# Making the Connections to Food Safety

## Grade 11 Biology

### SBI3C
### A Response to a Crisis

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 looks at how the food industry reacts to potential microorganism contamination. The Three Part Lesson plan is used as the organizing template for all activities included. Rubrics for individual and group work are also provided.



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# SBI3C A Response to a Crisis

**Curriculum Expectations**

Scientific Investigations Skills A1.9
Career Exploration A2.1
Microbiology C1.1, C2.1, C2.5, C3.4, C3.5
Anatomy of Mammals E3.1, E3.3

**Scientific Investigation**

Assess information gathered from research sources for accuracy, reliability, and bias

**Career Exploration**

Food Science Technologist

**Microbiology**

Effects of harmful microorganisms
Use of correct terminology
Conditions for growth
Methods of reproduction
Bacterial effects on organisms

**Anatomy of Mammals**

Physiology as it relates to food contamination

## Criteria for food industries to follow when responding to a crisis.

| **Minds On… (Elicit and Engage)** | Approximate time: 60 minutes | **Assessment and Evaluation** |
|---|---|---|
| Read Case study report. View Maple Leaf Foods President's (Michael McCain) newscast. Teacher describes the assignment and reviews rubrics. | | A rubric to assess students on their individual work within this group setting has been included. |
| **Action! (Explore and Explain)** | Approximate time: 75 minutes | |
| Students (in groups) review the response by Maple Leaf Foods and list the steps that were taken by this company. They then review the alerts published by the Canadian Food Inspection Agency so that they can see a need for government regulation. Their assignment is to establish criteria and a timeline for companies to respond to a crisis involving the food that they supply. | | |
| **Consolidation** (Elaborate, Evaluate, and Extend) | Approximate time: 20 minutes | |
| Students can share the criteria that they have established, justifying the list and timelines involved. | | |
| **Home or Next Lesson Connection**<br>Each group member will take on the primary responsibility for one of the remaining 3 assignments in the project.<br><br>Have each student sign their name on the assignment that they are working on in the group. | | |

## Food Safety Poster, CEO Newscast, Biology of 2 Bacteria Affecting Food Supply

| **Minds On… (Elicit and Engage)** | Approximate time: 50 minutes | **Assessment and Evaluation** |
|---|---|---|
| Within their groups, students establish remaining responsibilities and timelines for completion of the 3 remaining projects. | | Rubrics have been created for each assignment. Students are responsible for the content in all assignments assigned to the group. Students will receive individual marks. Their mark will not be affected by the performance of other members of the group. |
| **Action! (Explore and Explain)** | Approximate time: 150 minutes | |
| 1) Food Safety Poster: Student reviews the suggested websites, making the briefest of point form notes (to avoid plagiarism), and then creates an artistically pleasing brochure. The intended audience should be first year college and university students.<br>2) CEO Newscast: Student posing as an industry CEO, creates a video that sends a message to consumers alerting them to the impending crisis and the actions being taken by that company to protect the public from further harm.<br>3) Report on Biology of Two Bacteria: Student researches and writes a report on the biology of 2 bacteria that could possibly be in our food supply. The subtopics include lifecycle, method of reproduction, limits of tolerance. A complete list is included in the assignment. | | |
| **Consolidation** (Elaborate, Evaluate, and Extend) | Approximate time: 15 minutes | |
| The groups shall meet at the end of each class period through this project so as to monitor assignment progress. By reviewing the assignments during these meetings, students will become familiar with the necessary content. | | |

# Teacher Resource: Case Study Maple Leaf Foods: A Response to a Crisis

It takes courage to accept responsibility for your actions. When these actions cause personal injury, this stand becomes very difficult. It would not be uncommon for a person to experience shock, disbelief, and fear for one's future. All of these must have occurred to Michael McCain, CEO and President of Maple Leaf Foods in Canada.

Please view the "YOU TUBE" video below:

http://www.youtube.com/watch?v=aMfg-k3XkbQ&NR=1

If your school has blocked the use of YOU TUBE, then you can read about this CEO and his message by visiting:

http://www.fftimes.com/node/218140

In August 2008, some Maple Leaf Foods products were found to be contaminated with *Listeria* monocytogenes. Despite the fact that this bacterium is common, and is likely present in our refrigerators in our homes, most Canadians had never heard of this bacteria or its associated disease, Listeriosis. To learn more about these bacteria, the products affected, and the reactions to this crisis from the political parties, please view the Wikipedia site below.

http://en.wikipedia.org/wiki/2008_Canadian_listeriosis_outbreak

The media followed this event closely. Each day, new reports of people stricken by Listeriosis emerged. Health officials widened their mortality criteria to include people who had this illness, but died from some other ailment. For a sample news cast, please view this CTV website below.

http://www.citytv.com/toronto/citynews/news/local/article/4380--listeria-death-toll-grows-to-12-and-more-cases-surface-with-ontario-being-the-worst-hit

Maple Leaf Foods launched an investigation, which resulted in action.

**INVESTIGATION:** Maple Leaf Foods identified the bacteria and the specific products that were contaminated. The food processing plants producing these were closed down and the products were recalled. Warnings appeared in public media, identifying the company responsible (Maple Leaf Foods) and the specific food products. During the investigation, it was found that an area deep in the meat slicing equipment harboured the colonies of *Listeria* monocytogenes.

**ACTION:** Maple Leaf Foods assessed and expanded their cleaning practices. As a result, they now use steam tenting to clean and sterilize the deep harbourage points in the cutting machines. Each machine is taken apart and wiped down with antibacterial solutions. Testing for bacteria occurs twice as often as is required by law. Each day, company officials meet to discuss the test results from the previous day.

**EDUCATION:** In an effort to raise the standards for food handling internationally, Maple Leaf Foods readily shares bacterial testing methodologies, cleaning procedures, and industry practices that they would like to see implemented in all companies handling foods. They have expanded their company training program and have produced many excellent pamphlets to educate the public in safe food handling practices. In their FOOD SAFETY for FAMILIES document, for example, they give tips on cleaning, separating food in our refrigerators, cooking, and then storing our leftovers (Clean, Separate, Cook, Chill).

These are some of the many websites that you can visit to learn more about food safety. This information will be useful to complete the assignment. To avoid plagiarism, remember to make the briefest of point-form notes, remove yourself from the original source, and then use these brief notes to write your assignment. To document your sources, you can consult this website for an MLA format:

http://honolulu.hawaii.edu/legacylib/mlahcc.html

Reference Websites

http://www.mapleleaf.com/en/market/food-safety/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/clean/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/separate/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/chill/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/cook/

**ASSIGNMENT:** *Salmonella*, another foodborne illness, has been reported by the Canadian Food Inspection Agency (Aug 2010). The products include Goya Brand Mamey Pulp (Ontario), Green Onions from Farmer's Markets (Southern Ontario), and Eggs (Washington). Search this website and use the key words Health Hazard Alerts Aug 2010: www.inspection.gc.ca

1. Acting as a government official, establish criteria that all food industries should follow to respond to a crisis similar to the ones described. Explain when these should be implemented (timeline) and why you have chosen these criteria (justify).

2. College and University dorms are notorious for having unclean kitchens. Prepare a pamphlet to inform college and university students on some aspects of food safety. (Clean, Separate, Cook, Chill)

3. Acting as an industry CEO whose company has been in the centre of a food crisis (fictitious), prepare a 3-minute video informing the public of the nature of the crisis, and the products that need to be recalled. Please keep an atmosphere in the video in keeping with the serious nature of the crisis.

4. Prepare a 2-page report describing the biology of any 2 bacteria related to illnesses associated with food handling. This broad term, "the biology of", refers to such categories as taxonomy, nutritional mode, method of reproduction, production of toxins, environmental conditions that promote growth, conditions that limit growth, affects on host organism (digestion, circulation, respiration), ability to resist immune attack by host organism, ability to adapt and avoid detection via genetic shifts.

5. Food technologists often play a central role in maintaining a clean workspace in a food industry. Write a brief (1 page) report describing their education, training (be sure to include the program called HACCP (Hazardous Analysis and Critical Control Points training program (life-long learning)), and a complete job description. While this may change from company to company, there will be many common components.

# Rubric: Newscast - Presentation and Planning: CEO Response to Food Crisis

Teacher Name: _____

Student Name: _____

| CATEGORY | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| **Clarity (Communication)** | Speaks clearly and distinctly all the time and mispronounces no words. | Speaks clearly and distinctly all the time but mispronounces 1 or more words. | Speaks clearly and distinctly most of the time and mispronounces no words. | Does NOT speak clearly and distinctly most of the time AND/ OR mispronounces more than 1 word. |
| **Posture and Eye Contact (Communication)** | Stands or sits up straight and looks confident and relaxed. Establishes eye contact with audience during most of newscast. | Stands or sits up straight. Establishes eye contact with audience during most of newscast. | Slouches or appears too casual but establishes good eye contact with audience during most of newscast. | Slouches or appears too casual AND establishes little eye contact with audience during newscast. |
| **Awareness of Audience (Thinking, Understanding, Communication)** | Student can clearly explain why s/he felt the vocabulary, audio, and graphics chosen fit the intended audience. | Student can explain why s/he felt the vocabulary, audio, and graphics chosen fit the intended audience. | There was some awareness of the audience, but student cannot fully describe how the vocabulary, audio, and graphics chosen fit the intended audience. | Limited attention to audience in designing newscast; cannot explain how the elements of the broadcast relate to the audience. |
| **Duration of Presentation (Communication)** | The newscast was between 1.5 and 3 minutes and did not seem hurried or too slow. | The newscast was between 1.5 and 3 minutes but seemed SLIGHTLY hurried or too slow. | The newscast was between 1.5 and 3 minutes but seemed VERY hurried or too slow. | The newscast was too long or too short. |
| **Atmosphere (Communication)** | The video portrays the seriousness of a crisis in the food handling industry. | The video is satisfactory and generally portrays the serious nature of this crisis. | The video, with some exceptions, creates a serious atmosphere appropriate to the crisis. | The video presents the facts surrounding this crisis without creating a sombre atmosphere. |

# Rubric: Group Planning: Maple Leaf Foods Case Study

Teacher Name: _____

Student Name: _____

Note: Each student will receive an individual mark for their work within the group. A student's mark will not be affected by the work of the other members in his/her group.

| CATEGORY | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| **Ideas/Research Questions (Thinking, Investigation)** | Researchers independently identify at least 4 reasonable, insightful, creative ideas/questions to pursue when doing the research. | Researchers independently identify at least 4 reasonable ideas/ questions to pursue when doing the research. | Researchers identify, with some adult help, at least 4 reasonable ideas/ questions to pursue when doing the research. | Researchers identify, with considerable adult help, 4 reasonable ideas/ questions to pursue when doing the research. |
| **Timeline for Group Projects (Thinking)** | Student can independently describe the high points of the timeline. | Student can independently describe most of the high points of the timeline. | Student can independently describe some of the high points of the timeline. | Student cannot independently describe the high points of the timeline. |
| **Delegation of Responsibility (Thinking, Communication)** | Student can clearly explain what information is needed by the group, what information s/he is responsible for locating, and when the information is needed. | Student can clearly explain what information s/he is responsible for locating. | Student can, with minimal prompting, clearly explain what information s/he is responsible for locating. | Student cannot clearly explain what information s/he is responsible for locating. |
| **Plan for Organizing Information (Thinking, Communication)** | Student has assisted in developing a clear plan for organizing the information as it is gathered and in the final research product. Student can independently explain the planned organization of the research findings. | Student has assisted in developing a clear plan for organizing the information in the final research product. Student can independently explain most of this plan. | Student has assisted in developing a clear plan for organizing some of the information as it is gathered. Student can independently explain some aspects of this plan. | Student had little input into developing a clear plan for organizing the information AND/OR student cannot explain the organizational plan. |
| **Quality of Sources (Investigation)** | Student researcher independently locates at least 2 reliable, interesting information sources for EACH of their ideas or questions. | Researcher independently locates at least 2 reliable information sources for EACH of their ideas or questions. | Researcher, with some help, locates at least 2 reliable information sources for EACH of their ideas or questions. | Researcher, with extensive help, locates at least 2 reliable information sources for EACH of their ideas or questions. |

# Rubric: Food Safety Brochure

Teacher Name: _____

Student Name: _____

| CATEGORY | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| **Writing - Organization (Communication)** | Each section in the brochure has a clear beginning, middle, and end. | Almost all sections of the brochure have a clear beginning, middle, and end. | Most sections of the brochure have a clear beginning, middle, and end. | Less than half of the sections of the brochure have a clear beginning, middle, and end. |
| **Writing – Grammar (Communication)** | There are no grammatical mistakes in the brochure. | There are no grammatical mistakes in the brochure, after feedback from an adult. | There are 1-2 grammatical mistakes in the brochure, even after feedback from an adult. | There are several grammatical mistakes in the brochure, even after feedback from an adult. |
| **Spelling & Proofreading (Communication)** | No spelling errors remain after one person other than the typist reads and corrects the brochure. | No more than 1 spelling error remains after one person other than the typist reads and corrects the brochure. | No more than 3 spelling errors remain after one person other than the typist reads and corrects the brochure. | Several spelling errors in the brochure. |
| **Writing (Knowledge/ Communication at grade level)** | The authors correctly use several new words and define words unfamiliar to the reader. | The authors correctly use a few new words and define words unfamiliar to the reader. | The authors try to use some new vocabulary, but may use 1-2 words incorrectly. | The authors do not incorporate new vocabulary. |
| **Content (Knowledge, Understanding, Application)** | Student has chosen relevant facts, and clearly puts them in a context of our everyday lives. | Student has chosen relevant facts although the context is not always clear. | Almost all facts are relevant; there is a limited attempt to relate them to our everyday lives. | While some facts are relevant, they are mixed in with irrelevant facts. There is no attempt to relate them to our everyday lives. |
| **Attractiveness & Organization (Communication)** | The brochure has exceptionally attractive formatting and well-organized information. | The brochure has attractive formatting and well-organized information. | The brochure has well-organized information. | The brochure's formatting and organization of material are confusing to the reader. |
| **Sources** | Careful and accurate records are kept to document the source of 95-100% of the facts and graphics in the brochure. | Careful and accurate records are kept to document the source of 85-94% of the facts and graphics in the brochure. | Careful and accurate records are kept to document the source of 75-84% of the facts and graphics in the brochure. | Sources are not documented accurately or are not kept on many facts and graphics. |
| **Knowledge & Understanding** | Student can accurately answer all questions related to facts in the brochure and to technical processes used to create the brochure. | Student can accurately answer most questions related to facts in the brochure and to technical processes used to create the brochure. | Student can accurately answer many questions related to facts in the brochure and to technical processes used to create the brochure. | Student appears to have little knowledge about the facts or technical processes used in the brochure. |
| **Graphics/Pictures (Communication)** | Graphics go well with the text and there is a good mix of text and graphics. | Graphics go well with the text, but there are so many that they distract from the text. | Graphics go well with the text, but there are too few and the brochure seems "text-heavy". | Graphics do not go with the accompanying text or appear to be randomly chosen. |

# Rubric: Research Report: Biology of Bacteria Infecting Food

Teacher Name: _____

Student Name: _____

| CATEGORY | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| **Organization (Communication)** | Information is very organized with well-constructed paragraphs and subheadings. | Information is organized with well-constructed paragraphs. | Information is organized, but paragraphs are not well-constructed. | The information appears to be disorganized. |
| **Information (Knowledge, Investigation)** | This report describes fully the lifecycle, reproduction, route of infection, and the limits of tolerance of the two bacteria. | This report generally describes the biology of the two bacteria, but with some details not fully explained. | This report is satisfactory, but has at least 2 major omissions. | This report lacks the details required to fully explain the biology of the two bacteria. |
| **Diagrams & Illustrations (Communication)** | Diagrams and illustrations are neat, accurately labelled. They are drawn from microviewer slides. | Diagrams and illustrations are good and the major structures are fully labelled. | Diagrams and illustrations are satisfactory, but the arrows sometimes do not point to the correct structures. | Diagrams and illustrations are not carefully drawn. Some labels are missing. |
| **Sources (Communication)** | All sources (information and graphics) are accurately documented in the desired format. | All sources (information and graphics) are accurately documented, but a few are not in the desired format. | All sources (information and graphics) are accurately documented, but many are not in the desired format. | Some sources are not accurately documented. |
| **Application** | Student can recognize the two bacteria from a drawing, and describe their biology as it relates to food-handling. | Student has a good knowledge of the biology of the two bacteria and can relate it to some food-handling issues. | Student has a satisfactory knowledge of the biology of the two bacteria. | Student has a minimal knowledge of the two bacteria. |

# Food Safety Research Assignment

## Critical Learning - Big Ideas

Environmental factors, including natural factors and those resulting from human activity, can have a wide range of effects on human health. This activity encourages students to research foodborne illnesses as they relate to the food industry and our food supply.

| Curriculum Expectations | Learning Goals |
|---|---|
| 1) **A1.7** Select, organize, and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation<br><br>2) **E1.2** Analyse the impact of various lifestyle choices on human health and body systems<br><br>3) **E2.1** Use appropriate terminology related to animal anatomy<br><br>4) **C3.5** Describe how different viruses, bacteria, and fungi can affect host organisms, and how those effects are normally treated or prevented | By the end of these activities, students will be able to:<br>• Identify the causes of foodborne illnesses,<br>• Explain the effects a pathogen has on the body, what population it affects, and the host's tolerance level,<br>• Identify the role of the consumers to protecting themselves from foodborne illnesses,<br>• Identify the role of the government and industry to protect the food supply as well as the consumer. |

## Planning with the End in Mind: RAFT Presentation

Instructional Components and Context

| Prior Knowledge and Skills | Literacy Links | Materials/Teacher Notes |
|---|---|---|
| Students should know:<br>• Correct APA referencing<br>• Components of a research paper<br>• Overview of the different human body systems<br>• What constitutes a foodborne illness<br>• How to use a search engine and conduct research using the internet<br>• How to look up information in the school library (if being used) | Students will be doing research and extracting pertinent information for their role and audience. | 1) Wikis, such as Wikipedia, are collaborative projects which cannot guarantee the verifiability or expertise of their entries. It is advised that you inform your students that it can be used as a starting point for their information but they should look at the primary sources for all their real information.<br><br>2) It will be helpful to give your students some or all of the attached resources as a starting point for their research.<br><br>3) A library or computer lab will need to be booked for the work periods. If necessary, another work period can be given. Two half-periods work better than one full period because it keeps the students on task.<br><br>4) Conferences can occur at the end of the work periods or at another time at the teacher's discretion.<br><br>5) It would be beneficial if the school librarian could give a short lesson on APA formatting and components of a research paper. If not, the classroom teacher should review these two topics. |

# Food Safety Research Assignment

| Minds On… (Elicit and Engage) | Approximate time: 20 minutes | Assessment and Evaluation |
|---|---|---|

**Whole Class > Class Discussion**
Students share example of how they have become sick after eating something and why they know it was from something they ate.

**Whole Class > Think/Pair/Share Brainstorming**
Students can write down what they think a foodborne illness is, how it affects the body, and ways that it can be prevented. Students can then share their information with a partner. A number of students can then share their information with the whole class.

| Action! (Explore and Explain) | Approximate time: 40 minutes (on 3 different occasions) + 5 minute conference (on 2 occasions) |
|---|---|

**Work Period One**

**Individual > Research of Topic**
Students are given in-class time to research their topic. Students should identify three pathogens that they are going to investigate further and at least 5 sources of information. Teachers should move around the room reviewing students' work and make sure they are on the right track, steering them in the correct direction if they are not. Students should have their Conference One Form completed or near completion by the end of the class period.

**Individual > Student/Teacher Conference**
Students meet one-on-one with the teacher to receive feedback on their progress. The Student/Teacher Conference One Form should be completed prior to the conference. It is important that the student has at least 5 sources and asks the teacher at least one question about the topic or process so that the teacher can gauge their progress.

**Work Period Two**

**Individual/Partners > Compiling Information and Think/Pair/Share**
Students are given in-class time to collect and organize their ideas using the graphic organizer before they begin to write their research paper. Students could work with a partner and share their ideas. This will allow students who are struggling to find information and add or expand the information they already have. Students should have their Conference Two Form completed or near completion by the end of the class period.

**Whole Class> Research Information (if required)**
Correct APA referencing should be reviewed as well as the components of a research paper. A presentation could be made by the school librarian or the classroom teacher.

**Individual > Student/Teacher Conference**
Students meet one-on-one with the teacher to receive feedback on their progress. The Student/Teacher Conference Two Form should be completed prior to the conference. The teacher should remind the students about the paper requirements and discuss the next steps the student has to take in completing their research paper.

**Work Period Three**

**Individual > Rough Draft Initiation**
Students are given in-class time to start their rough draft of the research paper. By the end of the period, the students should have started a rough draft and a works cited. Students who are struggling with the process could exchange papers with another student and receive feedback and suggestions. Teachers should also move around the room and monitor the students' progress and offer help and suggestions.

| Consolidation (Elaborate, Evaluate, and Extend) | Approximate time: 5 minutes |
|---|---|

**Individual > Student/Teacher Conference**
Students meet one-on-one with the teacher to receive feedback on their progress. A rough draft should be brought to the conference as well as a works cited. The teacher should offer suggestions and remind the students of the timelines.

**Home or Next Lesson Connection**
Students are to complete the remainder of their research paper at home. They will be due at a later date.

Informal diagnostic/ descriptive feedback given/received by the teacher and students during discussion.

Teacher Observation: Assess and monitor understanding of the students and their progress on their activity. Students should be given oral feedback on progress and next steps.

Conference Meeting Assessment: Teacher should make comments on the students' progress as well as their completed Conference Forms.

Teacher Observation/ Verbal Feedback on students' progress on their activity. Students should be given oral feedback on progress and next steps.

Teacher Observation/ Verbal Feedback on students' progress as well as their completed Conference Form.

Teacher Observation/ Verbal Feedback: Teachers should observe work done and students should be given oral feedback on progress and next steps.

Teachers could do a rough assessment of the students working using the evaluation which will be used for the completed work.

Evaluation: Use the check brick.

# Food Safety Research Paper

Hundreds of years ago, people grew their own food or would only eat what could be found in their geographic area. The industrial revolution and globalization brought about changes in our food sources. We can now go to our local grocery store and have fresh fruit and vegetables from all over the world on any given day. The lives of Canadians have becoming increasingly busy; many families and individuals turn to quick and easy solutions for meals. The food industry has responded and we now have the option to buy prepared, processed, and ready-to-eat food in our local grocery store.

With this increase in convenience, problems have arisen. Some of these problems include:

1) The increase in processed food has increased the chance of cross-contamination of food products within a food plant.
2) Food shipped from all around the world contains different bacteria which people in other regions may not be accustomed to.
3) When the food leaves the factory, the grocery stores may not have proper storage or handling procedures in place to handle their food shipments.
4) Government policies may not be current and adapted to the modern food supply and how it is obtained.
5) Consumers may not be aware of proper food handling procedures within the home and, as a result, may make themselves sick.

Your goal is to explore the ideas above by researching the increase in foodborne illnesses and how it has affected our Canadian society. Specifically, your task is to identify 3 major pathogens related to the food industry and how our food supply can be protected from these microbes.

Your research needs to include:

1. What population(s) is/are affected,
2. The tolerance our body has for these pathogens,
3. The affect these pathogens have on the human body,
4. The role of the government and industry to protect the food supply as well as the consumer, and
5. The role of the consumers to protecting themselves from foodborne illnesses.

## Research Paper Format

1. Typed, 12 point Times New Roman, and double spaced
2. Approximately 500-750 words
3. An introduction paragraph, body paragraphs, and a conclusion should be included.
4. Ideas separated into paragraphs. The first line of each paragraph is to be indented.
5. Works cited includes all references.
6. Essay should be in third person (i.e., do not use "I" or "you").

## Research Paper Process

1. You will be given 2 half-period work periods in the library to do your research.
2. After each work period, you will have a student teacher conference. The work expected at each conference is listed below:
    a. Conference One: conference one form and research notes or pages printed/photocopies from sources
    b. Conference Two: conference two form
    c. Conference Three: works citied and rough draft of research paper.
3. A process mark will be given at each conference and will be indicated.

## Important Dates

Work Period #1: _____

Conference #1:_____

Work Period #2: _____

Conference #2:_____

Work Period #3: _____

## Conference One Form

My three pathogens are:

1. _____

2. _____

3. _____

My research sources (minimum of 5) are:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

**Evaluation**

| | | | | | | |
|---|---|---|---|---|---|---|
| Three pathogens identified | 0 | 1 | 2 | 3 | | |
| Five resources identified | 0 | 1 | 2 | 3 | 4 | 5 |
| Research notes given | 0 | 1 | 2 | | | |

**Total /10**

## Conference Two Form

Answer the following questions in point-form. Indicate the source of the information for each point. Attached an additional piece of paper, if necessary.

| Pathogen | Population affected | Tolerance of our body for pathogens | Effects on our bodies | Role of government/Consumer | Role of consumer |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

**Evaluation**

| | | | | | | |
|---|---|---|---|---|---|---|
| Notes provided for all three pathogens | 0 | 1 | 2 | 3 | 4 | 5 |
| References given for all notes | 0 | 1 | 2 | 3 | 4 | 5 |

Total /10

## Conference Three Evaluation

| | | | | | |
|---|---|---|---|---|---|
| Rough Draft Given | 0 | 1 | | | |
| Rough Draft Follows Research Paper Guidelines | 0 | 1 | 2 | 3 | 4 |
| Works Cited Given (5 references minimum) | 0 | 1 | | | |
| Works Citied Follows Guidelines | 0 | 1 | 2 | 3 | 4 |
| References Demonstrated in Research Paper | 0 | 1 | 2 | | |
| References Within Paper Follows Guidelines | 0 | 1 | 2 | 3 | 4 |
| | | | | Total | /16 |

# Food Safety Research Paper Evaluation

**Process Mark (Application): /36**

Final Evaluation:

**Use of Sources (Application)**

| | | | | |
|---|---|---|---|---|
| Researched information appropriately documented | 4 | 3 | 2 | 1 |
| Enough outside information to clearly represent a research process | 4 | 3 | 2 | 1 |
| Demonstrates use of paraphrasing, direct, and indirect quotations | 4 | 3 | 2 | 1 |
| Sources on Works Cited/Bibliography or References accurately match sources cited within the text | 4 | 3 | 2 | 1 |

_____/16

**Content/Organization (Application)**

| | | | | |
|---|---|---|---|---|
| Introduction engaging and introduces topic | 4 | 3 | 2 | 1 |
| Content connecting to topic is clarifying, exploring, explaining, developing | 4 | 3 | 2 | 1 |
| Text organization flows sensibly and smoothly | 4 | 3 | 2 | 1 |
| Conclusion thoughtful, engaging, and clear | 4 | 3 | 2 | 1 |

_____/12

**Mechanics/Usage/Spelling/Format (Communication)**

| | | | | |
|---|---|---|---|---|
| Double Spaced, 12 point Times New Roman font | 4 | 3 | 2 | 1 |
| Spelling/Grammar | 4 | 3 | 2 | 1 |
| Correct paragraphing (introduction, body, and conclusion) | 4 | 3 | 2 | 1 |
| Written in formal style (third person, no first person) | 4 | 3 | 2 | 1 |

_____/16

**Research Information (Thinking & Inquiry)**

| | | | | |
|---|---|---|---|---|
| Consistent Format (APA used throughout) | 4 | 3 | 2 | 1 |
| Evidence of thorough research (sources represent variety and types) | 4 | 3 | 2 | 1 |
| Correct documentation of sources given throughout paper | 4 | 3 | 2 | 1 |
| Evidence of sorting and selecting appropriate material | 4 | 3 | 2 | 1 |
| At least 5 sources are used | 4 | 3 | 2 | 1 |

_____/20

**Total: /64**

Final Project Mark: /100

Application: /64
Communication /16
Thinking & Inquiry /20

# Referencing Guidelines

## In-text Citations

*Indirect Quote (using or paraphrasing someone else's ideas)*
Any information which is not common knowledge, that you use in your research paper, you must reference the source at the end of the idea. In addition, the source must be given credit for any ideas which are not your own. At the end of the idea, the author's name and date need to be included in brackets.

For example:
The bananas which we eat today are known as Cavendish. They differ from the Gros Michel breed our grandparents ate which were eliminated as a result of disease (Koeppel 2008).

*Direct Quote (quoting a source)*
Any information copied word for word from a research source needs to be cited. Quotation marks need to be placed around the directed copied information. The author's name, date of publication, and page number(s) need to be included in brackets at the end of the quote.

For example:
"In 1922, the British government founded the Imperial College of Tropical Agriculture, with solving the Panama disease riddle as the institution's primary task" (Koeppel 2008 p.81).

## Works Cited

At the end of your research paper, all references used in the paper need to be listed in alphabetical order by the author's last name. The first line of all references is not indented, the other lines are.

Examples for each type of references are given below.

## Print Sources

1) Books
   - A) One Author
     Author, A. (Year of publication). Title of Work: Capital letter also for subtitle. Location: Publisher

     Example: Koeppel, D. (2008). Banana. London, England: Penguin Group.

   - B) Two Authors
     Author, A. & Author, B. (Year of publication). Title of Work: Capital letter also for subtitle. Location: Publisher

   - C) Three or More Authors
     Author, A., Author, B. & Author, C. (Year of publication). Title of Work. Location: Publisher

   - D) Edited Book, No Authors
     Editor, A., & Editor, B. (Eds.). (Year of Publication). Title of Book. Location: Publisher.

     Example: Duncan, G. J., & Brooks-Gunn, J. (Eds.). (1997). Consequences of Growing Up Poor. New York, NY: Russell Sage Foundation.

2) Encyclopaedia

Author, A. (Year of Publication). Encyclopaedia Topic. Encyclopaedia Title (Vol. Number, Pages). Location: Publisher.

Example: Bergmann, P. G. (1993). Relativity. In the New Encyclopedia Britannica (Vol. 26, pp. 501-508). Chicago: Encyclopedia Britannica.

3) Journal Article

Last Name, Initials. (Date). Title of Article. Title of Periodical, volume, page number range.

Example: Smith, J.A. (2004). Big Brains. Journal of Psychology, 14, 12-50.

**Electronic Resources.**

*1) Online Newspaper*

Last Name, Initials. (Year, Month Day). Title of Article. Name of Newspaper. Retrieved from (website address)

Example: Summerji, P. P. (2008, August 1). New Crime Legislation Criminal. Nowhereville Times. Retrieved from http://nowherevilletimes.ca

2) Websites

Sponsoring Organization. Copyright/Update Date. Title of Website/Document. Author's name (if available). Retrieved Date accessed (Month Day Year) from website address.

Example: United Nations Development Program. (2002). Human Development Report. Retrieved September 23, 2004 from http://www.undp.org/hdr2002

## Notes to Teachers

1) Wikis such as wikipedia are collaborative projects which cannot guarantee the verifiability or expertise of their entries. It is advised that you inform your students that it can be used as a starting point for their information but they should look at the primary sources for all their real information.

2) It will be helpful to give your students some or all of the attached resources as a starting point for their research.

3) A library or computer lab will need to be booked for the work periods. If necessary, another work period can be given. Two half-periods work better than one full period because it keeps the students on task.

4) Conferences can occur at the end of the work periods or at another time at the teacher's discretion.

5) It would be beneficial if the school librarian could give a short lesson on APA formatting and components of a research paper. If not, the classroom teacher should review these two topics.

# Food Safety Websites

**Maple Leaf Foods** - Food safety information on the company's practices, food safety tips, fact sheets, and other helpful resources for consumers to use at home:
http://www.mapleleaf.com/en/market/food-safety/

**Canadian Food Inspection Agency** - Food safety tips, information about food allergens, causes of foodborne illness, and food recalls:
http://www.inspection.gc.ca/english/fssa/concen/tipcone.shtml
http://www.inspection.gc.ca/english/fssa/labeti/allerg/allerge.shtml
http://www.inspection.gc.ca/english/fssa/concen/causee.shtml
http://www.inspection.gc.ca/english/fssa/recarapp/systeme.shtml

**Canadian Partnership for Consumer Food Safety Education** - Helping Canadians enjoy their food safely. Links to information about how to separate, clean, cook, and chill food properly:
http://www.canfightbac.org/en/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/clean/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/separate/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/chill/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/cook/

**Health Canada** - Research-based information on food safety:
http://www.hc-sc.gc.ca/fn-an/securit/index-eng.php

**Public Health Agency of Canada** – Food Safety - Information about food safety in the news, common causes of food illnesses, and an overview of who does what on food matters:
http://www.phac-aspc.gc.ca/fs-sa/index-eng.php

**Food Safety Network** - Comprehensive resource on food safety issues managed by University of Guelph:
http://www.foodsafetynetwork.ca/aspx/public/default.aspx

**USA government – Food safety resources** - U.S. government and industry resources on food safety:
http://www.foodsafety.gov/

# Food Safety Tic Tac Toe

**Critical Learning - Big Ideas**

Environmental factors, including natural factors and those resulting from human activity, can have a wide range of effects on human health. This activity encourages students to examine different issues related to food safety.

| Curriculum Expectations | Learning Goals |
|---|---|
| 1) **A1.7** Select, organize, and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation<br><br>2) **E1.2** Analyse the impact of various lifestyle choices on human health and body systems<br><br>3) **E2.1** Use appropriate terminology related to animal anatomy | By the end of these activities, students will be able to:<br>• Identify the causes of foodborne illnesses,<br>• Explain the effects a foodborne illness has on the body,<br>• Suggest steps people could take to reduce their chances of contracting a foodborne illness. |

**Planning with the End in Mind: Three activities leading up to a tic tac toe on the board**

Instructional Components and Context

| Prior Knowledge and Skills | Literacy Links | Materials/Teacher Notes |
|---|---|---|
| Students should know:<br>• Correct APA referencing (if required by the teacher)<br>• Overview of the different human body systems<br>• What constitutes a foodborne illness<br>• How to use a search engine and conduct research using the internet<br>• How to look up information in the school library (if being used) | Students will be completing a number of different activities, which involve reading and writing. Some of the activities are reflective of those seen on the literacy test.<br><br>In addition, students will be doing research and extracting pertinent information for each activity. | 1. Students can complete this project individually or with a partner.<br>2. All the activities may be due on one day or on three separate occasions. If a teacher chooses to have three different days, it is beneficial to have a reminder and tracking chart posted in the classroom. Students will be aware of upcoming deadlines and what work is still required.<br>3. Teachers may include the list of resources on the following page to assist the students in their search.<br>4. Teachers may require students to reference any research information they use.<br>5. A computer room or library should be booked for class time to work on the projects.<br>6. Teachers may also decide to have the students do all activities with the same partner, or allow them to pick and choose their partners, as long as they do three different activities. |

# Food Safety Tic Tac Toe

| Minds On… (Elicit and Engage) | Approximate time: 20 minutes | Assessment and Evaluation |
|---|---|---|
| **Whole Class > Class Discussion**<br>Students share example of how they have become sick after eating something and why they know it was from something they ate.<br><br>**Whole Class > Think/Pair/Share Brainstorming**<br>Students can write down what they think a foodborne illness is, how it affects the body, and ways that it can be prevented. Students can then share their information with a partner. A number of students can then share their information with the whole class. | | Informal diagnostic/ descriptive feedback given/ received by the teacher and students during discussion. |
| **Action! (Explore and Explain)** | **Approximate time: 40 minutes (on 3 different occasions)** | |
| **Groups of Six > Idea Sharing**<br>Students can be grouped into activity-sharing tables. Students can share their ideas on what they can do to complete their activity goal.<br><br>**Groups of One or Two > Work on Activity One**<br>Students are given in-class time to work on their first RAFT activity.<br><br>**Groups of One or Two > Work on Activity Two**<br>Students are given in-class time to work on their second RAFT activity.<br><br>**Groups of One or Two > Work on Activity Three**<br>Students are given in-class time to work on their third RAFT activity.<br><br>Teachers should move around the room reviewing students' work and make sure they are on the right track, steering them in the correct direction if they are not. | | Assess and monitor understanding of the students and their progress on their activity. At the end of classtime, teachers should observe work done and students should be given oral feedback on progress and next steps. |
| **Consolidation (Elaborate, Evaluate, and Extend)** | **Approximate time: 30-60 minutes** | |
| **Whole Class >Think/Pair/Share**<br>Students can share their work with one or two classmates and receive feedback on their work before completing it at home. Teachers should walk around and give their feedback as well.<br><br>**Whole Class> Gallery Walk**<br>After the first activity, students can display their work around the class and have all students walk around the classroom and look at other examples of work. This may assist some students with their next activity. Alternatively, students could present their work in a short presentation to small groups or the whole class. | | Assessment: Diagnostic and descriptive feedback given by teacher and classmates.<br><br>Evaluate each activity using the rubric. |
| **Home or Next Lesson Connection**<br>Students are to complete the remainder of their task at home. They will be due at a later date. | | |

# Food Safety Tic Tac Toe

**Project Objective:** analyze food safety in the home and workplace as well as its place in Canadian society

In order to evaluate the learning objective above, we will be completing a Tic Tac Toe. You are required to choose and complete 3 of the following activities to get a tic tac toe (i.e., three in a row). This project can be completed individually or with a partner.

| | | |
|---|---|---|
| 1. Draw a **cartoon** or create a poster to educate people on safe handling of food at home (at least one cartoon with three panels, or three individual cartoons). | 2. Choose 1 disease or condition that is caused by poor handling of foods. Write a **newspaper article** highlighting the most important things the general public needs to know about how to prevent it (minimum of 150 words). | 3. **Search the Internet** for information about the *Listeria* outbreak at Maple Leaf Foods. Print out what you find and summarize what happened and the company's response. Attach the article and correctly reference it using APA formatting (approximately 250 words). |
| 4. Write a **short story** about the life of a foodborne illness (approximately 250 words). | 5. Create a **blog** of pictures and words detailing how you were food safe over the course of a week (at least 7 entries over the course of a week). | 6. Create a **commercial jingle or song** about being food-safety smart (minimum 2 minutes). |
| 7. Create a **game** (i.e., board game, computer game, etc.) to teach children about food safety. | 8. Make a **model** or models to show how bacteria can spread around the kitchen. | 9. Record your own cooking show or educational **movie** demonstrating safe food handling procedures (minimum of 5 minutes). |

I/we chose activities #_____, #_____, and #_____.

Name(s):_____ and _____

Activity Due Date 1:_____

Activity Due Date 2:_____

Activity Due Date 3:_____

# Food Safety Tic Tac Toe Rubric

Name: _____ Group Member(s):_____

| Categories | Level 4 | Level 3 | Level 2 | Level 1 | Total |
|---|---|---|---|---|---|
| **Knowledge and Understanding** | | | | | |
| **Accuracy** | All content information is correct. No errors are found. | Most content information is correct. Only 1 or 2 errors are found. | Some content information is correct. Between 3 and 5 efforts are found. | Little content information is correct. Between 5 and 7 errors are found. | /4 |
| **Effort Regarding Facts** | Exceptional effort is made to use relevant and important facts from the resources. | Good effort is made to use relevant and important facts from the resources. | Some effort is made to use relevant and important facts from the resources. | Little effort is made to use relevant and important facts from the resources. | /4 |
| **Application** | | | | | |
| **Food Safety** | A thorough understanding of food safety is demonstrated. | Good understanding of food safety is demonstrated. | Some understanding of food safety is demonstrated. | Little understanding of food safety is demonstrated. | /5 |
| **Communication** | | | | | |
| **Spelling & Grammar** | 1-2 spelling and grammar mistakes are found. | 3-4 spelling and grammar mistakes are found. | 5-6 spelling and grammar mistakes are found. | 6+ spelling and grammar mistakes are found. | /5 |
| **Length** | Clear and descriptive overview of food safety is communicated. | Good overview of food safety is communicated. | Some overview of food safety is communicated. | An attempt is made to communicate an explanation of food safety. | /5 |
| **Communication of Ideas** | Exceeds length requirement. | Meets length requirements. | Slightly below length requirements. | Well below length requirements. | /5 |

**Evaluations:**

Activity 1
Knowledge:___
Communication: _____
Application: _____

Activity 2
Knowledge:___
Communication: _____
Application: _____

Activity 3
Knowledge:___
Communication: _____
Application: _____

## Notes to Teachers

1. You may choose to put an essential activity in the centre square and include in the instructions that students are required to go through the centre square.
2. Students may decide to complete this project individually or with a partner.
3. All the activities may be due on one day or on three separate occasions. If you choose to have three different days, it is beneficial to have a reminder and tracking chart posted in the classroom. Students will be aware of upcoming deadlines and what work is still required.
4. You may include the list of resources on the following page to assist the students in their search.

## Food Safety Websites

**Maple Leaf Foods** - Food safety information on the company's practices, food safety tips, fact sheets, and other helpful resources for consumers to use at home:
http://www.mapleleaf.com/en/market/food-safety/

**Canadian Food Inspection Agency** - Food safety tips, information about food allergens, causes of foodborne illness, and food recalls:
http://www.inspection.gc.ca/english/fssa/concen/tipcone.shtml
http://www.inspection.gc.ca/english/fssa/labeti/allerg/allerge.shtml
http://www.inspection.gc.ca/english/fssa/concen/causee.shtml
http://www.inspection.gc.ca/english/fssa/recarapp/systeme.shtml

**Food Safety Games for Kids** - CFIA created fun games for kids to learn about food safety:
http://www.inspection.gc.ca/english/corpaffr/educ/gamejeu/gamejeue.shtml

**Canadian Partnership for Consumer Food Safety Education** - Helping Canadians enjoy their food safely. Links to information about how to separate, clean, cook, and chill food properly:
http://www.canfightbac.org/en/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/clean/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/separate/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/chill/
http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/cook/

**Health Canada** - Research-based information on food safety:
http://www.hc-sc.gc.ca/fn-an/securit/index-eng.php

**Public Health Agency of Canada** – Food Safety - Information about food safety in the news, common causes of food illnesses, and an overview of who does what on food matters:
http://www.phac-aspc.gc.ca/fs-sa/index-eng.php

**Food Safety Network** - Comprehensive resource on food safety issues managed by University of Guelph:
http://www.foodsafetynetwork.ca/aspx/public/default.aspx

**USA government – Food safety resources** - U.S. government and industry resources on food safety:
http://www.foodsafety.gov/

# Food Safety RAFT

## Critical Learning - Big Ideas

Environmental factors, including natural factors and those resulting from human activity, can have a wide range of effects on human health. This activity encourages students to examine different food safety issues in the home and workplace as it relates to human health.

| Curriculum Expectations | Learning Goals |
|---|---|
| 1) **A1.7** Select, organize, and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation<br><br>2) **A2.1** Career Exploration<br><br>3) **E1.2** Analyse the impact of various lifestyle choices on human health and body systems<br><br>4) **E2.1** Use appropriate terminology related to animal anatomy<br><br>5) **C3.5** Describe how different viruses, bacteria, and fungi can affect host organisms, and how those effects are normally treated or prevented | By the end of these activities, students will be able to:<br>• Identify the causes of foodborne illnesses,<br>• Explain the effects a foodborne illness has on the body,<br>• Suggest steps people could take to reduce their chances of contracting a foodborne illness,<br>• Identify the impact of food safety on individuals, companies, and society,<br>• Identify the impact of foodborne illnesses on individuals, companies and society. |

## Planning with the End in Mind: RAFT Presentation

Instructional Components and Context

| Prior Knowledge and Skills | Literacy Links | Materials/Teacher Notes |
|---|---|---|
| Students should know:<br>• Correct APA referencing (if required by the teacher)<br>• Overview of the different human body systems<br>• What constitutes a foodborne illness<br>• How to use a search engine and conduct research using the internet<br>• How to look up information in the school library (if being used) | Students will be doing research and extracting pertinent information for their role and audience. | 1. Make sure a resource area (computer lab, library, etc.) is booked in advance and available for the two work periods.<br>2. It is beneficial to have two half-periods instead of one full period as the students will use the time more effectively.<br>3. The conference can be scheduled for the end of the first work period or at another class time.<br>4. Students can complete this task with a partner or on their own.<br>5. A lesson by the librarian or the classroom teacher should be given on citation of references.<br>6. Multiple students within the class will have similar projects; plagiarism may be a problem. Students should be required to submit a list of resources, all of their point-form notes, their conference form, and a list of citations in their work. If available, teachers could require students to submit their work to websites (i.e., turnitin.com).<br>7. A few activities from the Tic Tac Toe may overlap with the case studies. Teachers may want to modify if they are planning to use both. |

# Food Safety RAFT

| Minds On… (Elicit and Engage) | Approximate time: 20 minutes | Assessment and Evaluation |
|---|---|---|
| **Whole Class > Class Discussion**<br>Students share examples of how they have become sick after eating something and why they know it was from something they ate.<br><br>**Whole Class > Think/Pair/Share Brainstorming**<br>Students can write down what they think a foodborne illness is, how it affects the body, and ways that it can be prevented. Students can then share their information with a partner. A number of students can then share their information with the whole class. | | Informal diagnostic/ descriptive feedback given/received by the teacher and students during discussion. |
| **Action! (Explore and Explain)** | **Approximate time: 40 minutes (on 2 different occasions) + 5 minute conference** | Assess and monitor understanding of the students and their progress on their activity.<br><br>At the end of classtime, teachers should observe work done.<br><br>Students should be given oral feedback on progress and next steps.<br><br>Assessment: Teacher should make comments on the student's progress as well as their completed Conference Form. |
| **Groups of Six > Idea Sharing**<br>Students can be grouped into role-sharing tables. Students can share their ideas on what they can do to complete their RAFT with their role, topic, and audience.<br><br>**Groups of One or Two > Research for RAFT**<br>Students are given in-class time to research their topic, audience, and role. Teachers should move around the room reviewing students' work and making sure they are on the right track, steering them in the correct direction if they are not.<br><br>**Groups of One or Two > Student(s)/Teacher Conference**<br>Students meet one-on-one with the teacher to receive feedback on their progress. The Student/Teacher Conference Form should be completed prior to the conference. It is important that the student and teacher can easily identify the topic and how it relates to the audience and role.<br><br>**Groups of One or Two > RAFT Work Period, Think/Pair/Share**<br>Students are given in-class time to complete and polish their RAFT project as well as work on their presentation. Teachers should be monitoring the students' progress and assessing their preparedness for the presentation. Students could also be paired with a group doing a similar project to give feedback and suggestions on their projects. | | |
| **Consolidation (Elaborate, Evaluate, and Extend)** | **Approximate time: 30-60 minutes** | Assess and monitor understanding of the students and their progress on their activity.<br><br>At the end of classtime, teachers should observe work done.<br><br>Students should be given oral feedback on progress and next steps.<br><br>Evaluate the RAFT using the rubric. |
| **Whole Class> Gallery Walk**<br>Students can present their RAFTs in a gallery walk format. Students can display their work around the class and have all students walk around the classroom and look at their classmates' work.<br><br>Alternatively, students could present their work in a short presentation to small groups or the whole class. | | |
| **Home or Next Lesson Connection**<br><br>The following class, students could share what they have learned from the experience and how they are going to use the information in the future. | | |

# Food Safety RAFT

## Project Objective: To analyze food safety in the home and workplace as well as its place in Canadian society.

In order to evaluate the learning objective above, we will be completing a RAFTs project. You are required to choose a role below and complete the task listed for that role. Alternatively, you can pick one item from each column to complete the task. This project can be completed individually or with a partner. Each role will involve a presentation component. A presentation schedule will be created in class. You are not limited to the roles listed below but any changes must have teacher approval. A list of websites to assist you is given at the bottom.

| Role | Audience | Format | Topic | Strong Verb |
|---|---|---|---|---|
| Scientist/Engineer | Large Food Processing Corporation | Instruction Manual | Develop a procedure to reduce bacteria in the packaging stage of a food production plant. | Develop |
| Singer | Young Children | Song | Create a song which can educate them on being food safety smart. | Create |
| Fast Food Worker | Letter to the Editor | Letter | Justify why your restaurant may not be the cause of a customer getting sick. | Justify |
| Doctor | Medical Student or Patient | Powerpoint Presentation | Explain how a patient may develop a foodborne illness and steps in the home which can be taken to prevent it happening again. | Explain |
| Caterer | Prospective Clients | Advertising Brochure | Promote their food safety records and explain how they keep their clients safe. | Promote |
| Bacteria | Person with Foodborne Illness | Model | Build a working model of how (you) a foodborne illness develops, affects the body, and can be prevented. | Build |

# Teaching Notes & Resource List

## Notes to Teachers:

**Curriculum Expectations Covered:** A1.7, C3.5, E1.2

**Notes for Execution:**

1. Make sure a resource area (computer lab, library, etc.) is booked in advance and available for the two work periods.

2. It is beneficial to have two half-periods instead of one full period as the students will use the time more effectively.

3. The conference can be scheduled for the end of the first work period or at another class time.

4. Students can complete this task with a partner or on their own.

5. A lesson by the librarian or the classroom teacher should be given on citation of references.

6. Multiple students within the class will have similar projects; plagiarism may be a problem. Students should be required to submit a list of resources, all of their point-form notes, their Conference Form, and list of citations in their work. If available, teachers could require students to submit their work to websites (i.e., turnitin.com).

## Project Requirements:

The project should cover THREE (3) main areas:

- Food safety as a whole
- Causes of foodborne illnesses
- Limitations of food safety

Included in these three topics should be the following (when possible):

- Role of consumer and producer
- How to prevent foodborne illnesses
- Responsibility of individuals, companies, and society
- Implementation (if any)
- Cost of implementation (if any)
- Impact of food safety on individuals, companies, and society
- Impact of foodborne illnesses on individuals, companies, and society

**Schedule:**

Project Distribution

**Work Period #1**
Date:

Student/Teacher Conference (You will need to have your attached Conference Form completed.)

Your Conference Date:

**Work Period #2**
Date:

Presentations Begin:
Your Presentation Date:

## Potential Resources:

These websites are suggestions and you are not limited to these resources. You may find other websites which may help you with your project.

| Role | Suggested Websites |
|---|---|
| **Scientist/ Engineer** | http://www.mapleleaf.com/en/market/food-safety/food-safety-at-maple-leaf/food-safety-pledge/<br><br>http://www.inspection.gc.ca/english/fssa/concen/tipcone.shtml<br><br>http://www.hc-sc.gc.ca/fn-an/securit/ill-intox/index-eng.php |
| **Singer** | http://www.canfightbac.org/en/<br><br>http://www.canfightbac.org/cpcfse/en/cookwell/<br><br>http://www.inspection.gc.ca/english/corpaffr/educ/gamejeu/gamejeue.shtml |
| **Fast Food Worker** | http://www.hc-sc.gc.ca/fn-an/securit/kitchen-cuisine/index-eng.php<br><br>http://www.foodsafety.gov/<br><br>http://www.foodsafety.gov/poisoning/index.html |
| **Doctor** | http://www.inspection.gc.ca/english/fssa/concen/causee.shtml<br><br>http://www.hc-sc.gc.ca/fn-an/securit/ill-intox/index-eng.php<br><br>http://www.foodsafety.gov/poisoning/index.html |
| **Caterer** | http://www.mapleleaf.com/en/market/food-safety/food-safety-at-home/<br><br>http://www.canfightbac.org/cpcfse/en/safety/safety_factsheets/cook/<br><br>http://www.hc-sc.gc.ca/fn-an/securit/kitchen-cuisine/index-eng.php |
| **Bacteria** | http://www.mapleleaf.com/en/market/food-safety/food-safety-101/facts-about-food-born-illness/<br><br>http://www.inspection.gc.ca/english/fssa/concen/causee.shtml<br><br>http://www.foodsafety.gov/poisoning/index.html |

# RAFT Rubric: Food Safety

Name: _____ Group Member(s):_____

| Categories | Level 4 | Level 3 | Level 2 | Level 1 | Total |
|---|---|---|---|---|---|
| **COMMUNICATION** | | | | | |
| **RAFTs Role** | Individual demonstrates role clearly and appropriately, and class is addressed as audience should be. | Individual demonstrates role appropriately and class is addressed as audience. | Some attempt is made to address class as audience and to portray role. | Attempt is made at role and addressing audience. | /4 |
| **Presentation** | Individual demonstrates a clear and distinct contribution to the presentation. | Individual demonstrates a clear and distinct contribution to the presentation. | Individual demonstrates a contribution to the presentation. | Individual has difficulty demonstrating a contribution to the presentation. | /4 |
| **Q & A** | Questions are answered appropriately, in role, and excellent contributions made by individual. | Questions are answered appropriately and good contributions made by individual. | Questions are answered and some contributions made by individual. | Difficulties are encountered during Q & A session. | /6 |
| **RAFTs Format** | Format of presentation follows RAFTs assignment and format clearly aids in audience understanding of presentation. | Format of presentation follows RAFTs assignment and format aids in audience understanding of presentation. | Format of presentation follows RAFTs assignment. | Attempt is made to follow RAFTs assignment format. | /4 |
| **APPLICATION** | | | | | |
| **Overall Explanation** | Presentation provides a clear, descriptive overview of food safety. | Presentation provides a clear overview of food safety. | Presentation provides an overview of food safety. | An attempt is made to provide an explanation of food safety. | /5 |
| **Causes of Foodborne Illnesses** | Presentation provides a clear and concise explanation of the causes of foodborne illnesses. | Presentation provides good explanations of the causes of foodborne illnesses. | Presentation provides some explanations of the causes of foodborne illnesses. | Causes are mentioned. | /5 |
| **Limitations of Food Safety** | Presentation provides a descriptive overview of the limitations of food safety. | Presentation provides an overview of the limitations of food safety. | Presentation provides some limitations of food safety. | An attempt is made to discuss limitations of food safety. | /5 |

# Student/Teacher Conference Form

**Name:**_____

**Date of Conference:**_____

**Date of Presentation:**_____

**Role, Voice, & Topic:** _____

**Resources Used:**

1. _____

2. _____

3. _____

**Key Points for Topic** (From your research, what information is essential to include in your presentation?)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

**Questions to Ask the Teacher** (This is an opportunity to get clarification on any questions you may have about your project.)

1. _____

2. _____