; and regulated usages to minimize residues in the human food chain.
- c. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.
- d. Sterilize raw foods at the plants, pasteurization, and improving safe food handling practices in kitchens
- e. Always wash hands with warm, soapy water; if your hands have any kind of skin abrasion or infection, always use clean disposable gloves; and keep cutting boards clean

Set #2:



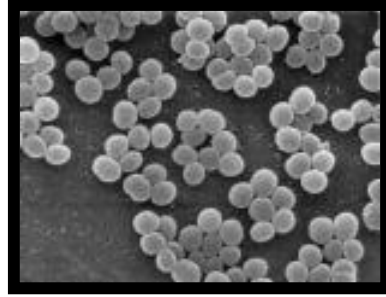
Question 3: These pictures most represent which of the following food industry concerns:

- a. botulism
- b. Listeria
- c. E coli
- d. Salmonella
- e. Staphylococcus

Question 4: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Drink only pasteurized milk, juice, or cider; wash fruits and vegetables under running water, especially those that will not be cooked; and cook all ground beef and hamburger thoroughly.
- b. Sterilize raw foods at the plants, pasteurization of milk, and improving safe food handling practices in kitchens
- c. Home canned products need to use higher level acids, follow strict hygienic procedures, and prepare foods using high temperatures.
- d. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.
- e. Do not eat raw or undercooked eggs, poultry, or meat.; avoid Cross-contamination of foods; and wash hands after contact with animal feces and/or reptiles.

Set 3:



Question 5: These pictures most represent which of the following food industry concerns:

- a. Staphylococcus
- b. parasites
- c. botulism
- d. E coli
- e. metal contamination in ground beef

Question 6: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Do not eat raw or undercooked eggs, poultry, or meat; avoid Cross-contamination of foods; and wash hands after contact with animal feces and/or reptiles.
- b. Sterilize raw foods at the plants, pasteurization of milk, and improving safe food handling practices in kitchens
- c. Home made or processed foods need to be properly stored; when preparing foods, remember to prepare foods under sanitary conditions; if food is to be stored longer than two hours, keep hot foods hot (over 140°F) and cold foods cold (40°F or under).
- d. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.
- e. Drink only pasteurized milk, juice, or cider; wash fruits and vegetables under running water, especially those that will not be cooked; and cook all ground beef and hamburger thoroughly.

Set 4:



Question 7: These pictures most represent which of the following food industry concerns:

- a. Employee hygiene
- b. Campylobacter
- c. Norovirus
- d. Listeria
- e. Cross contamination

Question 8: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Always wash hands with warm, soapy water; if your hands have any kind of skin abrasion or infection, always use clean disposable gloves; and keep cutting boards clean
- b. Home canned products need to use higher level acids, follow strict hygienic procedures, and prepare foods using high temperatures.
- c. Carefully wash fruits and vegetables, and steam oysters before eating them; Frequently wash your hands, especially after toilet visits and changing diapers and before eating or preparing food; and Thoroughly clean and disinfect contaminated surfaces immediately after an episode of illness.
- d. Wash hands and surfaces often; Cook to improper temperatures; and Refrigerate after two hours.
- e. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods.

Set 5:



Question 9: These pictures most represent which of the following food industry concerns:

- a. Staphylococcus
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Question 10: In reference to the above pictures, what would be the solution to this food industry concern/problem?

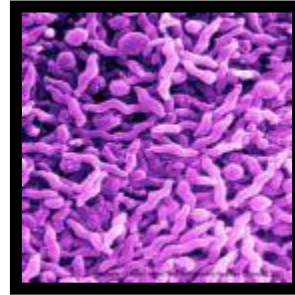
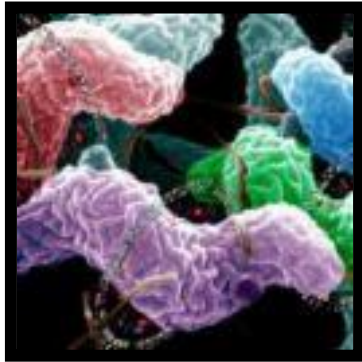
- a. Do not eat raw or undercooked eggs, poultry, or meat.; avoid Cross-contamination of foods; and wash hands after contact with animal feces and/or reptiles.
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- c. Always wash hands with warm, soapy water; if your hands have any kind of skin abrasion or infection, always use clean disposable gloves; and keep cutting boards clean
- d. Proper sanitation when storing and preparing foods; Wash, peel, or cook raw fruits and vegetables before eating; Cook all meats thoroughly to 160 °F. to kill larvae; make sure that infected individuals wash their hands.
- e. Handle poultry carefully to prevent cross-contamination; utilize proper wrapping; and most egg products should be pasteurized.

2016 Iowa FFA Food Science CDE

Food Safety and Sanitation Section

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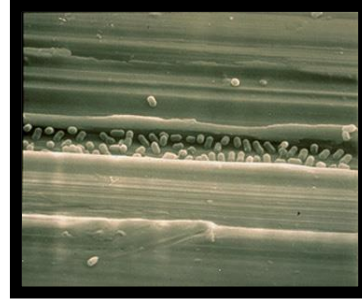
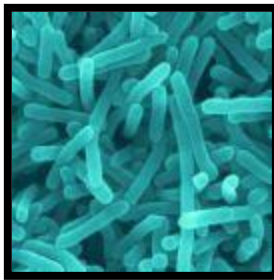
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- a. Listeria
- b. antibiotics in food
- c. Salmonella
- d. rodent control
- e. **Campylobacter**

Question 2: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Home canned products need to use higher level acids, follow strict hygienic procedures, and prepare foods using high temperatures. (botulism)
- b. Increased regulations; over-use promotes emergence of resistant bacteria; and regulated usages to minimize residues in the human food chain. (antibiotics)
- c. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods. (listeria)
- d. Sterilize raw foods at the plants, pasteurization, and improving safe food handling practices in kitchens (campy)
- e. Always wash hands with warm, soapy water; if your hands have any kind of skin abrasion or infection, always use clean disposable gloves; and keep cutting boards clean (employee hygiene)

Set #2:



Question 3: These pictures most represent which of the following food industry concerns:

- a. botulism
- b. **Listeria**
- c. E coli
- d. Salmonella
- e. Staphylococcus

Question 4: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Drink only pasteurized milk, juice, or cider; wash fruits and vegetables under running water, especially those that will not be cooked; and cook all ground beef and hamburger thoroughly. (e coli)
- b. Sterilize raw foods at the plants, pasteurization of milk, and improving safe food handling practices in kitchens (campy)
- c. Home canned products need to use higher level acids, follow strict hygienic procedures, and prepare foods using high temperatures. (botulism)
- d. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods. (listeria)
- e. Do not eat raw or undercooked eggs, poultry, or meat.; avoid Cross-contamination of foods; and wash hands after contact with animal feces and/or reptiles. (Salmonella)

Set 3:



Question 5: These pictures most represent which of the following food industry concerns:

- a. **Staphylococcus**
- b. parasites
- c. botulism
- d. E coli
- e. metal contamination in ground beef

Question 6: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Do not eat raw or undercooked eggs, poultry, or meat; avoid Cross-contamination of foods; and wash hands after contact with animal feces and/or reptiles. (Salmonella)
- b. Sterilize raw foods at the plants, pasteurization of milk, and improving safe food handling practices in kitchens (campy)
- c. Home made or processed foods need to be properly stored; when preparing foods, remember to prepare foods under sanitary conditions; if food is to be stored longer than two hours, keep hot foods hot (over 140°F) and cold foods cold (40°F or under). (Staphylococcus)
- d. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods. (listeria)
- e. Drink only pasteurized milk, juice, or cider; wash fruits and vegetables under running water, especially those that will not be cooked; and cook all ground beef and hamburger thoroughly. (e coli)

Set 4:



Question 7: These pictures most represent which of the following food industry concerns:

- a. **Employee hygiene**
- b. Campylobacter
- c. Norovirus
- d. Listeria
- e. Cross contamination

Question 8: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Always wash hands with warm, soapy water; if your hands have any kind of skin abrasion or infection, always use clean disposable gloves; and keep cutting boards clean (employee hygiene)
- b. Home canned products need to use higher level acids, follow strict hygienic procedures, and prepare foods using high temperatures. (botulism)
- c. Carefully wash fruits and vegetables, and steam oysters before eating them; Frequently wash your hands, especially after toilet visits and changing diapers and before eating or preparing food; and Thoroughly clean and disinfect contaminated surfaces immediately after an episode of illness. (norovirus)
- d. Wash hands and surfaces often; Cook to improper temperatures; and Refrigerate after two hours.
- e. Thoroughly cook raw food from animal sources, such as beef, pork, or poultry.; Wash raw vegetables thoroughly before eating; and Keep uncooked meats separate from vegetables and from cooked foods and ready-to-eat foods. (listeria)

Set 5:



Question 9: These pictures most represent which of the following food industry concerns:

- a. Staphylococcus
- b. Botulism
- c. Employee hygiene
- d. Parasites**
- e. Salmonella

Question 10: In reference to the above pictures, what would be the solution to this food industry concern/problem?

- a. Do not eat raw or undercooked eggs, poultry, or meat.; avoid Cross-contamination of foods; and wash hands after contact with animal feces and/or reptiles. (Salmonella)
- b. Carefully wash fruits and vegetables, and steam oysters before eating them; Frequently wash your hands, especially after toilet visits and changing diapers and before eating or preparing food; and Thoroughly clean and disinfect contaminated surfaces immediately after an episode of illness. (norovirus)
- c. Always wash hands with warm, soapy water; if your hands have any kind of skin abrasion or infection, always use clean disposable gloves; and keep cutting boards clean (employee hygiene)
- d. Proper sanitation when storing and preparing foods; Wash, peel, or cook raw fruits and vegetables before eating; Cook all meats thoroughly to 160 °F. to kill larvae; make sure that infected individuals wash their hands. (parasites)**
- e. Handle poultry carefully to prevent cross-contamination; utilize proper wrapping; and most egg products should be pasteurized. (mixture)

FFA Food Science Product Development Career Development Event Developing a Heart-Healthy Frozen Pizza

BACKGROUND Americans are becoming increasingly more interested in their health through improved diet and exercise. Frozen pizzas are recognized for their convenience, although may not be healthy because of high fat, saturated fat, and cholesterol contents, high salt/sodium contents and low fiber contents. Your team will develop a ‘heart healthy’ frozen pizza that will appeal to teen-agers and young adults.

OBJECTIVE Your task is to develop a ‘heart healthy’ frozen pizza with reduced fat, saturated fat, cholesterol, and salt/sodium contents and/or increased fiber contents in comparison to a typical frozen pizza. Your product should be nutritious and have satisfactory sensory characteristics. In addition, you will attempt to commercialize the product for grocery store use.

Your target nutrient guidelines (for each serving) are:

Serving size: 1/6 12-inch pizza

Total Fat: Less than 9 g

Saturated Fat: Less than 4 g

Trans Fat: 0 g

Cholesterol: Less than 50 mg

Protein: At least 12 g

Sodium: Less than 600 mg

Dietary Fiber: At least 4 g

Calories: Less than 350 calories

METHOD With your team, create a food product from the ingredients included in the following table. You may also choose to include additional ingredients. Your team should develop a product name, determine the nutritional value, and prepare a package for your product. The package should include all the required elements of a package (product name, standard of identity, net weight, name and address of processor or distributor, nutrition information, and ingredient list) in their correct position on the package. In the oral presentation, the team will need to be able to explain why they selected each ingredient and the impact of the ingredients on the nutritional value, quality, shelf-life and safety.

Your team will present an oral report (15 minutes – 10 min. to present and 5 min. for questions) to a group of trained judges. The evaluation form attached is how your group presentation will be evaluated. It is important that you have graphics to clearly show your product.

RULES

Your team will need to develop but does not have to prepare your product. The following table includes ingredients you may use. These are only suggestions; you may use other ingredients that would be included in these categories. You should use at least 1 ingredient in each category. A maximum of 10 ingredients can be used in your product. Select items from the following categories:

Meat and Substitutes	Cheese and Substitutes	Pizza Crust	Vegetables	Pizza Sauce
chicken	Mozzarella cheese	regular (white flour-based)	onion	regular, tomato
pepperoni	Parmesan cheese	whole wheat	bell pepper	light, tomato
pork sausage	soy-based cheeses	other grains	mushrooms	regular, alfredo
Canadian bacon	tofu		green and/or black olives	light, alfredo
soy-based meat substitutes			pineapple	

EVALUATION

Product name _____

Ingredients _____

Preparation time _____

MARKETING PRESENTATION

Each team member should present at least one of the following aspects of food product development: selection of ingredients, nutritional value, ease of preparation, sensory characteristics.

COMMERCIALIZATION

The product that you develop will need to meet all aspects of labeling requirements including principal display panel, nutritional label, and ingredient listing. Your team will be evaluated on this being done correctly. **Information about labeling can be found at:**

<http://www.fda.gov/food/ingredientspackaginglabeling/default.htm>

and

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocuments/RegulatoryInformation/LabelingNutrition/ucm2006828.htm>

RESOURCES FOR DETERMINING NUTRIENT INFORMATION

1. Nutrient Data Laboratory

Downloadable data sets prepared by the **USDA** Nutrient Data Laboratory with nutrient values of foods: <https://ndb.nal.usda.gov/>

SPECIFIC REQUIREMENTS

- Suitability of product as a heart healthy frozen pizza
- Ingredients should be listed in order of amounts used in product.
- All required parts of the principle display panel should be present.
- All required elements on the Information Panel
- Correct relative placement of PDP and Information Panel
- Appealing PDP and Creative Character
- Reasonably close nutritional panel
- Ability to answer questions about the product, including reasons for selection of each ingredient.
- All members participate in presentation.

CHAPTER NAME _____

CRITERION	POSSIBLE POINTS	POINTS EARNED
Objective met – to develop a heart healthy frozen pizza	50	
All required parts of the principal display panel (PDP).	50	
All required elements on the Information Panel	50	
Correct relative placement of PDP and Information Panel	50	
Reasonably close Nutrition Facts label	50	
Communication skills/oral presentation (clear, logical, easy to understand, confidence in presentation and the information presented)	50	
Ability to answer questions about the product.	50	
Did all team members contribute?	50	
OVERALL	400	