



Safety First – Responsibilities for a Safe Food Supply

Middle School Food and Agricultural Literacy Curriculum

Precepts

F. Continuous Improvement

F5. Acquire new knowledge

National Standards

CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.

CS.01.06.05.a. Describe the value of being a life-long learner and the need for continuous development.

FPP.01.02.01.a. Explain the purposes of organizations that are part of or regulate the food products and processing industry.

FPP.01.02.02.b. Discuss the application of industry standards in the food products and processing industry.

FPP.02.01.01.a. Explain the importance of developing and maintaining Sanitation Standard Operating Procedures (SSOP).

FPP.02.01.02.a. Explain the purpose of Good Manufacturing Practices (GMP).

FPP.02.02.01.a. Describe contamination hazards (physical, chemical and biological) associated with food products and processing.

FPP.02.02.02.b. Explain the implementation of the seven principles of HACCP.

FPP.02.03.01.b. Evaluate food product handling procedures.

NL-ENG.K-12.4 – Communication Skills

NL-ENG.K-12.12 – Applying Language Skills

NS.5-8.3 – Life Science

NS.5-8.6 – Science in Personal and Social Perspectives

NSS-EC.5-8.10 Market Institutions

Time

Instruction time for this lesson: 45 minutes.

Resources

Lee, J., Patrick, A., Vaughn, R., Vaughn-Randel, S., & Murphy, E. (2003). AgriScience Discovery. Danville, IL: Interstate Publishers, Inc. — National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success. — Rangarajan, A., Bihn, E.A., Gravani, R.B., Scott, D.L., & Pritts, M.P. (2000). Food Safety Begins on the Farm: A Grower's Guide: Good Agricultural Practices for Fresh Fruits and Vegetables. Retrieved August 6, 2009, from Cornell University, National GAPs Educational Materials Web site: <http://www.gaps.cornell.edu/Educationalmaterials/Samples/FSBFEngMED.pdf> — United States Food and Drug Administration, Food. (2004, August 9). Good Manufacturing Practices (GMPs) for the 21st Century – Food Processing. Retrieved August 8, 2009, from <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/CurrentGoodManufacturingPracticesCGMPs/ucm110877.htm#execsum> — United States Department of Agriculture, Food Safety Research Information Office (2008). Sanitation and Quality Standards. Retrieved August 8, 2009 from [MSFS.1.5.docx](http://www.fda.gov/MSFS.1.5.docx) — United States Food and Drug Administration, Medical Devices (2009). Quality Systems Regulation. Retrieved August 4, 2009, from <http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/PostmarketRequirements/QualitySystemsRegulations/default.htm#introduction> — Winter, C. (2008). Food Safety Music: Music Videos: You Better Wash Your Hands. Retrieved August 7, 2009, from University of California, Davis, Food Safety Music Web site: <http://foodsafety.ucdavis.edu/html/video.html>

Tools, Equipment, and Supplies

You Better Wash Your Hands – music video found at <http://foodsafety.ucdavis.edu/html/video.html>

Computer with Internet access and sound

Speakers

Blank paper – two sheets per team, 4 teams

Crayons/markers/colored pencils – enough for the class

Timer

Overhead projector/transparencies

MS.FS.1.5.AS.A – Responsibility cards, one copy, cut into strips – one strip as assigned per team

MS.FS.1.5.ASSESS.A – one per student

MS.FS.1.5.ASSESS.B – one teacher copy per team

MS.FS.1.5.TM.A – one per teacher

Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

Food sanitation

Good Manufacturing Practices (GMP's)

Good Agricultural Practices (GAP's)

Hazard Analysis Critical Control Points (HACCP)



Safety First – Responsibilities for a Safe Food Supply

Student Learning Objectives

As a result of this **unit** the student will...

Recognize how food product pathways affect consumers.

As a result of this **lesson** the student will...

Identify food safety responsibilities in the food supply continuum.

Content Outline

Objective 1. Identify safety responsibilities in the food supply continuum.

- I. **To meet food safety standards, safety responsibilities exist for agriculturalists involved in the food supply continuum to minimize consumer health risks.**
 - A. **Food sanitation:** the process of keeping the areas where food is processed and prepared clean.
 - B. **Good Agricultural Practices (GAP's):** environmental and operational conditions necessary for the production of safe, wholesome fruits, vegetables, and livestock.
 1. Specific guidelines for fruit, vegetable, and livestock producers to follow to ensure safe products.
 2. To ensure a safe food supply, producers are responsible for minimizing risks caused by potentially threatening sources that are a part of the production process: soil, manure, cooling units, ice, transport vehicles, poor employee hygiene
 3. **GAP's** include practices like good hygiene of employees, clean storage facilities, water quality monitoring, record keeping for the farm operations, harvest and storage sanitation, safe handling of manure, following all on-farm safety practices and procedures, etc.
 - C. Similar to **GAP's: Good Manufacturing Practices (GMP's):** established quality systems for manufacturers to ensure that their products meet specific requirements to ensure safe products.
 1. **GMP's** is a government-regulated program

2. Record-keeping, documentation, training, evaluation, and inspections help ensure that **GAP's** and **GMP'S**'s are being implemented by businesses/operations.

D. **Hazard Analysis and Critical Control Points (HACCP):** identifies points in food handling where contamination is likely to occur.

1. **HACCP** provides steps to take to manage and reduce the contamination of food, and applies to facilities and processes, like the process of packaging meat or a facility where ice cream is made.
2. Larger processors are more likely to have a **HACCP** plan than small processors.
3. **HACCP** is a government-regulated program.
4. **HACCP** aims to prevent potential microbiological, chemical, and physical hazards in foods.

Interest Approach

Use the music video, You Better Wash Your Hands, found at <http://foodsafety.ucdavis.edu/html/video.html> to begin this lesson. The song is about sanitation and washing hands which connects to some of the content later in the lesson. The food safety music videos can also be ordered in CD form from the website. If you don't have the resources to show the video, there are audio options without the video on the website, or you can simply have a discussion about washing hands and the relationship between keeping our hands clean and **food sanitation**. When the video is over, begin the following discussion.

Once the class is seated and settled, start the music video. The video has lyrics at the bottom, so encourage the students to sing along and/or follow the lyrics.

We are about to watch a food safety music video. The lyrics will be shown on the bottom, so feel free to sing along! Be prepared for a discussion when the video is over.

Begin video.

Why is it important that we keep our hands clean?

Possible responses: prevent the spread of germs, prevent food contamination, keep things clean, etc.

Think about what we have learned so far about our food supply from the farm to fork. What role do you think sanitation plays in our food supply?



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Possible responses: Keeps food safe, prevents bacteria, prevents food poisoning, etc. Allow students to share their answers and brainstorm as a class.

Great responses! You are correct! Sanitation, including hand washing, is very important for a safe food supply. We already know that producers have a big responsibility. Do we remember what that responsibility is?

Possible responses, related to video: to provide a safe food supply, to keep food safe, etc.

Yes! Producers are responsible for keeping our food supply safe. So, today we are going to use our creative thoughts and talents as we learn about the safety responsibilities required for the production of a safe food supply.

Summary of Content and Teaching Strategies

Objective 1. Identify safety responsibilities in the food supply continuum.

Students will be divided into groups to create the pages for a food safety book. Each group will be responsible for creating a page for the book, including the cover, content, and illustrations. After the pages of the book are complete, each group will present their page, ultimately teaching the content to the rest of the class. While the groups are sharing their pages, use the *Me, You, Us e-Moment®* to pose questions to the class about the content, allowing the students who are seated to write responses to the questions and discuss them with their group members and then discuss with the rest of the class.

Now that we know about the process of our food traveling from the farm to our forks, and we understand how to interpret reliable information, we are ready to move forward and learn about the safety responsibilities of those involved in the production of our food supply.

To keep up with new laws, rules, and information about food safety regulations and responsibilities, farmers, ranchers, and other producers involved in the agriculture industry are constantly seeking new information. They subscribe to magazines, search the web, work with their local extension agents, and are constantly acquiring new knowledge to stay current on the latest ways to keep food safe.

What are some things you are eager to learn more about?

Allow a few students to share their responses.

Great, how do you acquire new knowledge on those topics?

Allow a few students to share their responses.

Excellent! So, to be a well-informed consumer or producer, we are always learning and acquiring new knowledge in life. Great job!

In just a moment, we are going to acquire new knowledge about food safety responsibilities, and to do that, we are going to complete a team activity to create a book about the safety responsibilities in the food supply.

This book is going to be displayed in the media center as a resource to inform the rest of the school about our safe food supply. Each team will receive a responsibility card containing key information about the different safety responsibilities in the food supply continuum.

Your team will use that information to create a page for our book. Your page should include illustrations, key words, and other important information the reader should know. Once you move into teams, you may come to the front of the room to gather your supplies. What questions are there? Great!

When you hear the word SAFETY, we will move into teams. For the teams, we are going to divide into four groups, 1, 2, 3, and 4 by counting off starting with the number one. Let's begin.

At this point, help students count off. Counting should be from number one through four, which would end up with the class divided into four groups. Don't let them move into teams until you are finished counting. When the class has finished counting, you may signal them to move into teams.



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Great job counting! Remember, responsibility cards will help you illustrate your page and will provide key information for the book. We will have 20 minutes to create your pages. Be prepared to share when the timer goes off. What questions are there? Great, SAFETY!

When students move into their teams, give each team their assigned responsibility card, **MS.FS.1.5.AS.A**. Set the timer for 20 minutes so when the timer goes off, students know it is time to stop working. Be sure to give them a five-minute warning before time is up.

Depending on your class size, you may adjust work time to be shorter or longer. As students are working, circulate around the room to answer questions, guide students if they need assistance, and ensure the class is on task.

When students are finished with their pages, they will share the information with the class, thus teaching the class about their assigned safety responsibilities. During the time they are sharing, lead a review discussion using the *Me, You, Us e-Moment* as previously mentioned.

Also, be sure to call each group to present in order of team, so begin with Team 1 and proceed with Team 2, and so on. This will allow you to review the content in order.

Review/Summary

The timer has gone off, which means we should be finished working on our pages. As we share our pages, there will be moments for us to reflect on and share what we know or think we know about food safety responsibilities. So, you will need a sheet of paper and something to write with. We are going to begin our presentations with Team 1.

Students will lead the discussion by explaining what they have created on their pages. You can guide the discussion using the *Me, You, Us e-Moment* by asking questions and facilitating the discussion. As students share their responses, they may repeat similar answers, and that is good. The purpose is to check for their understanding and review the content. While they are sharing their answers with the class, you may build on the discussion by asking deeper questions based on the students' responses.

After Team 1 presents begin the discussion.

Take a moment and think about what we just learned about **food sanitation** and what you may already know about sanitation. What do you think is involved in the process of sanitation? Write your response on your sheet of paper. You have 30 seconds starting NOW!

Allow time for students to complete this.

OK, time is up. You now have 30 seconds to discuss your thoughts with your teammates, starting NOW! Time is up. Now let's share your responses with the class.

Call on a few students to share their responses. When they are finished sharing, Team 2 may present.

After Team 2 presents, begin the discussion.

We just learned about **Good Agricultural Practices**. Thank you Team 2. Class, how do **Good Agricultural Practices** keep our food supply safe? Write your responses on your sheet of paper, like we did with Team 1. You have 30 seconds starting NOW!

Allow time for students to complete this.

OK, time is up. You now have 30 seconds to discuss your thoughts with your teammates, starting NOW!

Allow time for students to complete this.

Time is up. Now let's share your responses with the class.

Call on a few students to share their responses. When they are finished sharing, Team 3 may present.

After Team 3 presents, begin the discussion.

Thank you, Team 3, for teaching us about **Good Manufacturing Practices**. Let's see what the class thinks: How are **GMP'S** different from **GAP's**? Write your response. You have 30 seconds starting NOW!

Allow time for students to complete this.

OK, time is up. You now have 30 seconds to discuss your thoughts with your teammates, starting NOW!

Allow time for students to complete this.

Time is up. Now let's share your responses with the class.

Call on a few students to share their responses. When they are finished sharing, Team 4 may present.

After Team 4 presents, begin the discussion.



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Application

Extended classroom activity:

Safety Regulation Contamination: Have students dress up like food, either wearing food colors or t-shirts with pictures of foods. Set up an obstacle course using objects or landmarks like desks or hula hoops, or if outside, trees. Give each student a handful of clothespins or stickers. While walking through the obstacle course, if the students run into something unsafe – the unsafe object being the trees, desks, etc. – they get a clothespin or sticker on their shirt to signify contamination. At the end of the game, the person with the most clothespins or stickers is the most contaminated. Use the results of the game to lead to a discussion about food safety and the quick spread of contamination within foods. If anyone does not have any stickers or clothespins, ask them what they did to avoid becoming contaminated. Also ask the class what they could have done differently in order to prevent contamination.

FFA activity:

Infomercial: Create a commercial for the school news about the safety responsibilities of the food supply continuum. FFA members should be familiar with the content if they are enrolled in the agricultural education course. The purpose of this activity is to promote consumer agricultural awareness of food safety. This activity can stand alone at any given point in the school year, or it can be presented as part of an event sponsored by the FFA chapter, like during National FFA Week, for example. At the FFA chapter meeting, divide students into groups to plan the commercial. Groups can include topics like script, costume, props, where these groups are responsible for preparing that aspect of the commercial. Use chapter meeting time to practice and record the commercial. This activity may span over two chapter meeting times, unless the participating FFA members are in a class period together and class time can be used.

SAE activity:

Exploring Food Safety Programs: Research industry-based food safety programs that are government regulated and those that are not government regulated. Create an informational poster about the programs including who/ what they are, what they regulate, and other important information about the program.

Great job, Team 4! Let's think about the different kinds of foods we find in the grocery store. What are some critical points you can think of that **HACCP** might apply to for the production of those foods? Remember the example of packaging meat.

Think about other facilities or processes that **HACCP** might apply to. Write your response. You have 30 seconds starting NOW!

Allow time for students to complete this.

OK, time is up. You now have 30 seconds to discuss your thoughts with your teammates, starting NOW!

Allow time for students to complete this.

Time is up. Now let's share your responses with the class.

Call on a few students to share their responses. Excellent job!

So, let's do a quick recap. What are the three main programs that help agriculturalists maintain their safety responsibilities in the food supply?

Answer: **GAP's**, **GMP'S**, and **HACCP**.

Great! And how do these programs help ensure a safe food supply?

Possible responses: they enforce rules for producers to follow, they set standards for producers and manufacturers, provide guidelines that ensure safety, etc.

Excellent! You did a great job creating our book. It will be on display in the media center starting tomorrow.



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Evaluation

MS.FS.1.5.ASSESS.A Class Book

MS.FS.1.5.ASSESS.B

Answers to Evaluation

1. A
2. Any of the following are correct: soil, manure, cooling units, ice, transport vehicles, poor employee hygiene
3. B
4. D
5. C



- I. To meet food safety standards, safety responsibilities exist for agriculturalists involved in the food supply continuum to minimize consumer health risks.
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 - B. **Good Agricultural Practices (GAP's):** environmental and operational conditions necessary for the production of safe, wholesome fruits, vegetables, and livestock.
 1. Specific guidelines for fruit, vegetable, and livestock producers to follow to ensure safe products.
 2. To ensure a safe food supply, producers are responsible for minimizing risks caused by potentially threatening sources that are a part of the production process: soil, manure, cooling units, ice, transport vehicles, poor employee hygiene
 3. **GAP's** include practices like good hygiene of employees, clean storage facilities, water quality monitoring, record keeping for the farm operations, harvest and storage sanitation, safe handling of manure, following all on-farm safety practices and procedures, etc.
 - C. Similar to **GAP's: Good Manufacturing Practices (GMP's):** established quality systems for manufacturers to ensure that their products meet specific requirements to ensure safe products.
 1. **GMP's** is a government-regulated program
 2. Record-keeping, documentation, training, evaluation, and inspections help ensure that **GAP's** and **GMP'S's** are being implemented by businesses/operations.
 - D. **Hazard Analysis and Critical Control Points (HACCP):** identifies points in food handling where contamination is likely to occur.
 1. HACCP provides steps to take to manage and reduce the contamination of food, and applies to facilities and processes, like the process of packaging meat or a facility where ice cream is made.
 2. Larger processors are more likely to have a HACCP plan than small processors.
 3. HACCP is a government-regulated program.
 4. HACCP aims to prevent potential microbiological, chemical, and physical hazards in foods.



Responsibility Cards

Team 1

Cover of book and introduction page. Hint: For more information to add to the introduction, use your notes from the previous lessons to introduce the topic of the food supply. You are also responsible for a title for the book – be creative!

1. To meet food safety standards, safety responsibilities exist for agriculturalists involved in the food supply continuum to minimize consumer health risks.
2. Food sanitation: the process of keeping the areas where food is processed and prepared clean.

Team 2 — GAP's

1. Good Agricultural Practices (GAP's): environmental and operational conditions necessary for the production of safe, wholesome fruits, vegetables, and livestock.
2. Specific guidelines for fruit, vegetable, and livestock producers to follow to ensure safe products.
3. To ensure a safe food supply, producers are responsible for minimizing risks caused by potentially threatening sources that are a part of the production process: soil, manure, cooling units, ice, transport vehicles, poor employee hygiene
4. GAP's include practices like good hygiene of employees, clean storage facilities, water quality monitoring, record keeping for the farm operations, harvest and storage sanitation, safe handling of manure, following all on-farm safety practices and procedures, etc.

Team 3 — GMP's

1. Similar to GAP's: Good Manufacturing Practices (GMP's): established quality systems for manufacturers to ensure that their products meet specific requirements to ensure safe products.
2. GMP's is a government-regulated program
3. Record-keeping, documentation, training, evaluation and inspections help ensure that GAP's and GMP's are being implemented by businesses/operations.

Team 4 — HACCP

1. Hazard Analysis and Critical Control Points (HACCP): identifies points in food handling where contamination is likely to occur.
2. HACCP provides steps to take to manage and reduce the contamination of food, and applies to facilities and processes like the process of packaging meat or a facility where ice cream is made.
3. Larger processors are more likely to have a HACCP plan than small processors.
4. HACCP is a government-regulated program.
5. HACCP aims to prevent potential microbiological, chemical, and physical hazards in foods.



Name _____

Directions: Read each statement and circle the letter next to the correct answer.

1. **Food sanitation is the process of keeping the areas where food is processed and prepared clean.**
 - A. True
 - B. False
2. **Two potential risks to supplying safe food identified by Good Agricultural Practices are...**
 - A. soil and good employee hygiene
 - B. temperature and air pressure
 - C. population and salary rates
3. **Good Agricultural Practices and Good Manufacturing Practices are not government regulated programs.**
 - A. True
 - B. False
4. **Hazard Analysis and Critical Control Points (HACCP) aims to prevent potential _____ hazards to our foods.**
 - A. Chemical
 - B. Biological
 - C. Microbial
 - D. All of the above
5. _____ **identifies points in food handling where contamination is likely to occur.**
 - A. GMP's
 - B. GAP's
 - C. HACCP
 - D. All of the above



Team Book Page Rubric

	0	5	10	Total
Content	The content on the page does not reflect the content provided in class.	Most of the content is included, but some has been left out.	All of the content has been included in the book page.	
Neat/Creative	Book page is messy, hard to read, not colorful, not presentable.	Book page is somewhat neat, colorful, presentable.	Book page is very neat, creative, colorful, and presentable.	
Complete	Book page is incomplete, did not finish the assignment in the time provided in class.	Book page is somewhat complete, mostly finished the page except for minor details to the illustration or text.	Book page is complete, finished assignment in the time frame provided in class.	

Total Score: _____