Making the Connections to Food Safety

Grade 5

Food Safety
A Companion to the FightBAC! Program

STAO/APSO

in partnership with

MAPLE LEAF

This resource has been developed by the Science Teachers' Association of Ontario / l'association des professeurs de sciences de l'Ontario with funding and technical support from Maple Leaf Foods.

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This resource has been written as a companion piece for teachers of Grade 5 using Fight BAC! For Food Safety created by the Canadian Partnership for Consumer Food Safety Education and found at http://www.canfightbac.org/en/. Click on "Downloads" and find the '4-7 Learning Kit'. There are many other resources listed on this page.

"The FightBAC!™ Campaign is a consumer awareness campaign designed to give consumers the knowledge they need to keep themselves and their families safe from foodborne illness."

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STAO/APSO *in partnership with* MAPLE LEAF®

Curriculum Connections √

This series of activities can help your students achieve the following expectations in Science and Technology:

Science and Technology Expectations	**Activity**										
Understanding Life Systems	1	2	3	4	5	6	7	8	9	10	CA
OE 1 analyse the impact of human activities and technological innovations on human health	√	√	√				√	√	√	√	√
OE 3 demonstrate an understanding of the structure and function of human body systems and interactions within and between systems			√						√		√
1.1 assess the effects of social and environmental factors on human health		√					√			√	
1.2 evaluate the effects, both beneficial and harmful, of various technologies on human body systems, taking different perspectives into account								√			√
2.2 use appropriate science and technology vocabulary		√					√			√	
3.3 identify interrelationships between body systems											√
3.4 identify common diseases and the organs and/or body systems that they affect											√
Understanding Matter and Energy											
OE 2 conduct investigations that explore the properties of matter and changes in matter			√	√	√	√	√				√
OE 3 demonstrate an understanding of the properties of matter, changes of state, and physical and chemical change			√	√	√	√					
2.2 measure temperature using appropriate instruments (thermometer)				√	√	√					
2.3 use scientific inquiry/experimentation skills to investigate changes of state and changes in matter			√	√	√	√					√
2.4 use scientific inquiry/experimentation skills to determine how the physical properties of materials make them useful for particular tasks											√
2.5 use appropriate science and technology vocabulary			√	√	√						

This series of activities can help your students reinforce skills and concept development related to the following expectations in Language Arts. Ensure that students are familiar with these skills and concepts before being asked to apply them.

Language Arts Expectations	**Activity**										
Reading	1	2	3	4	5	6	7	8	9	10	CA
OE 1 read and demonstrate an understanding of a variety of literary, graphic, and informational texts, using a range of strategies to construct meaning			√	√	√	√	√		√		√
OE 2 recognize a variety of text forms, text features, and stylistic elements and demonstrate understanding of how they help communicate meaning							√		√		
Writing											
OE 1 generate, gather, and organize ideas and information to write for an intended purpose and audience		√	√	√	√	√	√	√	√		√
OE 2 draft and revise their writing, using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience				√			√		√		
OE 3 use editing, proofreading, and publishing skills and strategies, and knowledge of language conventions, to correct errors, refine expression, and present their work effectively							√		√		
Oral Communication											
OE1 listen in order to understand and respond appropriately in a variety of situations for a variety of purposes	√	√	√						√		
OE 2 use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes	√	√	√						√		√
OE 3 use editing, proofreading, and publishing skills and strategies, and knowledge of language conventions, to correct errors, refine expression, and present their work effectively							√		√		
Media Literacy											
OE1 demonstrate an understanding of a variety of media texts	√							√	√		
OE 3 create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques	√							√	√		

Accommodations and Adaptations

Not all students in a Grade 5 classroom will be able to complete all activities or assessments as written. Adapt the teaching and learning strategies to accommodate the needs of exceptional students consistent with the strategies outlined in their IEP's. Students may require scribing, repeated instructions, working in pairs, etc.

The Ontario Curriculum Unit Planner released in 2002 provides an extensive list of accommodations and suggestions to address the needs of all students. Parts of the planner are available online at http://www.edu.gov.on.ca/eng/teachers/teachingtools.html - elemsec.

Safety Considerations

- Ensure students are aware of Internet safety guidelines. Follow your board's procedures for student Internet use.
- To ensure videos are suitable for your classroom, preview all videos before using them.

Activity 1

Explore: You Can FightBAC!™ For Food Safety - A Video-Based Activity

This is the first activity found in the downloadable resource, Fight BAC! For Food Safety, found at http://www.canfightbac.org/en/_pdf/BAC_1-44.pdf In this activity, students are introduced to the term bacteria and to the four key messages of food safety, using a video showing four friends planning a birthday party. There is a script for the video in the appendix of the downloadable resource. You will find complete instructions for the activity starting on page 4 of that resource.

Please Note:

The 'You Can FightBAC!™ For Food Safety Video' can be ordered from Ontario Agri-Food Education. The video comes in a package that includes the teacher's guide for FightBac! and a food safety poster. It is a FREE resource and is limited to ONE copy per teacher per order. A shipping fee of $7.00 is charged.

For full information please see:
http://www.oafe.org/Default.aspx?tabid=107&ProductID=33

Extend: Larry and Loretta Lunch Teach You How to Pack a Safe Lunch

Follow these five simple rules and then do the experiment that follows:

1. Keep hot foods hot.
2. Keep cold foods cold.
3. Wash your hands before and after eating.
4. Do not keep perishable food out for more than 2 hours (not more than 1 hour if the temperature is 30° C or higher).
5. If food is questionable, follow the motto: "When in doubt, throw it out."

Loretta says: "Let's look at each of these rules in more detail."

1. Keep hot foods hot. Buy a good quality insulated thermos. Put boiling water into the thermos and let it stand for 2 minutes. Empty the water and put your hot food into the thermos. Secure the lid.
2. Keep cold foods cold. Use frozen freezer packs or insulated bags. Juice boxes can be frozen the night before. Keep perishables around the frozen item.
3. Wash your hands before and after eating. Use warm water with soap and scrub your hands for 20 seconds.
4. Perishable food should be refrigerated. If it's left out for more than 2 hours, follow Step 5 above.

Larry says: "I know things get hectic in the mornings as you are preparing for school. Have a parent show you how to pack your lunch box and then you do it to help your busy parents out. Teamwork is always better. If you do not have a lunch box but use paper bags instead, double-bag your lunch. This will help keep food cooler longer."

Safety Considerations: Have adults handle the boiling water and heated food to go into the thermos.

Try this experiment from FightBAC! (www.fightbac.org) from the downloadable booklet, "Your Game Plan for Food Safety", p. 8.
http://www.fightbac.org/storage/documents/curriculum/fight%20bac%20curriculum%20book.pdf

This is an experiment using 3 students who volunteer. Each student rubs 1 tablespoon of cooking oil, provided by the teacher, over his/her hands. The teacher gives each student 1 teaspoon of cinnamon. Each student rubs the cinnamon around until it is evenly distributed. The cinnamon is used to represent bacteria. Each student will wash their hands briskly for 20 seconds, timed by the teacher. Student 1 washes his/her hands with cold water and no soap. Student 2 washes his/her hands in warm water with no soap. Student 3 washes his/her hands with warm water and soap. The students write down their observations of the 3 students.

For more information:

- Maple Leaf Foods, "Food Safety at Home"
  http://www.mapleleaf.com/en/corporate/company-info/
- Public Health Industry of Canada, "Tips on Preparing Safe Lunches"
  http://www.phac-aspc.gc.ca/alert-alerte/hl-sa-video-eng.php

Activity 2

Explore: Food Safety Survey - A Home and Family Activity

Students complete a Food Safety Survey with family members. The findings from the surveys are used in follow-up class activities. The survey is repeated near the end of the unit. The activity begins on page 6 of the downloadable resource. There are several Black Line Masters (BLMs) for you to use.

Extend: Larry and Loretta say:
"Take the Home Food Safety Survey."

1. Download and photocopy (one per student) the reproducible master on pages 18 and 19 of "*Be a BAC Buster Home Food Safety Survey*". http://www.fightbac.org/storage/documents/curriculum/fight%20bac%20curriculum%20book.pdf

2. Deputize your students as "Food Safety Investigators" and send them home with the following activity:

Challenge students to include up to three other family members to survey their food safety behaviours. Encourage the students to compare their outcomes at home and, based on the answers, educate family members.

Activity 3

Explore: Soapy Solutions - Clean

Students learn by sharing results of experimentation, evaluating implications of their observations, and drawing conclusions about food safety. This interactive experiment focuses on the key message of CLEAN. You will find this activity starting on page 12 of the downloadable resource.

Extend: Larry and Loretta say:
"Clean your hands, fruits, and vegetables."

Have students, in groups, try this quiz and then do the two experiments that follow.

Q1. When should you wash your hands? (Multiple-choice)

A. Before and after touching raw food.
B. After using the washroom.
C. After playing with your pets.
D. All of the above.

The correct answer is "D". You want to stop harmful microorganisms spreading from one place to another. Spreading harmful microorganisms like that is called "cross-contamination" because you are taking an organism from one place that is contaminated, and you are moving it, making another place contaminated.
It's important to wash your hands all the time!

Q2. It's important to use soap, warm water, and rubbing action when washing your hands. (True or false)

True. The soap and the rubbing action remove harmful microorganisms that may be on your hands. Dry gently using a paper towel or hand towel that is laundered daily.

Q3. To wash your hands properly, you must wash them for at least how long? (Multiple-choice)

A. 5 seconds.
B. 20 seconds.
C. 1 minute.

The correct answer is "B". Always wash your hands for at least 20 seconds using soap and warm water, and rubbing your hands together. A good way to make sure that you wash your hands for at least 20 seconds is to sing the "Happy Birthday" song twice while you are washing your hands.

Q4. Can you tell if food is contaminated just by looking at it? (True or false)

False. You can't see, smell or taste the harmful microorganisms that may make you sick. When in doubt, throw it out!

Experiment #1: How clean are your hands?

Materials: 3 popsicle sticks
3 slip covers
3 plastic slides
1 microscope/group (teacher decides on the number per group based upon the availability of microscopes)

Procedures:

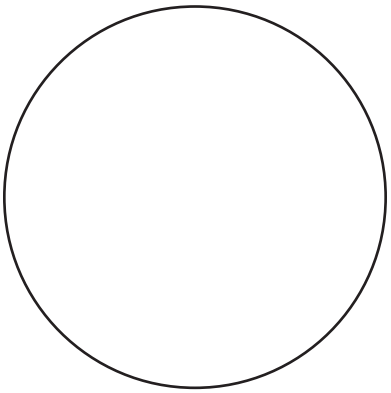
A. 1. Before washing your hands, gently scrape the palm of your hand with the end of a popsicle stick.
   2. Scrape the end of the popsicle stick onto a plastic slide.
   3. Add a drop of tap water.
   4. Cover the drop and place it under a microscope on low power.
   5. Draw your observations on the Activity Sheet provided.

B. After washing your hands, repeat steps 2-5.

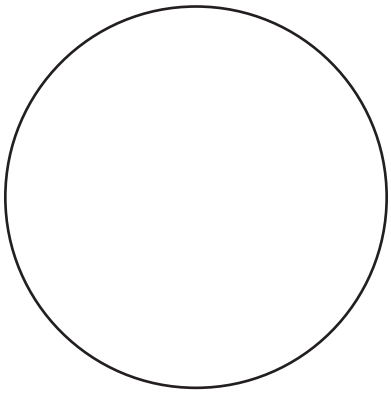
C. After handling the food, repeat steps 2-5.

D. After washing your hands again, repeat steps 2-5.

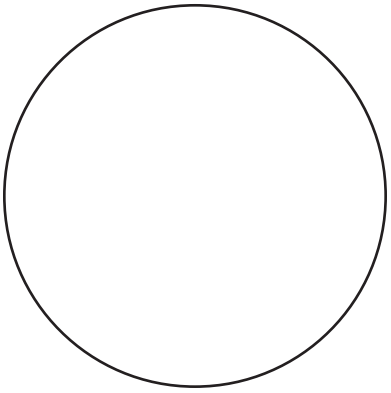
Clean Activity Sheet



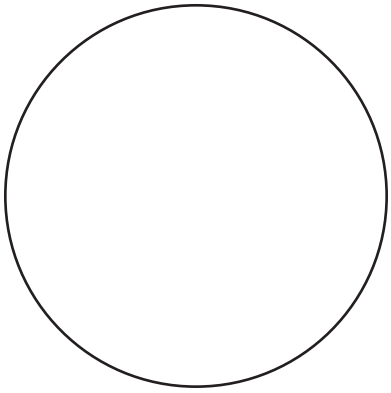
Before washing hands



After washing hands



After handling food



After washing hands again

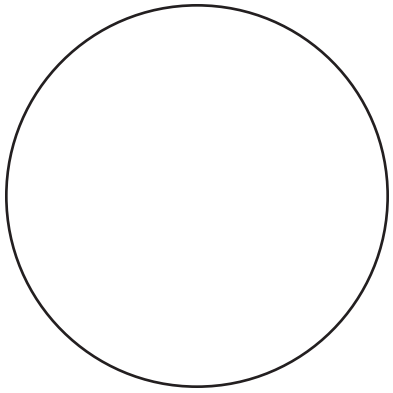
Experiment #2: How clean is your fruit?

Materials: Fresh fruit
2 cover slips
2 plastic slides
1 pair of tweezers
1 microscope

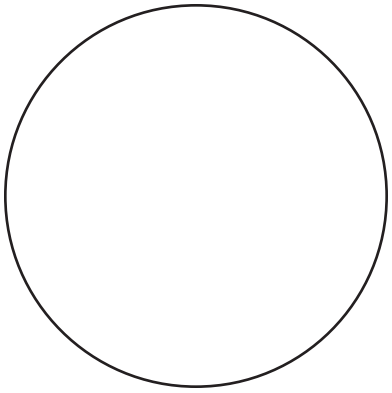
Procedures:

A. 1. Cut a small piece of the fruit's skin (about 3 mm by 3 mm) and place it onto the slide using tweezers.
2. Add one drop of water over the fruit on the slide.
3. Cover the fruit piece with a cover slip.
4. Place the slide under a microscope and draw your observations on the Activity Sheet.

B. Using the same piece of fruit, wash it and follow steps 2-4.



Piece of fruit before washing



Piece of fruit after washing

Written Conclusion:

_____

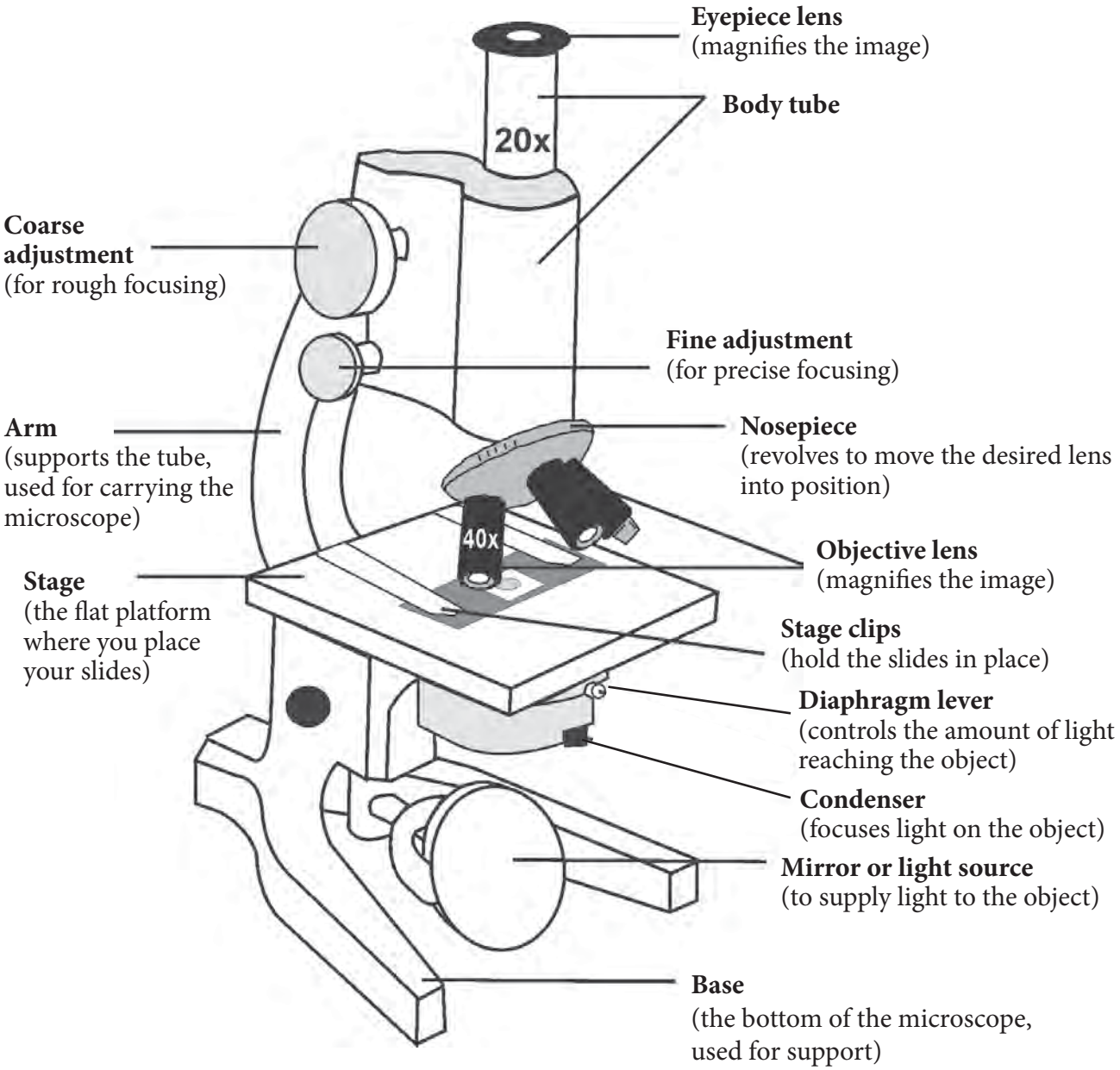
_____

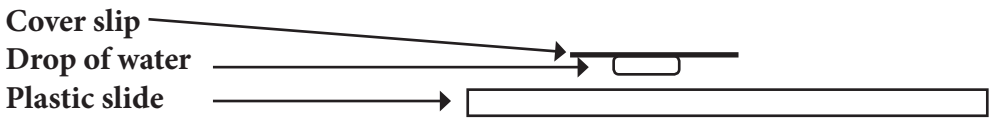
_____ .

Resources:

- Kids Food Safety Wheel
  http://www.inspection.gc.ca/english/corpaffr/educ/gamejeu/wheeroue/chienfe.shtml
  http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/clean/

Parts of a Microscope





Activity 4

Explore: Safely Separate - Separate

Students learn by sharing results of experimentation, evaluating implications of their observations, and drawing conclusions about food safety. This interactive experiment focuses on the key message of SEPARATE. Find the activity starting on page 16 of the downloadable resource.

Extend: Larry and Loretta say: *"Separate that food."*

Have students, in groups, try this quiz and the two activities that follow.

Q1. It's barbeque day! The adult barbequing asks you to bring a plate to put the cooked burgers on. Should you bring the plate that you used for the raw hamburgers? (Multiple-choice)

A. Yes
B. No

No. If you use the same plate or utensils (spatulas, tongs, knives, forks, spoons) for raw and cooked meat, you can get sick. When you use the same plate or utensils, harmful microorganisms that may be in raw meat can spread to meat that is safely cooked. This is called cross-contamination. Always use a clean plate and utensils for cooked meat so that you can avoid cross-contamination.

Q2. An adult takes you grocery shopping. How should you shop to be safe? (Multiple-choice)

A. You put raw meat and seafood in plastic bags before you put them into the shopping cart.
B. You don't put raw meat and seafood in the same bag with each other or other food.
C. You tell the store manager if you see raw meat juices or seafood juices dripping in the display cases.
D. All of the above.

The correct answer is "D", all of the above. You want to make sure that raw meat or seafood juices do not touch each other or touch other food.

Q3. Dinner is not on the table yet, but you're hungry. Should you take a spoonful of chili out of the pot and then take another bite out of the pot with the same spoon? (Multiple-choice)

A. Yes
B. No

No. You should not. This is called "double dipping." You should not do it because it spreads harmful microorganisms from your mouth to the food. Instead, use a clean spoon each time you taste the food.

Q4. You've used a pair of scissors to open a bag of milk. What should you do with the scissors now? (Multiple-choice)

A. Wash them properly before putting them away.
B. Wipe them with a kitchen towel and then put them back in the drawer.
C. Rinse them quickly under the tap and put them back in the drawer.

The correct answer is "A". After you use scissors to prepare food, ask an adult to wash the scissors in the sink with soap and warm water, or put them in the dishwasher. You need to wash the scissors after each time you use them on food. If you use unwashed scissors to cut food, you could contaminate the food with harmful microorganisms from the other foods you prepared.

Remember, you can't see microorganisms.

Q5. Cross-contamination means: (Multiple-choice)

A. Someone gets mad at you.
B. You get cross-checked playing hockey.
C. Harmful microorganisms are spread from one place to another.

The correct answer is "C", moving harmful microorganisms from one place to another.

One way to avoid cross-contamination is to always wash your hands. Wash your hands

- after using the washroom,
- after playing with your pets ,
- after touching raw meat,
- after throwing out the garbage.

If you remember to wash your hands all the time, you will help keep yourself from getting sick from food that's been cross-contaminated.

Activity 1 - What's Wrong With This Picture?

Reproduce this image from http://www.canfightbac.org/cpcfse/images/lgbacgame.gif for projection (or Smart Board) and have students work in groups to list as many 'wrongs' as possible.

Activity 2 - Setting It to Music.

Divide class into 6 groups of students. Give each group one of the safety points below. Have them present their information to the rest of the class as lyrics to nursery rhymes or a favourite song.

Background Information: Improper handling of raw meat, poultry, and seafood can create an inviting environment for cross-contamination. As a result, bacteria can spread to other foods and throughout the kitchen.

- Clean and then sanitize counter tops, cutting boards, and utensils with a mild bleach solution (5ml/1 tsp. bleach per 750ml/3 cups water) before and after food preparation.
- Consider using paper towels to wipe kitchen surfaces or change dishcloths daily to avoid spreading bacteria and, possibly, cross-contamination.
- Avoid using sponges because they are harder to keep bacteria-free, or wash them frequently in hot, soapy water or place for 20 seconds in the microwave.

1) **Keep It Clean! Lather Up** - Always wash hands, cutting boards, dishes, and utensils with hot, soapy water after they come in contact with raw meat, poultry, and seafood. Sanitize them for the safest results. Plastic cutting boards can be cleaned and sanitized in the dishwasher. Discard worn cutting boards.

2) **Take Two** - If possible, use one cutting board for fresh produce and use a separate one for raw meat, poultry, and seafood. Watch those juices! Make sure to clean cutting boards with hot soapy water.

3) **Safely Separate** - Separate raw meat, poultry, and seafood from other foods in your grocery shopping cart and in your refrigerator.

4) **Seal It** - Seal raw meat, poultry, and seafood in air-tight containers or plastic bags and place them on the bottom shelves of your refrigerator to prevent juices from dripping onto other food.

5) **Clean Your Plate** - Never place cooked food back on the same plate or cutting board that previously held raw food.

6) **Marinating Mandate** - Sauce that is used to marinate raw meat, poultry, or seafood should not be used on cooked foods. Boil leftover marinade for 1 minute or prepare extra for basting cooked food. Wash and sanitize your brush or use separate brushes when marinating raw and cooked foods.

Resource:
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/separate/

Activity 5

Explore: Proper Patties - Cook

Students learn by sharing results of experimentation, evaluating implications of their observations, and drawing conclusions about food safety. This interactive experiment focuses on the key message of COOK. Find the activity starting on page 20 of the downloadable resource.

Extend: Larry and Loretta say: *"Cook that food."*

Have students, in groups, take the quiz and then do the activity that follows.

Q1. You're heating leftover soup. It's safe to eat the soup, even though it's just warm. (True or false)

False. Leftovers should be heated to a full rolling boil. That includes foods, such as soup, stew, and chili. Once the leftovers have boiled, cool them until they are not too hot to eat. When you heat leftovers properly, you destroy harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food.

Q2. What does "cooking food safely" mean? (Multiple-choice)

A. Using a recipe.
B. Using the right pots and pans.
C. Making sure the food is cooked to a safe temperature.

The correct answer is "C". Food is cooked safely when it is hot enough inside that harmful microorganisms are killed. This reduces the risk of you getting sick from eating contaminated food. Don't forget to handle your food safely, too, by separating, cleaning, and chilling it.

Q3. What's a digital food thermometer? (Multiple-choice)

A. A special type of thermometer used to check the internal temperature of different types of food.
B. Something used to check if you have a fever.
C. A stick used to roast marshmallows.

The correct answer is "A". Adults should use a digital food thermometer to check that food is cooked or reheated to a safe temperature. Cooking food to the right temperature inside destroys harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food.

Q4. You want to make sure your burger is cooked properly. A good way for an adult to do this is by cutting it open to see the colour of the middle. (True or false)

False. You can't tell if a burger is safe to eat by looking at it. The only way to tell if a hamburger is cooked is to use a digital food thermometer to check the temperature in the middle of the patty. Your burger is done at 71°C (160°F). Cooking food to the right temperature inside destroys harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food.

Q5. What is the best way for adults to tell if they have cooked food properly? (Multiple-choice)

A. Ask their friends.
B. Use a digital food thermometer to check the temperature.
C. Cook it until it's really dry.

The correct answer is "B". Adults should use a digital food thermometer to check that food has reached a safe temperature inside the food. Cooking food to the right temperature inside destroys harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food.

Activity

Using a home food thermometer and the chart below, with help from an adult, measure the internal temperature of various foods that are cooked at home and ready to serve.

Food	Temperature
Beef, veal, and lamb (pieces and whole cuts) - medium-rare	63°C (145°F)
Beef, veal, and lamb (pieces and whole cuts) - medium	71°C (160°F)
Beef, veal, and lamb (pieces and whole cuts) - well done	77°C (170°F
Pork (pieces and whole cuts)	71°C (160°F)
Poultry (e.g., chicken, turkey, duck) - pieces	74°C (165°F)
Poultry - whole	85°C (185°F)
Ground meat and meat mixtures (e.g., burgers, sausages, meatballs, meatloaf, casseroles) - beef, veal, lamb, and pork	71°C (160°F)
Ground meat and meat mixtures - poultry	74°C (165°F)
Egg dishes	74°C (165°F)
Others (hot dogs, stuffing, and leftovers)	74°C (165°F)

Cooking Chart
http://www.inspection.gc.ca/english/fssa/concen/tipcon/thermoe.shtml
Resources:
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/cook/

Activity 6

Explore: Yeast Balloon Blow-Up - Chill

Students learn by sharing results of experimentation, evaluating implications of their observations, and drawing conclusions about food safety. This interactive experiment focuses on the key message of CHILL. Find the activity starting on page 24 of the downloadable resource.

Extend: Larry and Loretta say: *"Chill that food."*

Have students, in groups, take the quiz and complete the activity that follows.

Q1. Let's say you want to eat a frozen meal, such as lasagna. It is safe to put the lasagna on the kitchen counter to defrost. (True or false)

False. It's not safe to defrost food at room temperature. An easy way to defrost food is to thaw it in a covered container on the bottom shelf of the fridge. Keeping food cold in the fridge (at or below 4°C /40°F) slows down the growth of microorganisms. This reduces the risk of you getting sick from eating contaminated food.

Q2. You've made a big pot of macaroni and cheese and you can't eat it all. What's the best way to cool the leftovers? (Multiple-choice)

A. Divide the leftovers into shallow containers so they'll cool quickly in the fridge.
B. Place the whole pot in the fridge.
C. Leave the pot on the stove overnight to let it cool down.

The correct answer is "A". Food cools faster when you divide it into shallow containers. Cooling food quickly slows down the growth of harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food. And remember, don't leave foods out in the temperature danger zone for longer than 2 hours. The danger zone is 4°C to 60°C, or 40°F to 140°F.

Q3. You're packing your lunch for school and it's a really hot day. What's a good way to keep your lunch chilled safely? (Multiple-choice)

A. Use frozen freezer packs in your lunch.
B. Use frozen juice packs in your lunch.
C. Use frozen berries in your lunch.

The correct answer is "A". Use frozen freezer packs in your lunch. This is a good way to help keep the food cold. Keeping food cold slows down the growth of harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food. Perishable food must stay cold to stay safe. That includes food like meat, seafood, dairy products, and all leftovers. Use frozen freezer packs to keep your lunch food at or below 4°Celsius. Freezer packs stay cold for only a few hours, so make sure to keep your lunch bag in the fridge.

Q4. Should you eat pizza that has been left out on the counter overnight? (Multiple-choice)

A. Yes
B. No

No! Harmful microorganisms multiply quickly at room temperature. They can make you sick if they are on food that you eat. You can't tell if a food is contaminated with harmful microorganisms by looking at it, smelling it or tasting it. You should throw out the pizza this time, but the next time there are leftovers, put them in the fridge within 2 hours or less. That way, they'll be safe to eat the next day. Keep food cold (at or below 4°C /40°F) to prevent the growth of harmful microorganisms. This reduces the risk of you getting sick from eating contaminated food.

Q5. A good way to keep the fridge cold is to fill it up with a lot of food. (True or false)

False. A good way to keep the fridge cold is not to fill it up. When you leave some room, the cold air can circulate around the food and keep it cold. Make sure that your fridge thermometer always reads 4°C (40°F) or below.

Activity

Use two plastic hand-held thermometers. Keep one in the refrigerator and the other in your lunch bag. Measure the temperature of the refrigerator when you get up, when you get home from school, and just before you go to bed. Also, measure the temperature of your lunch bag when you get to school, at the beginning of lunch, and just before you go home. Record all of the measured temperatures on the accompanying chart daily from Monday to Friday.

Temperature Refrigerator Chart

Times	Mon.	Tues.	Wed.	Thurs.	Fri.
When you get up					
When you get home from school					
Just before you go to bed					

Temperature Lunch Bag Chart

Times	Mon.	Tues.	Wed.	Thurs.	Fri.
When you get to school					
At the beginning of lunch					
Just before you go home					

Safety: If the Thermometer Breaks in Your Lunch Bag:

1. Have your teacher remove the broken pieces.
2. You clean out your bag and do not eat any food in the bag. Have a parent sterilize the bag when you get home.

Resources:

- Kids Food Safety Wheel
  http://www.inspection.gc.ca/english/corpaffr/educ/gamejeu/wheeroue/chienfe.shtml
  http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/chill/
- Food Chill Chart
  http://www.canfightbac.org/en/cookwell/charts/

Activity 7

Explore: Foodborne Illness Case - A Student Investigation

Students apply their food safety knowledge to a "real life" picnic scenario. Find the activity starting on page 28 of the downloadable resource.

Extend: Larry and Loretta say: *Solve the FBI (Foodborne Illness) Case, "Perils at the Picnic."*

1. Photocopy the reproducible master of the "FBI Case Perils at the Picnic" (pages 16 and 17 from http://www.fightbac.org/storage/documents/curriculum/fight bac curriculum book.pdf) printed back-to-back, for each student. Laminate each sheet for future use.

2. Students work in groups to become the FBI teams as they investigate the "crime scene" of a potential foodborne illness. Students complete the "Cracking the Case" questionnaire on a separate piece of paper.

Further Extension: Each group develops and performs a mini-skit of the incident. They create their own dialogue, including parts for everyone in their group, and design their own props.

Resource:

- The Partnership for Food Safety Education
  www.fightbac.org

Activity 8

Explore: You Can FightBAC!™ For Food Safety - A Poster Activity

Students will critique the food safety poster provided with this resource and create their own versions to depict individual food safety messages based on the four key areas. Find the activity starting on page 31 of the downloadable resource.

Extend: Larry and Loretta say: *"Ensure the safe handling of fruits and vegetables."*

Activity

Have students create a checklist to use when shopping for fresh fruit and vegetables. The following are sample questions they might use for their checklist:

Buying Fresh Fruits and Vegetables

	Yes	No
1. Is the produce bruised or damaged?	___	___
2. When buying pre-cut or ready-to-eat fruits and vegetables (e.g., cut melons, cut tomatoes, pre-washed salad), have they been properly refrigerated (i.e., at 4°C or below)?	___	___
3. In your grocery cart or hamper, do you keep fresh fruits and vegetables separated from other raw foods, such as meat, poultry, seafood, and their juices?	___	___

Resources:

- Health Canada
  http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/handling-manipulation-eng.php
- Healthy Canadians
  http://www.healthycanadians.gc.ca/index-eng.php

Activity 9

Explore: Spread the News, Not the Germs - Activities for Home, for School, and In the Community

Students will do three activities to consolidate their food safety learning - one for home, one for school, one for the community. Find the activity starting on page 35 of the downloadable resource.

Extend: Larry and Loretta say: *"Let's play food safety games."*

The following are web–based games that will extend students' understanding.

1. The **Food Safety Wheel Game** is designed to test your knowledge about food safety. The questions focus on the 4 key food safety messages:
   Clean - wash hands and surfaces often;
   Cook - cook foods to proper temperatures;
   Chill - refrigerate or freeze promptly; and
   Separate - don't cross-contaminate.

2. The **Safe Temperature Game** is designed to raise awareness about cooking food to safe temperatures. You need to cook food to temperatures that are high enough to destroy bacteria, viruses, and parasites that may naturally be present in some foods. A food thermometer lets you check the internal temperature of a food to find out if it is cooked properly. Using a food thermometer can help you prevent foodborne illness. Different types of food need to be cooked to different temperatures and this game will help you remember the safe cooking temperatures for several of your favourite foods.

3. The **Safe Meal Preparation Game** is designed to help you remember the steps to follow when preparing a meal. You will learn the four key steps in handling and preparing food safely - clean, cook, chill, and separate. By following these steps, you can avoid foodborne illness and keep your kitchen, refrigerator, and counters clean and safe.
   *The key to success in this game is to read the clues - although the last 2 steps could be performed in either order, the game recommends cleaning your kitchen counters **before** putting your food in the refrigerator.*

4. The **Clean the Counter Game** is designed to show the importance of cleaning and disinfecting your kitchen counters, sinks, and food preparation areas. You will learn about the different types of bacteria that cause foodborne illness. You will also learn the proper way to disinfect your kitchen in order to kill these bacteria and avoid foodborne illness.

Resource:
http://www.inspection.gc.ca/english/corpaffr/educ/gamejeu/gamejeue.shtml

Extend: Larry and Loretta say: *"Consult Mrs. Cookwell."*

Students work in groups of 3 to 5 (depending on the size of the class) to give an oral presentation on one of the topics listed below. They should provide their own activity sheet to the class following their presentation. Use the website http://www.canfightbac.org/cpcfse/en/cookwell/ask/ for questions asked of Mrs. Cookwell and the answers she provides, as well as additional research from the website(s) listed below. Note that Mrs. Cookwell does not answer new questions, although this section of the website may be updated.

TOPICS

Eggs - For information on eggs, contact Egg Farmers of Canada, click on "Health Professionals and Educators", then click on "Educators". Click on "Eggtivities (Grades 4 to 6)". Here you can download an 18-page booklet. This 18-page activity-based booklet uses the egg as its central theme woven throughout science, health, nutrition, physical education, visual arts, mathematics, and language arts. The contents have been developed to meet curriculum requirements. See http://www.eggs.ca/ for more information.

Poultry - Visit Chicken Farmers of Canada (http://www.chicken.ca/). Go to "safe food handling" for handling and storage information.

Also visit Turkey Farmers of Canada (www.turkeyfarmersofcanada.ca). Go to the consumer section for cooking and handling information.

Fruit & Vegetables - For information on freezing, storing, and cooking fruits and vegetables, visit Canadian Produce Marketing Association (http://www.cpma.ca/default.asp?404;http://www.cpma.ca/en_con_home.asp). Go to the "Consumer" section and check out the specific fruits and vegetables section for handling and storage information.

Also visit the Canadian Food Inspection Agency (http://www.inspection.gc.ca/english/fssa/concen/specif/fruvege.shtml). " Food Safety Facts for Fresh Fruits and Vegetables".

Health Canada
www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/handling-manipulation-eng.php

Dairy - For information on Dairy Products (Butter, Cheese, Yogurt, Milk, Cream, Ice Cream) visit Dairy Farmers of Canada (http://www.dairygoodness.ca/). Go to "Our Products" and click on the product you are interested in. You will find storage information for that product in the section called, "How to Enjoy It".

Meat - For information on how to handle meat, visit Beef Information Centre (http://www.beefinfo.org/). Go to "Buying and Cooking" for safe food handling information, recipes, and more.

Fish – Check out the following Qs and As at http://www.canfightbac.org/cpcfse/en/cookwell/ask/fish/ and also check out Seafood Industry Contacts - Canada at http://www.sea-ex.com/countryinfo/canada.htm

Processed Products - Refer to the manufacturer of the product for their own Qs and As, for example, Maple Leaf Foods at http://www.mapleleaf.com/
Students are to take the "Food Safety Quiz" (http://www.mapleleaf.com/en/market/food-safety/food-safety-at-home/food-safety-quiz/) provided by Maple Leaf Foods after hearing all the presentations.

Evaluate

Culminating Activity: "FightBAC!" Campaign

"FightBAC!": A Symposium
Students come together in an "expert"-led symposium to share their findings about one area of food safety, the bacteria associated with it, and the impact on the human body.

Please note - the language arts expectations may be addressed under the discretion of the individual teacher. Some scaffolding and mini-lessons may be required in order for students to fully demonstrate their understanding.

Food Safety Symposium Outline

Due Date:_____

Purpose: To learn more about food safety as it relates to bacteria's effects on the different human body systems

Scenario: You have recently been hired by the Public Health Office for your Region. In order to help people protect themselves, you have been asked to create an information pamphlet on one aspect of food safety. You will be presenting the information in your pamphlet to your fellow Public Health Officers at your annual Food Safety Symposium.

Format:

1. Complete a research assignment that looks at one aspect of food safety (Clean, Chill, Cook, Separate) and what might happen if you do not follow the appropriate guidelines.
2. Present your findings in the role of the Health and Wellness Expert.
3. Design a store front display (self-supporting) to be displayed at the "Life System's Symposium".

Your project should include the following:

4. The aspect of food safety you are focusing on (Clean, Cook, Chill , Separate).

5. How food and medical technology is used in the investigation or treatment of the food safety topic you are investigating.

Evaluation: Please see rubric attached on page 27.

Other Curriculum Areas to Explore

Visual Arts

Drama and Dance

Teaching/Learning/Literacy Strategies

- think-group-share
- think-pair-share
- brainstorming
- independent learning
- collaborative learning
- using graphic organizers
- pre-/during/after reading strategies: word wall, dramatization, sort and classify
- teacher modelling
- chunking/hi-lighting

Visual Literacy

Teachers are encouraged to use a wide variety of visual resources that illustrate the importance of food safety:

- photographs
- posters
- videos
- flyers
- petitions
- T-shirts
- banners
- pamphlets
- buttons

Final Evaluation Rubric

Achievement	Level One	Level Two	Level Three	Level Four
Knowledge and Understanding: - identifies the common bacteria and the organs and/or body systems that they affect	- identifies a bacteria that relates to one or more of the systems and demonstrates an emerging understanding of the causes and effects of the problem	- identifies a bacteria that relates to one or more of the systems and demonstrates partial understanding of the causes and effects of the problem	- identifies a bacteria that relates to one or more of the systems and capably demonstrates understanding of the causes and effects of the problem	- identifies a bacteria that relates to one or more of the systems and capably demonstrates understanding of the causes and effects of the problem, using complex ideas
Knowledge and Understanding: - evaluates the effects of food safety technologies on human body systems, taking different perspectives into account	- identifies the technology related to the appropriate food safety strategy with limited understanding	- identifies the technology related to the appropriate food safety strategy with a developing understanding	- identifies the technology related to the appropriate food safety strategy with a general understanding	- identifies the technology related to the appropriate food safety strategy with a thorough understanding
Thinking and Investigation: - uses scientific inquiry/ experimentation skills to investigate changes in body systems	- is beginning to develop skills to plan, research, and organize the answer to a self-selected question using the inquiry process	- is developing skills to plan, research, and organize the answer to a self-selected question using the inquiry process	- capably plans, researches, and organizes the answer to a self-selected question using the inquiry process	- plans, researches, and organizes the answer to a self-selected question using the inquiry process, demonstrating sophisticated skills
Communication: - uses a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes	- expresses and organizes ideas and information with limited science vocabulary	- expresses and organizes ideas and information with some clarity and sometimes uses appropriate science vocabulary	- clearly expresses and organizes ideas and information and usually uses appropriate science vocabulary	- expresses and organizes ideas and information in an advanced way and consistently uses appropriate science vocabulary
Application: - assess the effects of social and environmental factors on human health, and proposes ways in which individuals can reduce the harmful effects of these factors and take advantage of those that are beneficial	- makes connections between science, technology, society, and the environment with limited effectiveness	- makes connections between science, technology, society, and the environment with some effectiveness	- makes connections between science, technology, society, and the environment with considerable effectiveness	- makes connections between science, technology, society, and the environment with a high degree of effectiveness