**Course 2: Food Science**

**Project: When Food is the Enemy**

**Essential Question:** How common are food allergies?

**Engagement Scenario**: Food allergies are on the rise. According to the Food Allergy Research and Education (FARE) Organization, a 2008 study by the Centers for Disease Control and Prevention (CDC) reported an 18% increase in food allergies from 1997 to 2007. They also reported a study from 2013 stating that food allergies among children increased about 50% between 1997 and 2011. Scientists have not yet discovered why food allergies are on the rise, but the issue has taken America’s schools by storm. FARE also reported that more than 15% of school-aged children with food allergies have had a reaction in school, and the reactions occurred in locations beyond the cafeteria. In addition, 20-25% of epinephrine administrations in schools involved individuals whose allergy was unknown at the time of the reaction.

After seeing an alarming news report about food allergies and speaking with school district officials, your principal has charged your Food Science class with the task of creating awareness of food allergies within our school community. Over the next few weeks, you will explore the topic of food allergies, conduct research to determine the prevalence of food allergies among our peers, faculty, and staff, and use the information we collect to create a public service announcement to help create awareness of food allergies. The school administration team and cafeteria staff will review the PSAs and identify the best ones to air on the school news.

To accomplish your task, you and your team will conduct research to learn about everything food allergy related, from the top allergy causing foods and how to read food labels to identify allergens, to the symptoms of anaphylaxis, to how to administer an EpiPen. You will also use the information you gather to create a survey for students, faculty, and staff (the entire school population) in order to investigate the prevalence of food allergies in our school community.

Once all of the research is complete and the data have been analyzed, you will use what you have learned to create a public service announcement. Your public service announcement will report some of the findings from the research as well as statistics from the survey.

**Project Overview**

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| **Day** | **Concept/Description** |
| 1 | Students differentiate between types of milk. Students identify alternative foods for individuals with food allergies/sensitivities. |
| 2 | Students identify common food allergies. Students explain why food allergies are a significant issue in schools. |
| 3 | Students determine the scope and meaning of the project. |
| 4 | Students define food allergy and food intolerance. Students describe the difference between food allergy and food intolerance. Students identify types of medical testing used to identify food allergies. |
| 56 | Students identify the top 8 allergy-causing foods. Students will define IgE and explain the effects of food allergies caused by IgE. Students will distinguish between IgE-mediated food allergies and non-IgE-mediated food allergies. Students will describe the similarities and differences between peanuts and tree nuts. |
| 7 | Students identify where food allergy risks are located in the grocery store. Students identify foods that are likely processed in a shared facility with allergenic foods. Students read and interpret allergy information on a food label. |
| 89 | Students explain how food companies protect the health of allergic consumers.Students describe testing methods to detect the presence of food allergens.Students differentiate between clean and sanitize. |
| 1011 | Students describe the treatment methods and accommodations for food allergy sufferers. Students define anaphylaxis and epinephrine. Students assess the social and nutritional implications of food allergies. Students will describe how food allergic reactions can be prevented. |
| 121314 | Students determine the prevalence of food allergies within the school.Students analyze statistical data. |
| 151617181920 | Students justify arguments with supporting data and information. Students summarize key information about the topic of food allergies. Students demonstrate knowledge of food allergies through class presentations. |

**Additional Resources:**

Emergency Allergic Reaction Care Plan: [www.foodallergy.org/file/emergency-care-plan.pdf](http://www.foodallergy.org/file/emergency-care-plan.pdf)

Recipe Database for Allergies: [www.kidswithfoodallergies.org](http://www.kidswithfoodallergies.org)

List of Snacks that are Safe for Food Allergies: [www.snacksafely.com](http://www.snacksafely.com)

Updated list of recalls: [www.fda.gov/Safety/Recalls/](http://www.fda.gov/Safety/Recalls/)

**Day One**

**Key Question of the Day**: Can you taste the difference? (Each day the key question should be prominently displayed and used to open the lesson.)

(Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet (Appendix 1)
* “What would life be like if you couldn’t eat the foods you love?”

**Learning Objectives**

As a result of this lesson, students will be able to:

* Differentiate between types of milk.
* Identify alternative foods for individuals with food allergies/sensitivities.
* Analyze nutrition information for different “milk” products.

**Required Materials for Daily Lesson**

* Weekly Bell-Work journal – Appendix 1 – One for each student
* Daily Exit Ticket – Appendix 2 – One for each student
* Appendix 17
* Small plastic cups
* Almond milk
* Soy milk
* Cow’s milk
* Coconut milk
* Lactose free milk
* Rice milk
* Crackers or apples
* Permanent marker
* Index cards
* Computers
* Internet
* Flip chart
* Markers
* **Teacher TIP!** Small containers of each product could be purchased because the students will taste a small amount, and they likely won’t even drink the entire sample. Also, feel free to adapt the types of milk on the list and purchase whatever you have access to at your local store. The control is cow’s milk, but for the variables, you can use five types or three types or eight types. Feel free to adjust this to fit your resources.

**Estimated Instructional Time:** One 50-minute class periods

**Opening –** (*Designed to prepare students for learning. Students are prepared for learning by activating an overview of the upcoming learning experience, their prior knowledge, and the necessary vocabulary*.)

* Read the Bell-Work question and solicit responses from the students.
* Possible responses may include:
	+ Hard because food choices would be limited
	+ Not as fun
	+ Difficult to eat in restaurants
* Explain that, “For people with food allergies and sensitivities, eating can be a challenge. As we prepare to learn more about food allergies, we’re going to learn about some of the options available for people who can’t drink milk.”

**Middle -** *(Designed to provide a structure for learning that actively promotes the comprehension and retention of knowledge through the use of engaging strategies that acknowledge the brain's limitations of capacity and processing.)*

* Students will work independently for this lab.
* Teacher prep:
	+ Assign each type of milk a number.
	+ Number the cups to correspond with the numbers of the milk samples.
	+ Pour a small amount of each milk into the corresponding cups.
	+ Align the cups for each type of milk in a row so they are easy to distribute to the students.
	+ Provide students with crackers or apples. They should take a bite between tasting each sample to cleanse the palate.
* Students will take one cup of each type of milk.
* The cow’s milk will be the control and the other types of milk will be the variables.
	+ Make a list of the milk samples on the board, but they should not be in the correct answer order.
* Students should create a hypothesis to determine which milk product would be a good alternative to cow’s milk.
* Students will conduct a sensory evaluation of each type of milk using Appendix 17.
	+ They should examine the following:
		- Color
		- Aroma
		- Texture/consistency
		- Flavor
* Once the sensory evaluation is complete and students have completed their table, create a numbered list on the board or other writing surface and have students raise their hands for each sample. For example, “Raise your hand if you think number 1 was \_\_\_\_.” Tally the number of votes next to each sample.
* After the students share their responses for each sample, fill in the blank with the correct sample.
* Be sure to emphasize that despite the difference in flavor (if any) there are plenty of milk substitutes available for individuals who can’t have milk.
	+ Ask the following reflection questions:
		- Which milk did they like the most? The least?
		- What were the distinguishing characteristics between each sample?
		- Would they drink any of them just because?
		- How would they feel if they were always limited to those products (other than cow’s milk)?
* Transition by assigning each team different milk products to research. For example, if you have six samples for the sensory evaluation, then each team should be assigned two milk products.
	+ Be sure to give each team the packages including the nutrition label for each milk product.
	+ Also, give each team the price of the milk products they are assigned.
* Each team will create a poster comparing the price and nutrition information for their milk products.
	+ The poster should include the name, price, serving size for the package, expiration date (shelf-life), and nutritional information for each product.
* Once they class is finished making the posters, each team should hang the posters around the room and have a gallery walk where students will rotate to each poster to see the information about each product.
* Bring the class back together and have a discussion about what life would be like if students had to use these products. Ask the following questions:
	+ Which product is the most nutritious?
	+ How would being limited to these products due to a milk allergy or sensitivity affect your overall health?
	+ How would using these products impact food preparation for recipes that use milk?

**Closing** - (Designed to promote the retention of knowledge through the use of engaging strategies designed to rehearse and practice skills for the purpose of moving knowledge into long-term memory.)

* Provide each student with the weekly Exit Ticket handout Appendix 2
* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What did you learn today?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Two**

**Key Question of the Day**: What foods are you allergic to? (Each day the key question should be prominently displayed and used to open the lesson.)

**Bell Work:** (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet (Appendix 1)
* “Do you or does someone you know have a food allergy? If so, what is the cause of the allergy?”

**Learning Objectives**

As a result of this lesson, students will be able to:

* Identify common food allergies.
* Explain why food allergies are a significant issue in schools.

**Required Materials for Daily Lesson**

* Flip charts for the students
* Markers
* Post-it notes
* Writing surface for the teacher (white board, flip chart, PowerPoint slide, etc.)
* News articles – Appendix 4 - One copy divided into articles
* Weekly Bell-Work journal – Appendix 1 – One for each student
* Daily Exit Ticket – Appendix 2 – One for each student

**Estimated Instructional Time:** One 50-minute class periods

**Opening**

* Read the Bell-Work question and solicit responses from the students.
	+ Take note of student responses for discussion and to reference during this lesson.
* The point to be made, “Food allergies are a growing issue among America’s youth. Let’s explore a few issues related to food allergies that have been in the news as we start to think about the implications of food allergies in schools.”

**Middle**

* Divide the class into three groups.
* Distribute a copy of the Appendix 4 news article to each team. Each team should have a different article. (Each article focuses on a different scenario related to food allergies in schools.)
	+ Note: Feel free to use different articles that might be more current at the time you deliver this lesson.
* Within their teams, students should read the article and on a sheet of flip chart paper, summarize at least 4 key points from the article.
	+ The article summary should be created as images, where the students will draw pictures to represent key points and terms instead of using words.
* While reading the article, students should identify at least 5 key vocabulary terms related to food allergies and list them on a Post-It note.
	+ Each word should be written on a separate Post-It.
* When the students are finished, ask them to share their article summaries with the class and explain the images to the class.
	+ Have students stick their vocabulary terms on a wall somewhere in the room. The idea is that this will be the start of a word wall, and throughout the key terms will be revisited and defined.
	+ Make a list of common themes on the board or other writing surface.
* Follow the article sharing with a discussion about the common themes of the articles and how they might relate to what students previously shared about personal experiences with food allergies.

**Closing**

* Provide each student with the weekly Exit Ticket handout Appendix 2
* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What are your reactions to the scenarios you read about today?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Three**

**Key Question of the Day**: Project Roll-out: Do you understand our project?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Why should we educate the school community about food allergies?

**Learning Objectives**

As a result of this lesson, students will be able to:

* Describe the purpose of the project.
* List the tasks and products related to the project.
* Describe the project in one sentence.

**Required Materials for Daily Lesson**

* Computer with access to YouTube
* Videos: <http://www.nbcnews.com/video/nightly-news/51755274#51755274>; <http://www.youtube.com/watch?v=olwQKqQVy7s> (Study – Food Allergies are Becoming More Common)
* Guest speaker: School Principal (or other administrator), if possible
* Project Management Log – Appendix 3—One per team (every 2-3 students)
* Engagement Scenario – Appendix 5 – One per student

**Estimated Instructional Time:** One 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Possible answers may include:
	+ To prevent tragedies like the ones we read about yesterday
	+ To inform people who may not know about them
* The point to be made: “As food scientists, we have a responsibility to create food that is safe for consumers, no matter what. The same is true for our school. It’s our job to create a safe environment for students, not just in the cafeteria, but all across our campus.”

**Middle** – 40 minutes

* **Teacher TIP!** Use a workbook for students to compile content on each topic throughout this project. Students can either create the workbook themselves or the teacher can create the workbook for the students.
* Show each video clip: <http://www.nbcnews.com/video/nightly-news/51755274#51755274>; <http://www.youtube.com/watch?v=olwQKqQVy7s>
* The point to be made: “As we saw in these news clips, food allergies are on the rise yet scientists still don’t have an explanation for this trend. Food allergies affect people of all ages, but it seems to be a significant problem for people under the age of 18. Due to recent issues with food allergies in schools, we have to make sure that people understand the dangers of food allergies and how to keep individuals with food allergies safe."
* Give students a copy of the engagement scenario and project description (Appendix 5).
* Give the class about 5-10 minutes to read through the scenario and project description.
* Ask students to circle parts of the scenario and project description that they have questions about.
* If possible, invite the principal (or other administrator if the principal is not available) to speak to the class to introduce the project and request that the students create a public service announcement (based on the engagement scenario).
* After the guest speaker (if you have one) discuss the project details and address any questions that the students identified when they were reading over the document.
* For this project, students should work in teams of two or three. They will work with these same teams for the duration of the project.
* The teacher can decide how students will form their teams.
* Give the class time to get into their groups and determine a team name.
* Distribute the project management log (Appendix 3) and have each team fill out the top so that it is ready for the remainder of the project.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“Summarize the goal of the project in one sentence.”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Four**

**Key Question of the Day**: What are food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Think about the following quote: ‘The food of one may be poison for another’ – Lucretius De Rerum Natura. What does this mean to you?”

**Learning Objectives**

As a result of this lesson, students will be able to:

* Define food allergy.
* Define food intolerance.
* Describe the difference between food allergy and food intolerance.
* Identify types of medical testing used to identify food allergies.

**Required Materials for Daily Lesson**

* Computer with access to YouTube:

<http://www.youtube.com/watch?v=KT8E61ANgfY> (Dr. Keri Peterson Discusses Food Allergies)

* Defining Food Allergies – Appendix 6 – One per student
* Rubric – Appendix 6.1 – One per team
* White board/chalk board/open wall space
* Poster paper
* Markers
* Tape
* Any other accessible art supplies that could be used for creating a poster
* Computers
* Internet

**Estimated Instructional** **Time:** One 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students. Discuss the quote with students.
* The point to be made, “We have all been sick at one time from something we came in contact with either from breathing the air, touching our skin, or something we ingested. Either way, these allergic reactions may occur frequently or on rare occasion due to your tolerance for the allergen and how often you come in contact with the allergen. What one person can eat may make someone else very sick or even pose the risk of death. Today we are going to learn the difference between food allergies and food intolerance.”

**Middle** – 40 minutes

* Remind students about how to use the Internet to find credible sources of information.
* Give each student a copy of Appendix 6.
* Students should research the Internet to find the definition of food allergy and food intolerance.
	+ They will fill in this information on their handouts and include examples of each.
* Since there is a difference between food allergies and intolerances, students should also identify the types of medical testing used to determine if a patient has food allergies.
	+ This information should also be noted on their handouts.
	+ Possible answers could include skin prick test, blood test, oral food challenge, or trial elimination diet.
* When the class is finished, bring the class back together for a quick discussion about the difference between food allergies and food intolerances.
* Ask the class to share their examples of food allergies and intolerances.
	+ Record their responses on a surface at the front of the room.
	+ The list should include a mix of food allergies and food intolerances.
* Ask each team to select one food allergy or intolerance for further investigation. Allow the students to identify the key information on their own. However, they may find content such as:
	+ The food that causes the allergy or intolerance
	+ How the body reacts when the food is ingested (For example: Lactose intolerance is the body’s inability to metabolize lactose)
	+ Symptoms
	+ Common foods to avoid
	+ Treatment (if any)
* Each team will create a short informational poster about the food allergy or intolerance.
	+ Display the posters around the classroom.
	+ Have a gallery walk where the students walk around the room to view the posters.
	+ These posters will also serve as a resource of information for the PSAs the students will be creating.
* As a class, discuss what they learned about food allergies and intolerances.
	+ Show the video: <http://www.youtube.com/watch?v=KT8E61ANgfY>

**Closing –** 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

 “Describe the difference between food allergies and food intolerance.”

* Collect the Exit Ticket for the day as students leave the classroom.

**Day Five**

**Key Question of the Day**: What are IgE-mediated allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Yesterday we learned about the difference between food allergies and food intolerances. As you researched these terms, what foods did you discover as possible allergens?”

**Learning Objectives**

As a result of this lesson, students will be able to:

* Identify the top 8 allergy-causing foods.
* Define IgE.
* Explain the effects of food allergies caused by IgE.

**Required Materials for Daily Lesson**

* Video: <http://www.youtube.com/watch?v=AKVjKC3u9hk> (Understanding Food Allergies)
* Case Studies – Appendix 7 – One case study per team

**Estimated Instructional Time:** One 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Possible answers may include (be sure to capture student responses on a flip chart or writing surface so that they can be referenced later in the lesson):
	+ Peanuts
	+ Eggs
	+ Dairy
	+ Soy
	+ Wheat
	+ Shellfish
	+ Fish
	+ Tree nuts
* “There are 8 foods that most commonly cause IgE-mediated food allergies: dairy (cow’s milk), eggs, shellfish, fish, peanuts, tree nuts, soybeans, and wheat. According to the statistics on FoodAllergy.org, these foods actually account for 90% of food allergies. Today we are going to explore IgE-mediated food allergies and common allergic reactions.”

**Middle** – 40 minutes

* Show the video: <http://www.youtube.com/watch?v=AKVjKC3u9hk>
	+ Start by showing only the first 1 minute and 8 seconds of the video (this part focuses on IgE).
	+ Lead a class discussion to help students understand this concept.
	+ **Teacher Tip!** Appendix 7.1 is optional and is provided as supplemental information for you as you lead the discussion on this topic. It can be used as supplemental student reading material.
* The class will divide into their project teams.
* Give each team a case study (Appendix 7).
* Give the teams about five minutes to read the case study and try to solve the scenario.
* Students will then pair up with another team and they will share their case studies with each other. The opposite team will have to try and solve the case study.
	+ There are four case studies, so the teams can rotate until they have completed at least two. Depending on class size, they could also rotate until all case studies are completed.
* Bring the class back together.
* Show the remainder of the video.
* Use highlights from the case studies to discuss the content from the video (e.g., information about epinephrine, symptoms, etc.).

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“In one sentence, summarize what you learned today!”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Six**

**Key Question of the Day**: (Continuation of Day Five) What are IgE-mediated allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “According to FoodAllergy.org, approximately 3 million people in the U.S. have allergies to tree nuts or peanuts. Describe what you know about tree nuts and peanuts.”

**Learning Objectives**

As a result of this lesson, students will be able to:

* Distinguish between IgE-mediated food allergies and non-IgE-mediated food allergies.
* Describe the similarities and differences between peanuts and tree nuts.

**Required Materials for Daily Lesson**

* Article: Mixed-up nuts: identification of peanuts and tree nuts by children – Appendix 8 – One copy for the class
* Construction paper
* Flip chart paper
* Markers
* Tape
* Samples of tree nuts (any that you have access to): pecan, almond, Brazil nut, cashew, chestnut, coconut, hazelnut, macadamia nut, pinenut, walnut, pistachio, etc.
* Peanuts
* Stickers
* **Teacher TIP!** Since this lab involves nuts, be sure that no students in the class are allergic prior to bring these materials in. If there is a student with allergies, modify by using images and not actual samples.

**Estimated Instructional Time:** One 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* **Teacher TIP!** For this particular question, some of the student responses may not be accurate due to misconceptions, so the purpose of the lesson is to educate students and provide clarification for any possible misconceptions.
* Possible answers may include (be sure to capture student responses on a flip chart or writing surface so they can be referenced later in the lesson):
	+ Nuts have a shell
	+ Nuts are seeds
	+ Tree nuts are all the same
* “There are many differences between tree nuts and peanuts, and even among the nuts with in the tree nut category. Let’s think back to the case study about the male who had a tree nut allergy but ate cashews not knowing they were considered tree nuts. Given the high prevalence of peanut and tree nut related allergies, we have to be able to identify and distinguish between the characteristics of the foods within these categories.”

**Middle** – 40 minutes

* Break the article (Appendix 8) up into chunks by section of the article. Give each team a copy of one of the sections to read.
	+ Have each team share a summary of their section with the class, going in order from the start to the end of the article.
* Create a display somewhere in the room including a variety of tree nuts and peanuts in various forms (with the shell, without the shell, chopped, whole, etc.).
	+ Number each sample. On a sheet of paper, students can create a numbered list where they will identify each sample.
	+ To really test student knowledge, start by allowing students one opportunity to respond without sharing a bank of potential answers. After the students have the opportunity to at one attempt without clues, then provide a list of the samples and allow them another chance to identify the samples.
* Hang a sheet of flip chart paper on a wall somewhere in the room that has a chart with a space for each sample. When students finish identifying the samples, they will go the flip chart and mark which ones they got correct with a sticker.
* Come together as a class and review the results. This should lead to a brief discussion about the importance of being able to identify the samples.
	+ Ask the class, “How are tree nut/peanut allergies different from non-IgE-mediated food allergies?”
* Ask each team to identify a key term from the last two days to add to the word wall using the construction paper.

**Closing** – 5 minutes

* For homework, students should visit the local grocery store and investigate the following question, “Where in the store are potential food allergy risks located?” Students should bring a list of their ideas with them to class the next day.
* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What can you do to be more aware of the potential allergens in your foods?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Seven**

**Key Question of the Day**: How are potentially allergenic foods labeled?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “How do you know if the food you are about to eat contains one of the “Big 8” food allergens?

**Learning Objectives**

As a result of this lesson, students will be able to:

* Identify where food allergy risks are located in the grocery store.
* Identify foods that are likely processed in a shared facility with allergenic foods.
* Read and interpret allergy information on a food label.

**Required Materials for Daily Lesson**

* Food packages (collect the packages of any products that have a food allergy warning printed on the label; keep in mind that foods from the bakery may also have warning labels and this is not limited to packaged processed foods)
* Pictures of your local grocery store
* Computer, projector and screen (if you would like to show the images using the computer)
* Food Label Allergen List – Appendix 9 – One per student
* Computers with Internet
* Index cards

**Estimated Instructional Time:** One 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Possible responses may include:
	+ By reading the ingredients
	+ Look for warnings on the package
* “Today we are going to find out exactly how to determine if foods contain one of the eight major food allergens.”

**Middle** – 40 minutes

* Begin by reviewing the homework assignment. Set out a variety of product packages that contain food allergens and food allergy warnings. Discuss the characteristics of the foods.
	+ If students were able to complete the homework and visit the grocery store, ask them to share any photos they took and discuss what they saw and where they think the most risks are in the grocery store.
	+ Give each student a copy of Appendix 9. Explain how to read and interpret the different food allergy warnings that may appear on various packages.
* Next, the students will conduct background research about food labeling for food allergies.
	+ The first topic to research is the history of food labeling. This is a fairly new practice, so students should research why and when food labeling for food allergies first started. Next, they should select a product to research if the product is processed in a facility with potential allergens. For example, a student might choose to research M&M candy, which is processed in a facility with peanuts. They should try to discover what happens during processing to prevent the food from becoming cross contaminated.
	+ Using an index card, students should write a few facts about the product as it relates to food allergies.
* Ask students to find a partner and in 30 seconds or less, take turns reporting their findings to each other.
* After the class had the opportunity to share their findings with their peers, come back together and have a brief discussion about the history of food labeling for food allergies and how products are processed.

**Closing** – 5 minutes

* Ask the students to share a summary of what they learned today.
* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What should people who suffer from food allergies look for when buying food at the grocery store?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Eight**

**Key Question of the Day**: How are food allergens controlled and detected during processing?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Can food allergy risks be controlled during food processing? Explain your response.”

**Learning Objective**

As a result of this lesson, students will be able to:

* Explain how food companies protect the health of allergic consumers.
* Describe testing methods to detect the presence of food allergens.
* Differentiate between clean and sanitize.

**Required Materials for Daily Lesson**

* Computers
* Internet
* Construction paper
* Tape
* FDA Allergy Inspection Guide – Appendix 10 – One copy for the class <http://www.fda.gov/ICECI/Inspections/InspectionGuides/ucm074944.htm>

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Possible responses may include:
	+ Yes, they can clean the equipment
	+ No, once the food touches a surface it is considered contaminated
* Explain to students, “The risk of food allergies can be controlled through a variety of different procedures. Most importantly, in food processing it is most important to clean every surface that comes in contact with foods. Let’s explore this a bit deeper.”

**Middle** – 40 minutes

* First, give students about five minutes to search for the definition of clean and the definition of sanitize. Ask students to respond to the following questions:
	+ Why are they different?
	+ Which method plays a more significant role in the prevention of contamination due to food allergies?
* Discuss that cleaning is ultimately what plays the more significant role of preventing contamination due to food allergies. While sanitizing is beneficial in the prevention of other foodborne illness, cleaning is what removes allergens from surfaces. Transition by mentioning that once a surface has been cleaned and sanitized, there are additional tests that can be done to determine if an allergen is still present.
* Post the acronym “ELISA” somewhere in the room. Direct student attention to the term and give them about five to ten minutes to research what the acronym stands for and determine how it is used to test for the presence of allergens in the food industry.
	+ Once they have the results, quickly discuss their findings and explain how ELISA tests can help detect the presence of allergens in processing facilities and products.
* Next, break the class up into teams based on the sections included in the allergy inspection guide (Appendix 10). Each team will summarize the key points that should be considered during each stage of food processing.
	+ Each team should have the option to search for additional information as needed. The class will stand in a circle and each team will hold a sign indicating their stage of the process and describe the function.

**Closing –** 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“How can we ensure food allergens are no longer present on a food prep surface?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Nine**

**Key Question of the Day**: (Continuation of Day Eight) How are food allergens controlled and detected during processing?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “What steps are taken here at school to reduce the potential risk of food allergies?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Explain how food companies protect the health of allergic consumers.
* Describe testing methods to detect the presence of food allergens.
* Differentiate between clean and sanitize.

**Required Materials for Daily Lesson**

* Computers
* Internet
* Construction paper
* Tape
* Guest speaker: school cafeteria employee or district food service staff member
* Resource (See Appendix 10 or website): <http://www.fda.gov/ICECI/Inspections/InspectionGuides/ucm074944.htm>

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Students may respond with comments based on what they learned the previous day.
* Explain to students, “Today we have a guest speaker from \_\_\_ to speak with us about how the food prepared in our school lunch room is regulated to reduce the risk of food allergies.”
* Ask students to prepare at least two potential questions to ask the guest speaker.

**Middle** – 40 minutes

* If possible, invite the school cafeteria manager or district food service manager to speak with the class about the regulations and procedures that are implemented at the school level.
* An alternative to the school-related speaker would be to invite a local restaurant chef or other food-processing leader (e.g., hospital cafeteria manager, grocery store bakery manager, etc.)
* Students should be prepared to ask questions following the presentation as this is another means of collecting content for the public service announcement they will be creating later in the project.
* Based on what they have learned over the past few days, each team should identify one word to add to the word wall. Students can use the construction paper to write their word and hang it on the wall.

**Closing –** 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What questions remain from the presentation today?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Ten**

**Key Question of the Day:** What accommodations are available for people with food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Put yourself in the shoes of someone who suffers from food allergies (if you don’t). How would that make you feel?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Describe the treatment methods and accommodations for food allergy sufferers.
* Define anaphylaxis.
* Define epinephrine.
* Assess the social and nutritional implications of food allergies.

**Required Materials for Daily Lesson**

* Computer
* Internet access
* EpiPen trainer (or similar auto-injector) – One for the teacher
* Anaphylaxis Emergency Plan – Appendix 11 – One per student
* Articles – Appendix 11.1 and Appendix 11.2
* Magazines

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Explain to students, “People with food allergies are affected in many ways aside from being limited as to what they can eat. Before we can identify a target audience or theme for the PSAs, we have to fully understand how food allergies affect individuals and the accommodations that are available. Today we are going to take a look at these implications.”

**Middle** – 40 minutes

* Divide the class into two groups. Half of the class will read the article about anaphylaxis (Appendix 11.1). The other half of the class will read the article about epinephrine and the treatment of food allergies (Appendix 11.2).
	+ The anaphylaxis team will identify the definition and additional key points the opposite team should know about the topic. The epinephrine team should do the same with their article.
* When the teams are finished reading and summarizing, they will come together and discuss what they read. On a sheet of flip chart paper, they will create a tip sheet to share with the other team.
* When the teams are ready, as a class, have one speaker from each team share the information.
	+ Show the class the EpiPen trainer and explain that it is one example of an epinephrine treatment and show how it used to treat individuals suffering from anaphylaxis in an emergency situation.
* Transition by explaining a required daily life task such as eating food can be a stressful experience for people with food allergies.
* Use Appendix 11 to create characters for a role-play activity
	+ Give each student a copy of the plan. Then allow them to use magazines to find a person for the photo section to create the persona (or they can also draw a person if magazines are not available). Given what they have learned about food allergies, allow students to fill out the rest of the plan in order to create the scenario. Students should use the background information from prior lessons to make the story more personal.
	+ Note that the allergy they indicate on the form must be food related (since there are non-food related allergies listed on the plan).
* In pairs, students will take turns being the nurse and the patient. They will explain who they are (name, age, allergy), the epinephrine auto injector they use, symptoms, and challenges they deal with as a person with the particular allergy.
* Each role-play should take about 30-60 seconds.
* After everyone had the opportunity to finish the role-play, bring the class back together to debrief by having a brief discussion.
	+ Ask the class the following questions:
		- What did you learn from this exercise?
		- How do you think having a food allergy would impact your life?
		- Has your opinion changed about food allergies? Why or why not?

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“Explain one new fact you have learned about the symptoms of food allergies.”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Eleven**

**Key Question of the Day** (Continuation of Day Ten): What accommodations are available for people with food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “How would you feel if someone made fun of you because you couldn’t eat a certain food?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Describe the treatment methods and accommodations for food allergy sufferers.
* Describe how food allergic reactions can be prevented.
* Assess the social and nutritional implications of food allergies.

**Required Materials for Daily Lesson**

* Computer
* Internet access
* Projector
* Music
* Music player (can use computer or other device)
* Video: <http://www.youtube.com/watch?v=oeI-kh06fM4> (Food Allergies Create Tempting Target for Bullies)

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Have a brief discussion as the students share their responses. This is a great opportunity to address bullying and ask students to share personal experiences.
* Explain to students, “People with food allergies, especially kids, face many challenges. Aside from the regular issues that kids face, they also have to worry about what they will eat (or even what people around them are eating) at a birthday party, at the school dance, or even every day in the lunch room.”

**Middle** – 40 minutes

* Show the news report: <http://www.youtube.com/watch?v=oeI-kh06fM4>
* Quickly debrief the video and ask the students to share their reactions to the news report.
* Divide the class into four teams. Assign each team a question:
	+ How can allergic reactions to food be prevented at school?
	+ How can allergic reactions to food be prevented at home?
	+ How can allergic reactions to food be prevented in social settings, such as at a restaurant?
	+ What are the nutritional challenges individuals with food allergies face?
* Using the website [www.foodallergy.org](http://www.foodallergy.org), students should research the responses to their assigned question.
* Write each question on a sheet of flip chart paper and hang each sheet somewhere in the room. Once students complete their research, play the music, using it as a tool to cue the students to rotate to each poster after about three minutes.
	+ The purpose of this exercise is to allow students to start by writing the answers they found to their questions on their respective poster, then rotating to review the responses to the other questions.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“Based on everything we have learned to this point, list a few quick ideas for your PSA.”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Twelve**

**Key Question of the Day**: How prevalent are food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “How common are food allergies within our school?

**Learning Objective**

As a result of this lesson, students will be able to:

* Determine the prevalence of food allergies within the school.
* Analyze statistical data.

**Required Materials for Daily Lesson**

* Computer
* Projector
* Internet
* Microsoft Word or other document software (or Google Docs)

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
	+ As students share their responses, ask them how many people they think have food allergies on the school campus, what group of individuals will have the most issues with food allergies (teachers, students, etc.), and what the most common type of food allergy is on campus.
* Explain to students, “The final step before we create our PSAs is to determine the prevalence of food allergies within our school community.”

**Middle** – 40 minutes

* The class is going to create a 30-question (maximum) survey instrument to give to everyone who is a student/faculty/staff member of the school.
	+ Note that there can only be one survey instrument in order for the data to be reliable.
* In their project teams, students will create a draft survey with the questions they feel should be used on the final version.
* Questions should include a variety of multiple choice questions and open-ended questions only when necessary.
* Note that questions should include demographics (age and gender, could include ethnicity), family history, food allergy, food intolerance/sensitivity, diagnosis, symptoms, treatment, carry an auto-injector, etc. However, do not share this information with the students. Allow the students to take a first attempt at developing the survey with as little guidance as possible.
* Students should be using all of the content and resources they have collected up to this point to help them create the questions. They may also use the Internet for additional research as needed.
* Students can use the computers to create a Word document with their survey questions. They can also use markers and poster paper for brainstorming.
	+ **Teacher TIP!** An alternative to this method is to have students collaborate using Google Docs, which would allow the teams to actively edit the documents at the same time.
* While the students are working on this, engage in conversations with the teams about their surveys to assess the types of questions they are creating to ensure they are appropriate.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What questions do you have about the survey you are creating?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Thirteen**

**Key Question of the Day**: (Continuation of Day Twelve) How prevalent are food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Where are we with our survey development?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Determine the prevalence of food allergies within the school.
* Analyze statistical data.

**Required Materials for Daily Lesson**

* Computer (for the teacher and students)
* Projector
* Internet
* Microsoft Word or Excel (optional)
* Poster Paper
* Markers

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* This is an opportunity to assess how much time students will need to complete their survey documents. If they need additional time, allow as much as you feel necessary. When they are finished creating their surveys, proceed with this lesson.

**Middle** – 40 minutes

* Each team should swap surveys with a different team and conduct a critique of the questions. The goal is to start narrowing in on the best questions to include on the final class survey.
* Students should highlight or circle the questions that they feel are the best and should be included, and put an “X” next to the questions they feel should not be included.
* When each team has completed their critique, come back as a class and make a list somewhere in the room (a computer document projected on the screen would be the most time efficient) of the top questions that each team selected. Make a separate list of the questions that each team eliminated. As each team shares their top questions, ask them why they made the decisions they made.
* As each team shares, ask the rest of the class if they agree or disagree. The goal is to come to a consensus as a class on the top questions to include in the survey.
* The survey can be administered through a web tool such as Survey Monkey, Google Docs, or via hard copy.
* Since survey results won’t be in immediately, teams can begin planning for their PSA once the surveys are distributed.
* Try to get the surveys back as soon as possible. If administration is on board with the project, an idea is to suggest a time during the day, even at lunch, where everyone completes the survey.
* If there is extra time between distributing the survey and getting the results back (such as at least a class period or more), give each team time to start brainstorming their PSA. Since this was a prior Exit Ticket question, students should already be thinking about what they want to do. They will receive more instructions at a later time.
* When all of the data has been submitted, compile the data in to one document by question. This can be done in a Word document or an Excel spreadsheet.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What are you most excited to learn from the survey data?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Fourteen**

**Key Question of the Day**: (Continuation of Day Thirteen) How prevalent are food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “What do the results say and what do they mean for us as a school?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Determine the prevalence of food allergies within the school.
* Analyze statistical data.

**Required Materials for Daily Lesson**

* Computer (for the teacher and students)
* Projector
* Internet
* Microsoft Word or Excel (optional)
* Poster paper
* Markers

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Quickly discuss possible implications of the survey. This would be a good time for students to form a hypothesis about what they expect from the results.

**Middle** – 40 minutes

* This class period will be spent doing the data analysis. Each team should receive a copy of the data, or post one copy somewhere in the room for each team to access.
* In their teams, students should select the data they would like to analyze.
	+ Ask each team what data they would like to analyze and display. They should be selecting from the questions on the survey. Each team should be reporting on at least two questions.
	+ Post this information somewhere in the room so that teams do not duplicate the analysis (this will help ensure that all of the data is analyzed and accounted for). If class size is small, each team can analyze and display more than one data set.
* Once decisions are made about the data that each team will analyze, teams will then decide how they will display their data. Depending on the results, they must determine the best way to visually represent the findings. (e.g., bar graph, line graph, scatter plot, pie chart, infographic, etc.) Students may even include more than one display method for the same data set.
	+ Students should research different ways to display data and based on their data, select the best method.
* Students may use computers with Word or Excel to create their display, or they can create the display by hand using poster and markers.
* When finished, each team should present their display to the class, which is meant to spur class discussion about the study and the findings.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What surprised you about the data?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Fifteen**

**Key Question of the Day**: How can we create awareness about food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “What is a public service announcement?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Justify arguments with supporting data and information.
* Summarize key information about the topic of food allergies.
* Demonstrate knowledge of food allergies through class presentations.

**Required Materials for Daily Lesson**

* Computers (for the students)
* Internet
* Video recording equipment (cell phone, Flip camera, iPad/tablet, or any other device that is accessible and can record a video)
	+ **Teacher TIP!** The video recording may not occur until Day Seventeen, however depending on the class sizes and how quickly students work, it is listed as a required material in case there are students who are ready to record prior to that day.
* PSA Planning Guide – Appendix 12 – One per team
* PSA Rubric – Appendix 13 – One per team
* PSA Team Progress List – Appendix 13.1 – One per student
* Self-Reflection Form – Appendix 14 – One per student
* Presentation Audience Feedback – Appendix 15 – One per student
* Collaboration Rubric – Appendix 16 – One per student

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Explain to students that, “A public service announcement (PSA) is designed to evoke emotion and convince the audience to take some sort of action. PSAs also strive to share important information about the topic. Now that we have learned everything we need to know about food allergies, we can start to create PSAs to educate the rest of the school community about this issue.”

**Middle** – 40 minutes

* **Teacher Tip!** The timing for this part of the project may vary depending on the size of the class, so adjust accordingly. Also, more details about the criteria for the PSA can be found on the rubric (Appendix 13).
* Give each team a copy of Appendix 12 to complete as a group. This will help them make important decisions and plan their PSA.
* Do not show specific examples of PSAs right at first, as showing an example in the beginning may sway the students’ ideas. If you get the sense that showing an example would be helpful to the students, try to wait until they have had time to brainstorm first.
* Students should use their notes and data collected from the previous days to determine how to create their PSA. They may use computers and Internet to find specific images or other helpful resources for their PSA.
* The PSA criteria should include the following:
	+ Length: one minute or less
	+ Include music
	+ Include graphics/images/pictures (can be hand drawn, real pictures taken by the students, or graphics from free sources on the Internet)
	+ Include data from the survey
	+ Include facts and content from the previous lessons
* Students should use Appendix 13.1 to fill out their Project Management Logs and the teacher should initial each item as they are completed.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What questions do you have about your PSA?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Sixteen**

**Key Question of the Day**: (continuation of Day Fifteen) How can we create awareness about food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Yesterday I reviewed your questions about the project. Let’s take a few moments to answer some of your questions.”

**Learning Objective**

As a result of this lesson, students will be able to:

* Justify arguments with supporting data and information.
* Summarize key information about the topic of food allergies.
* Demonstrate knowledge of food allergies through class presentations.

**Required Materials for Daily Lesson**

* Computers (for the students)
* Internet
* Video recording equipment (cell phone, Flip camera, iPad/tablet, or any other device that is accessible and can record a video)
* PSA Planning Guide – Appendix 12 – One per team
* PSA Rubric – Appendix 13 – One per team
* PSA Team Progress List – Appendix 13.1 – One per student
* Self-Reflection Form – Appendix 14 – One per student
* Presentation Audience Feedback – Appendix 15 – One per student
* Collaboration Rubric – Appendix 16 – One per team

**Estimated Instructional** **Time:** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Answer any questions since the students have had a day to start working and think through their PSAs. Explain that they will have the rest of the class period to continue planning and working on their projects.

**Middle** – 40 minutes

* Students should spend this class period continuing to plan for their PSA.
* As each team completes their planning document, have them talk through their ideas for the PSA. Provide constructive feedback as needed.
* Once they have teacher approval, they can proceed to create the script. Once the script is complete, they should swap with a different team to peer review the scripts for flow and any grammatical issues.
* Once the scripts have been peer reviewed, students can proceed to the recording/editing phase.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“How is your team doing with the PSA project?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Seventeen**

**Key Question of the Day**: (continuation of Day Sixteen) How can we create awareness about food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “Prepare a 30-second summary of your team’s progress on the PSA project.”

**Learning Objective**

As a result of this lesson, students will be able to:

* Justify arguments with supporting data and information.
* Summarize key information about the topic of food allergies.
* Demonstrate knowledge of food allergies through class presentations.

**Required Materials for Daily Lesson**

* Computers (for the students)
* Internet
* Video recording equipment (cell phone, Flip camera, iPad/tablet, or any other device that is accessible and can record a video)
* PSA Planning Guide – Appendix 12 – One per team
* PSA Rubric – Appendix 13 – One per team
* PSA Team Progress List – Appendix 13.1 – One per student
* Self-Reflection Form – Appendix 14 – One per student
* Presentation Audience Feedback – Appendix 15 – One per student
* Collaboration Rubric – Appendix 16 - One per team

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Allow each team to report on their progress and provide any related feedback or answer questions.

**Middle** – 40 minutes

* Students should spend this class period continuing to work on their PSA.
* At this stage, teams should be finalizing their scripts and starting to record the videos.
* Continue to use the PSA checklist to assess student progress.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“What’s your status? How far is your team in the process?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Eighteen**

**Key Question of the Day**: (continuation of Day Seventeen) How can we create awareness about food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “What questions do you have about recording or editing your videos?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Justify arguments with supporting data and information.
* Summarize key information about the topic of food allergies.
* Demonstrate knowledge of food allergies through class presentations.

**Required Materials for Daily Lesson**

* Computers (for the students)
* Internet
* Video recording equipment (cell phone, Flip camera, iPad/tablet, or any other device that is accessible and can record a video)
* PSA Planning Guide – Appendix 12 – One per team
* PSA Rubric – Appendix 13 – One per team
* PSA Team Progress List – Appendix 13.1 – One per student
* Self-Reflection Form – Appendix 14 – One per student
* Presentation Audience Feedback – Appendix 15 – One per student
* Collaboration Rubric – Appendix 16 – One per team

**Estimated Instructional** **Time:** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Answer any questions related to recording or editing the videos.

**Middle** – 40 minutes

* At this point, all teams should be at the recording or editing phase.
* Students can use video iMovie or any other video editing software or app to enhance the PSAs.
* There will be one class period left for teams to finish up their PSAs and prepare to present.
* For the presentation, each team will give a brief summary of their PSA, the goal of the PSA, and why they chose to create it.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“Are you ready for your presentation?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Nineteen**

**Key Question of the Day**: (continuation of Day Eighteen) How can we create awareness about food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “What are characteristics of a good audience? What are characteristics of a good presenter?”

**Learning Objective**

As a result of this lesson, students will be able to:

* Justify arguments with supporting data and information.
* Summarize key information about the topic of food allergies.
* Demonstrate knowledge of food allergies through class presentations.

**Required Materials for Daily Lesson**

* Computers (for the students)
* Internet
* Video recording equipment (cell phone, Flip camera, iPad/tablet, or any other device that is accessible and can record a video)
* PSA Planning Guide – Appendix 12 – One per team
* PSA Rubric – Appendix 13 – One per team
* PSA Team Progress List – Appendix 13.1 – One per student
* Self-Reflection Form – Appendix 14 – One per student
* Presentation Audience Feedback – Appendix 15 – One per student
* Collaboration Rubric – Appendix 16 – One per team

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Ask students to share their responses and remind them how to be good presenters and audience members as they prepare for their presentations.

**Middle** – 40 minutes

* This is the last day to prepare for the presentations.
* All editing should be wrapping up.
* At this stage, teams should be watching their PSA for the final time, and planning what they will share about their work during the presentation.
* If teams are done early, then presentations can start today.
* Be sure to invite the school principal (or other administrator, whoever was able to come at the start of the project) as well as the school nurse, and/or cafeteria manager for the presentations.
* The guests will determine which PSA(s) will be shown to the school to create awareness of food allergies.
* Use the rubric (Appendix 13) to evaluate the PSAs.
* Each student should have a copy of Appendix 15 to provide feedback during the presentations.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“How do you feel about the way your PSA turned out?”

* Collect the Exit Ticket for the day as students leave the classroom

**Day Twenty**

**Key Question of the Day**: (continuation of Day Nineteen) How can we create awareness about food allergies?

**Bell-Work**: (Each day the Bell-Work question should be prominently displayed and used to open the lesson)

* Provide students with the weekly Bell-Work sheet – Appendix 1
* “What did you learn from the PSAs?”

**Learning Objective**

As a result of this lesson, students will be able to**:**

* Justify arguments with supporting data and information.
* Summarize key information about the topic of food allergies.
* Demonstrate knowledge of food allergies through class presentations.

**Required Materials for Daily Lesson**

* Computers (for the students)
* Internet
* Video recording equipment (cell phone, Flip camera, iPad/tablet, or any other device that is accessible and can record a video)
* PSA Planning Guide – Appendix 12 – One per team
* PSA Rubric – Appendix 13 – One per team
* PSA Team Progress List – Appendix 13.1 – One per student
* Self-Reflection Form – Appendix 14 – One per student
* Presentation Audience Feedback – Appendix 15 – One per student
* Collaboration Rubric – Appendix 16 – One per team

**Estimated Instructional** **Time: One** 50-minute class period

**Opening** – 5 minutes

* Read the Bell-Work question and solicit responses from the students.
* Ask students to share their responses. Have a brief discussion about what students learned from the PSAs.

**Middle** – 40 minutes

* Finish up any presentations.
* If presentations are still going on, be sure the guests are invited and are able to see all of them.
* Students should use Appendix 15 to select one presentation to evaluate.
* When the presentations are complete, the guests should speak to the class about their selections and provide feedback about the PSAs.
* Arrange the seats so that everyone is sitting in a circle, or have students stand in a circle.
* Students should complete the self-reflection form (Appendix 14).
* Have a brief reflection discussion about the whole food allergy project.
* Have students discuss lessons learned and how they plan to apply their new knowledge.
* **Teacher TIP!** Use Appendix 16 as a guide for assessing students based on their contribution to the team.

**Closing** – 5 minutes

* Students will turn in their Exit Ticket for that day. They will respond to the following prompt:

“From everything you learned in this project, what meant the most to you? Why?”

* Collect the Exit Ticket for the day as students leave the classroom