

SI Microbiology - Full Discipline Demo

Food Safety

Final Report - Answer Guide

Institution	Science Interactive University
Session	SI Microbiology - Full Discipline Demo
Course	SI Microbiology - Full Discipline Demo
Instructor	Sales SI Demo

Test Your Knowledge

Match each term with the best description.

⚡ *Campylobacter*

⚡
*Clostridium
perfringens*

⚡ Norovirus

⚡
*Staphylococcus
aureus*

⚡ *Salmonella*

Pathogen that is the most common cause of foodborne illness contracted by having direct contact with an infected person, consuming contaminated food or water, and by touching contaminated surfaces and then putting unwashed hands in the mouth.

A rod-shaped bacteria found in many foods, including sprouts and other vegetables, eggs, chicken, pork, fruits, and processed nut butters.

A spore forming, anaerobic bacteria contracted by consuming meat, poultry, gravies, and other foods cooked in large batches and held at an unsafe temperature.

A spiral-shaped bacteria contracted by consuming raw or undercooked poultry, meat, and seafood, unwashed vegetables, and by drinking untreated water.

Bacteria that causes foodborne illness when prepared foods, such as sliced meats, puddings, pastries, and sandwiches, are handled by an infected individual and then consumed without cooking.

1

2

3

4

5

Correct answers:

- 1 Norovirus 2 *Salmonella* 3 *Clostridium perfringens*
4 *Campylobacter* 5 *Staphylococcus aureus*
-

Categorize each statement as true or false.

⚡ The proper cleaning of surfaces, utensils, and hands before and after food preparation is one the most important practices to reduce the transmission of foodborne pathogens.	
⚡ Frozen food should always be thawed at room temperature on a countertop.	
⚡ Pathogens that cause foodborne illness are naturally present in environments where food is produced.	
⚡ Only animal-based foods are subject to contamination during production and transportation.	
True	False
1	2

Correct answers:

1

The proper cleaning of surfaces, utensils, and hands before and after food preparation is one the most important practices to reduce the transmission of foodborne pathogens.

Pathogens that cause foodborne illness are naturally present in environments where food is produced.

2

Only animal-based foods are subject to contamination during production and transportation.

Frozen food should always be thawed at room temperature on a countertop.

Exploration

_____ is a pathogenic bacteria associated with foodborne illness.

- ☐ *Campylobacter*
- ☐ *Clostridium perfringens*
- ☐ *Salmonella*
- ☒ All of the above

✓

Food may become contaminated at each step of the supply chain.

- ☒ True
- ☐ False

✓

All cooked foods should be heated to at least _____ to effectively kill foodborne pathogens.

- ☐ 39°C (102°F)
- ☐ 42°C (108°F)
- ☐ 57°C (135°F)
- ☒ 63°C (145°F)

✓

Exercise 1

Which of the four cultured samples from this exercise produced the greatest number and diversity of microbe colonies? Reference Data Table 1 and Photo 1 in your explanation.

0 Word(s)

How could the lettuce used in this exercise become contaminated with pathogens leading to foodborne illness? Include all sources of contamination throughout the production chain.

0 Word(s)

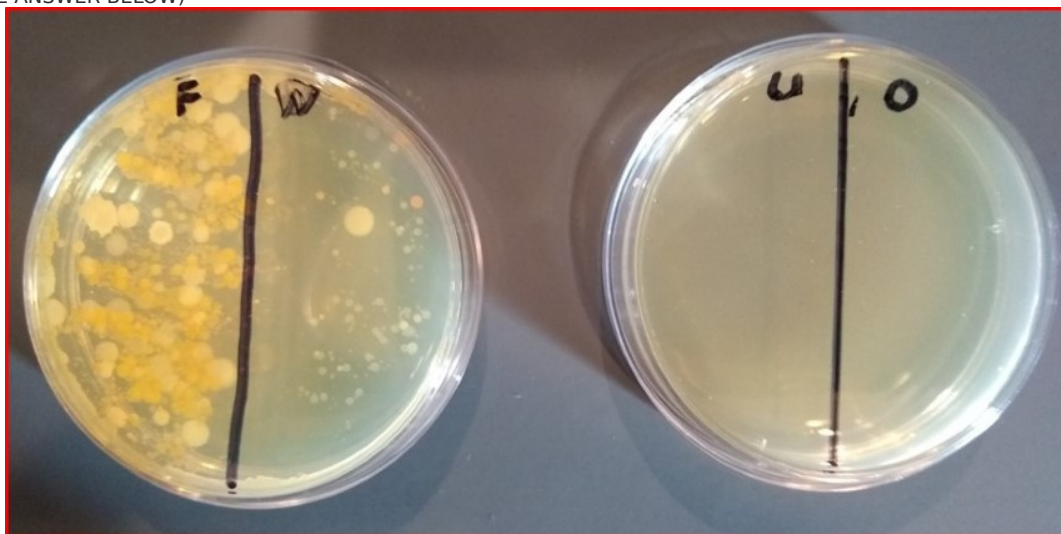
Based on your experimental results, what food safety practices in the home can you implement to reduce the spread of foodborne illness from fresh produce and milk?

0 Word(s)

Data Table 1: Microbe Growth Results
(SAMPLE ANSWER BELOW)

Plate Section	Types of Microbes	Number of Colonies
Milk Fresh	1	4
Milk Opened	1	10
Lettuce Washed	5	27
Lettuce Unwashed	8	71

Photo 1: Food Safety Agar Plates
(SAMPLE ANSWER BELOW)



Competency Review

____ pathogens account for the majority of foodborne illnesses.

- ☐ Four
- ☒ Five ✓
- ☐ Ten
- ☐ Twenty

Salmonella can be found on/in ____.

- ☐ fresh vegetables
- ☐ eggs
- ☐ processed nut butters
- ☒ All of the above ✓

Butchering transfers bacteria from the skin and digestive tracts of animals onto exposed flesh.

- ☒ True ✓
- ☐ False

_____ are the major contributors to foodborne illness in retail facilities.

- ☐ Improper temperatures and cross contamination ✓
- ☐ Processing equipment and vegetable rinse water
- ☐ Transportation equipment and irrigation water
- ☐ All of the above

Consuming raw or undercooked animal products, including unpasteurized dairy, does not increase the risk of contracting foodborne illness.

- ☐ True
- ☒ False ✓

All fresh produce should be thoroughly washed prior to being consumed, especially when eaten raw.

- ☒ True ✓
- ☐ False

Microbe samples are collected from a fresh produce leaf using a moistened _____.

- ☒ sterile swab ✓
- ☐ sterile pipet
- ☐ inoculating loop
- ☐ inoculating needle

Based on experimental culture results, milk should have minimal exposure to room temperature air prior to consumption to reduce the numbers of ingested microbes.

- ☒ True ✓
- ☐ False

Extension Questions

A classmate states that they are not concerned with foodborne illness because they avoid animal products in their diet. Apply your knowledge of food safety to explain why the classmate should still implement safe practices in their home to reduce the chances of contracting a foodborne pathogen.

(SAMPLE ANSWER BELOW)

Crops are exposed to pathogens living in the soil and present in irrigation water. *Salmonella*, *E. coli*, and *Listeria* are the most associated pathogens with foodborne illness resulting from plants contaminated during cultivation. Fresh produce may also be contaminated in processing facilities as vegetable rinse water and packing ice may become contaminated and spread pathogens to other vegetable products packaged in the same facility. The classmate should always wash their fresh produce thoroughly before consuming it as unwashed produce results in significantly more microbe cultures than washed produce. The classmate should also properly wash their hands before and after preparing food to reduce the spread of pathogens.