





## **BACKGROUND**

This kit was developed to assist teachers in teaching simple food safety to students, specifically targeting junior and high school students in basic food preparation courses. The kit provides a PowerPoint presentation with detailed speaker notes, numerous activities and games as well as a list of resources.

Students who plan to work in the food industry, such as work at a restaurant, are encouraged to complete the more advanced online Alberta Food Safety Basics course available at: <http://www.albertahealthservices.ca/eph/Page3151.aspx>. Completion of the online course, will provide a Basics certificate to students.

Students may also consider registering for a [Food Safety Alberta Certification Course](#) if they plan to have a career in the food industry after graduation.

## **CREATIVE COMMONS LICENSE**

[Attribution-NonCommercial-ShareAlike 4.0 International \(CC BY-NC-SA 4.0\)](#).

## HOW TO USE THE KIT

The main PowerPoint presentation was designed to be completed in a typical class of 75-90 minutes. Various resources, in addition to the main PowerPoint, are provided. A sample lesson plan, utilizing a variety of the free resources is included.

## WHERE TO FIND THE LATEST VERSION OF THE KIT

The latest version of the kit, main presentation file, Food Safety Fails Picture Activity, Risk game, and Bingo game and cards can be found on Alberta Health Services, Environmental Public Health website at: <http://www.albertahealthservices.ca/eph/Page8302.aspx>.

## RESOURCE KIT CONTENTS

Resource	Location	Details
Resource List	<a href="#">p. 3</a>	List of all resources such as videos, PowerPoints, and activities.
Main PowerPoint	<a href="#">website</a>	Main presentation slides with speaker notes.
Match Food Safety Term Activity Sheet and Answer Key	<a href="#">p. 5</a>	Activity or assessment to use during or after presentation.
Food Safety Facts Activity Sheets and Answer Keys	<a href="#">p. 7</a>	Activity for students to fill out during presentation or assessment.
Food Safety Quiz and Answer Key	<a href="#">p. 13</a>	15 question multiple choice and true and false assessment to use after presentation.
GloGerm/Handwashing Activity	<a href="#">p. 17</a>	Information on supplies and facilitating the activity.
Food Safety Fails – Pictures Activity Information	<a href="#">p. 19</a>	Information on facilitating the picture activity.
Food Safety Fails – Pictures Activity PowerPoint	<a href="#">website</a>	PowerPoint that contains the Food Safety Fails – Pictures Activity.
Bingo Game Information	<a href="#">p. 20</a>	Information on facilitating the Bingo game.
Bingo Game PowerPoint	<a href="#">website</a>	PowerPoint that can be used to facilitate the Bingo game.
Bingo Game Cards	<a href="#">website</a>	30 pre-made bingo cards. The first card in the file is the winning card.
Risk Game Information	<a href="#">p. 22</a>	Information on facilitating the Risk game.
Risk Game PowerPoint	<a href="#">website</a>	PowerPoint that contains the Risk game.
Sample Lesson Plan	<a href="#">p. 23</a>	A plan utilizing various resources that can be completed during a typical course session.

## RESOURCE LIST

1. Alberta Food Safety Basics On-line Interactive Course or Booklet:
  - Can be used as an alternative or supplement for in class learning
  - Certificate provided when course and test are completed online  
<http://www.albertahealthservices.ca/eph/Page3151.aspx>
2. Videos Available Online:

Why Don't We Do It In Our Sleeves (5 mins)  
<https://www.youtube.com/watch?v=CtnEwwUWDo0>

Effective Handwashing Technique (5 mins)  
<https://www.youtube.com/watch?v=VI05XB9q6nw>

Handwashing (Food Safety Coaching Part 1) (1.5 mins)  
<https://www.youtube.com/watch?v=cCpr11OuYKI>

Be Food Safe Canada (Clean/Separate/Cook/Chill) (2.5 mins)  
<https://www.youtube.com/watch?v=sf7ic4Lhmv8>

Safe Food Handling Series USA (6 part series, each section 5 mins)  
<https://www.youtube.com/watch?v=HqFPFsJo9zA>

Here's How Chipotle Got 500 People Sick (3 mins)  
<https://www.youtube.com/watch?v=zBXAJV82744>

Seinfeld Hand Washing Fail – Funny (1.5 mins)  
<https://www.youtube.com/watch?v=f27Yzpz7cMg>

Turkey Cross Contamination – Funny (30 secs)  
[http://www.dailymotion.com/video/x1gj8h\\_grosse-dinde\\_news](http://www.dailymotion.com/video/x1gj8h_grosse-dinde_news)
3. Videos Available for Purchase:

The Why, When & How for Handwashing Foodservice Video (5 mins)  
<https://store.handwashingforlife.com/>

ServSafe Complete Food Safety (2 hrs)  
<https://www.servsafe.com/access/ss/Catalog/ProductList/7>



4. GloGerm Information (to carry out handwashing GloGerm activity)

[www.germwise.com](http://www.germwise.com)

[www.traincan.com](http://www.traincan.com)

5. Giant Microbe Information (stuffed germs such as E. coli and Salmonella to use as visualization aid)

<https://www.giantmicrobes.com/us/educate>

6. Included Activities:

- a. AHS Food Safety Terms Matching Activity
- b. AHS Food Safety Facts Activity
- c. AHS Food Safety Quiz
- d. AHS GloGerm/Handwashing Activity
- e. AHS Food Safety Fails Picture Activity
- f. AHS Food Safety Bingo
- g. AHS Food Safety Risk Game



### **FOOD SAFETY TERMS MATCHING ACTIVITY**

For each numbered term, add the letter of the definition that correctly defines it.

1. Chemical Foodborne Illness	<input type="text"/>	A. A measure of acidity.
2. High Risk Populations	<input type="text"/>	B. The transfer of microorganisms from one food to another.
3. Potentially Hazardous Foods	<input type="text"/>	C. A common pathogen associated with poultry.
4. Pathogens	<input type="text"/>	D. Using heat or chemicals to further reduce the number of pathogens to a safe level.
5. Salmonella	<input type="text"/>	E. The range of temperatures where bacteria multiply rapidly.
6. Cross Contamination	<input type="text"/>	F. Food poisoning caused by ingesting food that contains toxic metals or cleaning agents.
7. pH	<input type="text"/>	G. Pregnant women, elderly, infants and those with underlying health conditions.
8. Sanitize	<input type="text"/>	H. High risk foods that support the growth of pathogens.
9. Danger Zone	<input type="text"/>	I. Microorganisms that cause illness.



**KEY: FOOD SAFETY TERMS MATCHING ACTIVITY**

For each numbered term, add the letter of the definition that correctly defines it.

1. Chemical Foodborne Illness	<b>F</b>	A. A measure of acidity.
2. High Risk Populations	<b>G</b>	B. The transfer of microorganisms from one food to another.
3. Potentially Hazardous Foods	<b>H</b>	C. A common pathogen associated with poultry.
4. Pathogens	<b>I</b>	D. Using heat or chemicals to reduce the number of pathogens to a safe level.
5. Salmonella	<b>C</b>	E. The range of temperatures where bacteria multiply rapidly.
6. Cross Contamination	<b>B</b>	F. Food poisoning caused by ingesting food that contains toxic metals or cleaning agents.
7. pH	<b>A</b>	G. Pregnant women, elderly, infants and those with underlying health conditions.
8. Sanitize	<b>D</b>	H. High risk foods that support the growth of pathogens.
9. Danger Zone	<b>E</b>	I. Microorganisms that cause illness.



## **FOOD SAFETY FACTS ACTIVITY # 1**

1. What four groups of the population are likely to get the most sick from foodborne illness?
2. What are some common symptoms of foodborne illness?
3. What are 2 ways that food can be contaminated?
4. Name a bacterium that is associated with poultry:
5. Name a bacterium that is associated with ground beef:
6. List 3 examples of potentially hazardous foods:
7. What is the temperature danger zone?
8. What temperature should a fridge be at?
9. What is the safe internal temperature for cooked foods?
10. What are 2 ways to cool down hot food?
11. Where should raw meat/poultry/seafood be kept in the fridge?
12. Name a sanitizer and how much must be added to a litre of water to make an effective solution:
13. How long should hands be washed for?
14. What is the best way to cough and sneeze?





## KEY: FOOD SAFETY FACTS ACTIVITY # 1

1. What four groups of the population are likely to get the most sick from foodborne illness?  
**Babies, elderly, those with an underlying health condition, pregnant women**
2. What are some common symptoms of foodborne illness?  
**Diarrhea, nausea, vomiting, stomach cramps, fever/headache, body ache**
3. What are 2 ways that food can be contaminated?  
**Physical, chemical or biological**
4. Name a bacterium that is associated with poultry:  
**Salmonella or Campylobacter**
5. Name a bacterium that is associated with ground beef:  
**E. coli**
6. List 3 examples of potentially hazardous foods:  
**Meat, eggs, poultry, dairy, fish, shellfish, cream filled pastries, gravies, soups, stews, cooked vegetables and grains**
7. What is the temperature danger zone?  
**4°C – 60°C. Temperature range in which bacteria grow quickly.**
8. What temperature should a fridge be at?  
**4°C**
9. What is the safe internal temperature for cooked foods?  
**74°C**
10. What are two ways to cool down hot food?  
**Shallow metal pans, cut it up, fridge, ice water bath, ice wand, stir**
11. Where should raw meat/poultry/seafood be kept in the fridge?  
**Below ready to eat foods**
12. Name a sanitizer and how much must be added to a litre of water to make an effective solution:  
**Bleach and water. ½ teaspoon of bleach in 1 liter of water**
13. How long should hands be washed for?  
**Lather for 20 seconds**
14. What is the best way to cough and sneeze?  
**Into your sleeve**



**FOOD SAFETY FACTS ACTIVITY #2**

	What I thought before:	What I know now:
1. How long does it take to get sick from foodborne illness?		
2. What four groups of the population are likely to get the most sick from foodborne illness?		
3. What are two common symptoms of foodborne illness?		
4. What are two ways that food can be contaminated?		
5. Name a bacterium that is associated with ground beef.		
6. Name a bacterium that is associated with poultry.		
7. List three examples of potentially hazardous foods.		
8. What is the temperature Danger Zone?		
9. What is the safe internal temperature for cooked foods?		
10. What temperature should a fridge hold food at?		
11. Where should raw meat/ poultry be stored in a fridge?		



**FOOD SAFETY FACTS ACTIVITY #2 (CONTINUED)**

	<b>What I thought before:</b>	<b>What I know now:</b>
<b>12. What are the 5 steps in manual washing of surfaces and dishes?</b>		
<b>13. What are 3 times when you should wash your hands?</b>		
<b>14. How long should hands be washed for?</b>		
<b>15. What is the best way to cough and sneeze?</b>		

**KEY: FOOD SAFETY FACTS ACTIVITY #2**

	What I thought before:	What I know now:
1. How long does it take to get sick from foodborne illness?		As little as one hour or as long as weeks
2. What four groups of the population are likely to get the most sick from foodborne illness?		Pregnant women Elderly Those with an underlying health condition Babies
3. What are two common symptoms of foodborne illness?		Diarrhea Vomiting Stomach cramps Nausea Fever/Headache/Body ache
4. What are two ways that food can be contaminated?		Chemical Physical Biological
5. Name a bacterium that is associated with ground beef.		E. coli
6. Name a bacterium that is associated with poultry.		Salmonella
7. List three examples of potentially hazardous foods.		Meat, eggs, poultry, dairy, fish and shellfish, cream-filled pastries, gravies, stews, soups, cooked vegetables and grains
8. What is the temperature Danger Zone?		4°C – 60°C. Temperature range in which bacteria grow quickly
9. What is the safe internal temperature for cooked foods?		74°C
10. What temperature should a fridge hold food at?		4°C
11. Where should raw meat/poultry be stored in a fridge?		Below ready to eat foods



**KEY: FOOD SAFETY FACTS ACTIVITY #2 (CONTINUED)**

	<b>What I thought before:</b>	<b>What I know now:</b>
<b>12. What are the 5 steps in manual washing of surfaces and dishes?</b>		Pre-scrape Wash Rinse Sanitize Airdry
<b>13. What are 3 times when you should wash your hands?</b>		Using toilet Blowing nose Handling raw meats, poultry, sea-food Clearing and wiping tables, etc.
<b>14. How long should hands be washed for?</b>		Lather for 20 seconds
<b>15. What is the best way to cough and sneeze?</b>		Into your sleeve



## **FOOD SAFETY QUIZ**

Name: \_\_\_\_\_

Circle the correct answer.

1. How do you make sure that harmful germs like Salmonella and E. coli have been killed in food?
  - A. Properly refrigerate the food at 4°C or colder
  - B. Put the food in the freezer for a week
  - C. Use a thermometer to verify the food has been cooked to 74°C
  - D. Make sure to only buy food that looks like it doesn't have any bacteria in it
  
2. What is the temperature range of the Danger Zone?
  - A. 60°C – 112°C
  - B. 0°C – 4°C
  - C. 10°C – 70°C
  - D. 4°C – 60°C
  
3. What are some common symptoms of foodborne illness?
  - A. Vomiting
  - B. Coughing and sneezing
  - C. Diarrhea
  - D. A and C
  
4. In the morning you notice a large pot of chili sitting on a counter. The chili was on the counter all night. What should you do?
  - A. Throw it out
  - B. Reheat the chili and serve it
  - C. Put the chili in the cooler
  - D. Taste the chili to see if it is ok
  
5. Hot foods can be cooled quickly by:
  - A. Leaving the food at room temperature
  - B. Putting the food into shallow containers and refrigerating it uncovered
  - C. Putting the food into plastic containers and refrigerating it with the lid on
  - D. Turning the oven off and cooling the food in the oven



## **FOOD SAFETY QUIZ (CONTINUED)**

6. Food poisoning organisms can be controlled by:
- A. Keeping foods out of the Danger Zone
  - B. Preventing cross contamination
  - C. Cooking to safe temperatures
  - D. All of the above
7. Hot food should be held at:
- A. 50°C
  - B. 60°C or hotter
  - C. 40°C
  - D. 4°C
8. Coughing and sneezing may contaminate food with:
- A. Staphylococcus bacteria
  - B. Salmonella bacteria
  - C. Norovirus
  - D. E. coli 0157:H7 bacteria
9. The term cross-contamination refers to:
- A. Coughing or sneezing onto food
  - B. Microorganisms being transferred from one surface or food to another
  - C. The temperatures between 4°C and 60°C
  - D. All of the above
10. Which of the following food groups is considered potentially hazardous?
- A. Milk or milk products
  - B. Eggs
  - C. Meat, poultry or seafood
  - D. All of the above
11. Raw meats should be stored above fruits and vegetables in the fridge.
- TRUE            FALSE



**FOOD SAFETY QUIZ (CONTINUED)**

12. The fecal-oral route is the transfer of bacteria from feces, to hands and then to food.  
TRUE      FALSE
13. Hands should be thoroughly washed with soap and warm water for at least 20 seconds after using the toilet.  
TRUE      FALSE
14. It is easy to know when pathogens are in food because they will change the appearance, colour and taste of food.  
TRUE      FALSE
15. Food handlers are common sources of contamination.  
TRUE      FALSE





**KEY: FOOD SAFETY QUIZ**

1. C
2. D
3. D
4. A
5. B
6. D
7. B
8. A
9. B
10. D
11. False
12. True
13. True
14. False
15. True

## **GLOGERM/HANDWASHING ACTIVITY**

### **Supplies:**

The following materials are needed to complete the GloGerm activity:

1. GloGerm ([germwise.com/traincan.com](http://germwise.com/traincan.com))\*
2. UV light

\* GloGerm is available in either white lotion or orange oil. The white lotion doesn't stain clothing and is easier to remove. The orange oil has better cost value but it can stain clothing and is harder to remove. Your public health nurse may have access to these supplies.

### **Video Demo:**

To set up the activity, you may decide to first explain or show a video demonstration of proper handwashing. Three videos to consider are:

Effective Handwashing Technique (5 mins): <https://www.youtube.com/watch?v=VI05XB9g6nw>

Handwashing (Food safety coaching part 1) (1.5 mins):  
<https://www.youtube.com/watch?v=cCpr11OuYKI>

The Why, When & How for Handwashing Foodservice Video (5 mins):  
<https://store.handwashingforlife.com/>

### **Activity Idea:**

Sample Script:

*You: "We have just handled raw chicken, what type of germ might we have on our hands?"*

*Students: "Salmonella or Campylobacter."*

*You: "Yes, that is correct we might have Salmonella on our hands. This lotion/oil is pretend/not real Salmonella. I am going to come around and give you each some pretend Salmonella. Rub it into your hands and just like real Salmonella, you won't see it."*

**Step 1: Give each student a nickel size blob of the lotion or dime size amount of the oil and have them rub it into their hands.**

*You: "Now I will turn on the UV light. You will be able to see the pretend Salmonella glowing under the light. What would you do if you had Salmonella on your hands?"*

*Students: "Wash your hands."*

*You: "That's right. So come on up and have a look at your hands and you will see them glowing. Next, go wash your hands. Come back and look under the light again. Should your hands still be glowing after you wash them?"*

*Students: "No"*

*You: "That's right. If you do a good job washing your hands, you will remove most of the pretend Salmonella."*



## **GLOGERM/HANDWASHING ACTIVITY (CONTINUED)**

**Step 2:** Plug in the light and have students view hands. The white lotion or orange oil glowing on their hands simulate real bacteria.

**Step 3:** Have students wash their hands and view hands again under UV light. Most lotion/oil should be removed.

*You: "How did you do? Were there areas on your hands that you missed? Did anyone wash better than they normally do?"*

*Students: Various responses*

*You: "Hopefully the activity gave you an opportunity to think about how you wash your hands and what you could do to improve."*

Please note:

\* This activity demonstrates how to wash your hands using soap and water. The activity doesn't work with hand sanitizer as the lotion/oil won't be removed.

\* This activity **doesn't** show real bacteria on your hands.

\* There are various activities that can be completed using GloGerm. Look online at [GloGerm.com](http://GloGerm.com) for more ideas.



## **FOOD SAFETY FAILS – PICTURE ACTIVITY INFORMATION**

### **How to complete the activity:**

1. Download the Food Safety Fails - Picture Activity PowerPoint
2. Review the PowerPoint speaker notes which provides the answer key
3. Ask students the 3 questions for each picture:
  - a. What is the food safety concern(s) in the picture?
  - b. Why is it a risk to the public?
  - c. How could the concern be fixed?

Alternatively, you could print the pictures and have the students work in groups to answer the 3 questions and then present to the class.

## **BINGO GAME INFORMATION**

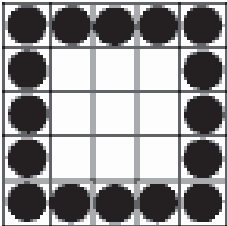
### **What you will need:**

1. Print and laminate the pre-made bingo cards found at: <http://www.albertahealthservices.ca/eph/Page8302.aspx>. Note: the first card in the file is the winning card. Alternatively, using the answers below, you can create your own bingo cards at: <http://myfreebingocards.com/bingo-card-generator>.
2. Purchase dry-erase markers with erasers.
3. Download Bingo PowerPoint or use the questions below.

### **How to play:**

1. Provide each student a unique bingo card and dry-erase marker.
  - a. Make sure to include the winning card, which is the first card in the file.
2. Read out a question, have students check off the answer on their card.
3. Students to shout out “BINGO” when they have a check on each of the squares on the outside of the card to create a picture frame. This ensures that most of the questions are asked.

Note: The Bingo game was designed to replace Part 2 of the main PowerPoint (excluding handwashing and hygiene). The game can also be played as a review activity.



*Sample BINGO picture frame*

### **Bingo questions:**

1. What are the danger zone temperatures where bacteria grow quickly?
  - a. 4°C-60°C
2. How long can potentially hazardous foods be left in the danger zone?
  - a. 2 hours
3. Food must be cooked to what temperature to make sure it is safely cooked?
  - a. 74°C
4. The color of food while it is cooking tells you what?
  - a. Nothing
5. What is one of the most common mistakes food handlers make that results in food poisoning?
  - a. Improper cooling
6. What is fridge temperature?
  - a. 4°C
7. What minimum temperature should food in a hot buffet/steam table be?
  - a. 60°C



## **BINGO GAME INFORMATION (CONTINUED)**

8. Where is the safest place to thaw food?
  - a. In the fridge
9. How quickly and to what temperature should food be reheated to?
  - a. 74°C within two hours
10. How do animals often contaminate food like meat and chicken?
  - a. Poop
11. Finish the sentence: When in doubt...
  - a. Throw it out
12. What is left on the surface after cleaning it with soap and water?
  - a. Plenty of pathogens
13. This should be done after cleaning to reduce the number of pathogens on the surface to a safe level?
  - a. Sanitizing
14. An easy sanitizer to make at home is a bleach solution. How much bleach do you need to add to one liter of water to make a food-grade sanitizer?
  - a. ½ teaspoon
15. How should fruits and vegetables be washed?
  - a. Under cool, running water
16. Nails should always be:
  - a. Short and clean
17. When washing dishes by hand, you first wash with hot soapy water, rinse with clean water, sanitize and then....?
  - a. Airdry
18. What is one of the most germiest things found in the kitchen?
  - a. Dirty dishcloth/sponge
19. What are two ways that heat and chemical sanitizer levels can be tested?
  - a. Test strips and temperature gauges



## FOOD SAFETY RISK GAME INFORMATION

### How to play:

1. Download the Food Safety Risk PowerPoint.
2. Put students into groups of 4-5.
3. Play!
  - a. Go to the slide with the Risk Board.
  - b. Start slide show from current slide.
  - c. Click on a square with a number (this is the number of points the team will get for answering the question). This will open the question.
  - d. Read the question.
  - e. Choose team to answer.
  - f. Go back to the Risk Board by using the forward arrow on the slide.
  - g. The team that gets the most points wins.

### Risk Game answers:

	<b>100</b>	<b>200</b>	<b>300</b>	<b>400</b>
<b>Put it away</b>	4°C	2 hours	74°C	Temperature Cross contamination First in-first out Foods covered and off floor, best before dates, cleanliness
<b>Here comes the FBI</b>	Meat, eggs, poultry, dairy, fish, shellfish, cream-filled pastries, gravies, stews, soups, cooked veggies / grains	People - coughs/ sneezes and cuts/ boils	People, raw food, pests and animals, environment	Stomach cramps, diarrhea, vomiting, nausea, fever, headache, body ache
<b>Didn't do it</b>	Use a thermometer - thickest part of food must reach 74°C	60°C	4°C - 60°C	Fridge, ice-water bath, ice wand, keep uncovered, stir, cut up, shallow pans
<b>Sam and Ella</b>	Salmonella or Campylobacter	Disease-causing germ	Kitchen sponge	Wash your hands
<b>X games</b>	Transfer of pathogens from one food to another	Covered and on the bottom shelf	Scrape, wash, rinse, sanitize, air dry	½ teaspoon of bleach in 1 liter of water



## **SAMPLE LESSON PLAN**

Estimated Time: 90 minutes

Audience: High School Students

Resources (includes only free resources):

1. Food Safety Facts Activity Sheet #2
2. Main PowerPoint
3. Videos:
  - Handwashing (Food safety coaching part 1) (1.5 mins)  
<https://www.youtube.com/watch?v=cCpr11OuYKI>
  - Be Food Safe Canada (Clean/Separate/Cook/Chill) (2.5 mins)  
<https://www.youtube.com/watch?v=sf7ic4Lhmv8>
  - Here's how Chipotle got 500 people sick (3 mins)  
<https://www.youtube.com/watch?v=zBXAJV82744>
  - Seinfeld Hand Washing Fail – Funny (1.5 mins)  
<https://www.youtube.com/watch?v=f27Yzpz7cMg>
4. Food Safety Risk Game

Part 1: Introduction to class – video: Here's how Chipotle got 500 people sick (5 mins)

Part 2: Activity – have students complete “What I thought Before” section (10 minutes)

Part 3: Go through main PowerPoint presentation and fill out activity as they go along (60 mins)

Watch Be Food Safe Canada (Clean/Separate/Cook/Chill) (2.5 mins)

<https://www.youtube.com/watch?v=sf7ic4Lhmv8>

- *Good summary and visual of the four key food safety practices*

Seinfeld Hand Washing Fail – Funny (1.5 mins)

<https://www.youtube.com/watch?v=f27Yzpz7cMg>

- *Explains why you should wash hands in a humorous way*

Handwashing (Food safety coaching part 1) (1.5 mins)

<https://www.youtube.com/watch?v=cCpr11OuYKI>

- *Shows how to wash hands*

Part 4: Go over key points by playing the Food Safety Risk Game (15 mins)