



Stop the Spread – A look at human and animal health issues

Middle School Food and Agricultural Literacy Curriculum

Precepts

- E. Awareness
- E1. Address issues important to the community

National Standards

- FPP.02.03.03.a Describe the effects food-borne pathogens have on food products and humans.
- AS.03.01.05.a. Identify and describe zoonotic diseases
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.6 – Science in Personal and Social Perspectives

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...
- Differentiate between human health issues and animal health issues.

Content Outline

Objective 1. Differentiate between human health issues and animal health issues.

- I. **The difference between human health issues and animal health issues.**
 - A. Human health issues: health issues affecting only humans.
 - 1. Cannot be spread from humans to animals.
 - 2. Cannot be caught by humans from animals.
 - 3. Human health issues can be **contagious** among humans, or not **contagious**, like the common cold or cancer.
 - 4. **Contagious** – spreads easily through contact

Time

Instruction time for this lesson: 45 minutes.

Resources

Centers for Disease Control and Prevention, Department of Health and Human Services. (2008). National Center for Zoonotic, Vector-Borne, and Enteric Diseases. Retrieved August 17, 2009, from <http://www.cdc.gov/nczved/> —Centers for Disease Control and Prevention, Podcasts at CDC. (2008). Put Your Hands Together. Retrieved August 19, 2009, from <http://www2a.cdc.gov/podcasts/player.asp?f=10109#> — National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success. — United States Department of Agriculture, Animal and Plant Health Inspection Service. (2007). About APHIS. Retrieved August 16, 2009, from http://www.aphis.usda.gov/about_aphis/

Tools, Equipment, and Supplies

Video clip, "Put Your Hands Together" found at <http://www2a.cdc.gov/podcasts/player.asp?f=10109#>
Computer with speakers, or newspaper article
Overhead projector/transparencies
Tape
Plush ball or similar object
Blank index cards – one per student
MS.FS.1.7.TM.A – one per teacher
MS.FS.1.7.TM.B – one per teacher; cut out the clue cards and paste them onto index cards.
MS.FS.1.7.ASSESS.A – one per student

Key Terms

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

Zoonotic Disease

Contagious

Center for Disease Control

Animal and Plant Health Inspection Service (APHIS)

National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED)

- 5. Other human health issues can come from food, yet are not animal related. For example, improper storage or handling of food can result in food-borne illness or food poisoning, like eating egg salad after it has been sitting on the counter for three hours.
- B. Animal health issues: health issues affecting only animals.
 - 1. Cannot be spread from animals to humans.
 - 2. Cannot be caught by animals from humans.



Stop the Spread – A look at human and animal health issues

Interest Approach

Show the class the video "Put Your Hands Together" which can be found at <http://www2a.cdc.gov/podcasts/player.asp?f=10109#>. This three minute and 48- second video can also be presented in the form of a podcast if you have access to a class set of iPods. Project the video for the class using a projector and screen through your computer. After students watch the video, have a short discussion with the class about what they saw.

If for some reason you cannot access this particular video, find a newspaper article or television news report about a human-animal health issue to use for this activity. Any current event will be appropriate. After presenting it to the class, proceed in the same manner with a discussion about what they read or saw.

We have all been sick with a cold or the flu. Think about a time when you have been sick. What symptoms did you have?

Allow students to share their responses.

Great! Unfortunately, it is no fun to be sick as we have all experienced. Today, we are going to learn about the difference between human and animal health issues. So, we are going to intently watch a brief video called "Put Your Hands Together." Be prepared to discuss this video when it is over.

Begin the video.

When the video is over, begin the discussion.

What surprised you about the information in the video?

Allow a few students to share their responses.

What have you learned today that you didn't already know about the spread of germs?

Allow a few students to explain their responses.

Great! So, we have all heard our parents tell us to wash our hands, cover our mouths, and use hand sanitizer to try to prevent the spread of germs. An act as simple as washing your hands after touching the animals at the county fair can help prevent an outbreak of E.coli, for example. Those are definitely good practices and rules to follow, and we should always keep those rules in mind.

3. Animal health issues can be **contagious** among animals within the same species, or **contagious** among animals of varying species, like Salmonella in horses or E.coli in farm animals.
 4. Animal health issues can also be unique to the animal, therefore not **contagious** among humans or animals, like colic in horses.
- C. Zoonotic health issues: health issues affecting both humans and animals.
1. Diseases that can be transferred from animals to humans or from humans to animals, like Salmonella, rabies, H1N1, or E. coli.
 2. **Zoonotic diseases** can be spread through direct contact with the infected animal or by consuming a contaminated animal product.
 3. E. coli is an example of a zoonotic human-animal health issue that can be transferred both by consuming contaminated meat and by coming in contact with an infected live animal.
 4. H1N1 is an example of a zoonotic human-animal health issue that can only be transferred by coming in contact with an infected animal, not by consuming the animal products.
 5. Other health issues like West Nile Virus, carried and spread by infected mosquitoes, can be harmful to both humans and animals.
- D. The United States Department of Agriculture (USDA) and **Center for Disease Control (CDC)** help monitor, regulate, research, and prevent human-animal health issues.
1. USDA **Animal and Plant Health Inspection Service (APHIS)**: sets regulations and plans to help protect and promote the safety of agricultural animals and reduce health risks.
 2. **CDC National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED)**: responsible for working to understand, prevent, control, and if possible, eliminate infectious diseases within a larger ecologic context, as this is a global effort.



Lesson Number: MS.FS.1.7

Middle School Food and Agricultural Literacy Curriculum

Stop the Spread – A look at human and animal health issues

Those are the little things that keep our community healthy. Hopefully, by the end of class today, you will be ready to spread the word to your parents and members of our school community about the truth behind human health issues and animal health issues.

Summary of Content and Teaching Strategies

Objective 1. Differentiate between human health issues and animal health issues.

The content for this lesson is going to be taught using the Go Get It e-Moment®. The content for the lesson is divided into clue cards, which will be numbered in order and can be found at **MS.FS.1.7.TM.B**. Cut out the chunks of information and paste them onto index cards. Before students arrive, hide the cards around the room: tape them under desks, behind chairs, on doors or tables, between books, or anywhere else you have available and easily accessible for students. When you are ready to begin the activity, signal the students to move around the room to find the cards. They can move around the room independently, with a partner, or in small groups of three, but they must remember to find all of the cards. Once the cards are found, have the students show you the card so you can keep track of how many cards are left to be found. When all the cards have been found, the students will return to their seats and take turns presenting the information on the cards. The students who found the cards independently will share independently, and those who found the cards in pairs or in groups will share in pairs or groups by reading the information aloud in unison.

As mentioned earlier, today we are going to learn about the difference between human health issues and animal health issues, and the health issues that pose a threat to both humans and animals.

The job today is to be focused investigators, and when you hear INVESTIGATE, the mission is to find the clue cards that are hidden around the room. These clue cards contain very important information that will be shared with the class once all of the cards are found. Search for the cards independently, with a partner, or in small groups of three.

Once you find a card, please show me what you have found, and then you must be seated. There are 10 clue cards, so the entire class should not be seated unless all 10 cards have been found. There will be three minutes to complete this mission.

Time can be adjusted depending on class size, where the cards are hidden, and difficulty of finding the cards.

What questions are there? INVESTIGATE!

At this time, all students should be out of their seats and actively trying to find the cards. Walk around the room to keep students on task and give them clues if they have trouble finding the clue cards. Remind students to be seated once they find the cards. Give the class a minute warning, and then a 30-second warning that time is running out, so they will know how much time is left and will work harder to find the clue cards. Place a blank index card on each desk while students are finding cards. Once everyone is in their seats, proceed with the presentations.

Awesome job being focused investigators and following directions! You managed to find all of the clue cards! In just a moment we are going to share the information on our cards. Since the cards are numbered, we are going to share in order, starting with number 1.

Let's keep the pace moving smoothly by being intent listeners and ready to share when it is your turn. If you found your card independently, you can stand up and read the information. If the card was found with a partner or in a group, read the information in unison. On the desks will be a blank index card to write down one fact from each group presentation. What questions are there? OK, let's begin with number 1.

Continue with presentations until all of the cards have been read. Be sure to check for questions in between presentations by asking the class what questions there are. Once all of the clue cards have been presented, proceed with the review.



Lesson Number: MS.FS.1.7

Middle School Food and Agricultural Literacy Curriculum

Stop the Spread – A look at human and animal health issues

Review/Summary

Using a plush ball of any sort, or an object that is safe to pass around, have students share with the class something new they learned today. Repeated answers are acceptable because it will help the students remember the information. Begin the review by using the popcorn strategy, by you going first sharing something new to you, and then select a student to go next by passing the object to that student. After one student shares, the next student is chosen by passing the object to that person, and so on. Continue with this for the remainder of the class or until everyone has had a chance to share. Remind students along the way who may be hesitant to share because they already heard their answer that it's perfectly OK to share repeats.

Excellent presentations! Now, I am very excited to hear about what you have learned today. We are going to go around the room and each of us is going to share something new we have learned today. I am going to go first, and after I share, I am going to pass the ball to the person I want to go next. Then, that person will share and pass along the ball to the person of their choice, and so on. What questions are there? Great! Let's begin.

At this point, share what you have learned and pass the ball along to the next student.

Application

Extended classroom Activity:

Using the information found during the lesson, students can create informational brochures or flyers. These flyers or brochures can be used in conjunction with the FFA activity below to promote accurate information about human health issues and animal health issues. This activity will also give students an opportunity to use their knowledge and skills from the previous lesson, **MS.FS.1.5** on reliable information, as they will be responsible for creating a reliable resource for their audience.

FFA Activity:

Human Health versus Animal Health Issue Seminar: FFA chapter members can plan a seminar on human versus animal health issues. The purpose of the seminar will be for the students to present this information to others, providing the audience with accurate information about this important issue. The seminar can be planned and designed around the information students found as part of their class project. Members can decide how to present the information, including if props, video clips, or technology will be used. The seminar can be presented for parents at the next chapter meeting, for teachers and/or students at school, at an alumni meeting, or other event of your choice.

SAE Activity:

Research different **zoonotic diseases**: Each student can research a different **zoonotic disease** of their choice and determine how it spreads, the symptoms, if there have been any recent outbreaks, treatment, and other important information about it. They can create an informational poster or write a research paper.

Evaluation

MS.FS.1.7.ASSESS.A

Answers to Evaluation

1. A
2. C
3. APHIS and ZVED
4. A
5. B



Objective 1. Differentiate between human health issues and animal health issues.

I. The difference between human health issues and animal health issues.

A. Human health issues: health issues affecting only humans.

1. Cannot be spread from humans to animals.
2. Cannot be caught by humans from animals.
3. Human health issues can be **contagious** among humans, or not **contagious**, like the common cold or cancer.
4. **Contagious** – spreads easily through contact
5. Other human health issues can come from food, yet are not animal related. For example, improper storage or handling of food can result in food-borne illness or food poisoning, like eating cheese pizza after it has been sitting on the counter for three hours.

B. Animal health issues: health issues affecting only animals.

1. Cannot be spread from animals to humans.
2. Cannot be caught by animals from humans.
3. Animal health issues can be **contagious** among animals within the same species, or contagious among animals of varying species, like Salmonella in horses or E.coli in farm animals.
4. Animal health issues can also be unique to the animal, therefore not **contagious** among humans or animals, like colic in horses.

C. **Zoonotic** health issues: health issues affecting both humans and animals.

1. Diseases that can be transferred from animals to humans or from humans to animals, like Salmonella, rabies, H1N1, or E. coli.
2. **Zoonotic** diseases can be spread through direct contact with the infected animal or by consuming a contaminated animal product.
3. E. coli is an example of a **zoonotic** human-animal health issue that can be transferred both by consuming contaminated meat and by coming in contact with an infected live animal.
4. H1N1 is an example of a **zoonotic** human-animal health issue that can only be transferred by coming in contact with an infected animal, not by consuming the animal products.
5. Other health issues like West Nile Virus, carried and spread by infected mosquitoes, can be harmful to both humans and animals.

D. The United States Department of Agriculture (USDA) and Center for Disease Control (CDC) help monitor, regulate, research, and prevent human-animal health issues.

1. **USDA Animal and Plant Health Inspection Service (APHIS)**: sets regulations and plans to help protect and promote the safety of agricultural animals and reduce health risks.
2. **CDC National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED)**: responsible for working to understand, prevent, control, and if possible, eliminate infectious diseases within a larger ecologic context, as this is a global effort.



Clue Cards

Number 1

There are different kinds of health issues that affect humans and animals. Some of those health issues also impact our food supply. Producers work extra hard to ensure that the food supply is kept safe from those health issues. There are many differences between human health issues and animal health issues.

Number 2

Human health issues are health issues affecting only humans. They cannot be spread from humans to animals. Human health issues also cannot be caught by humans from animals. Human health issues can be contagious among humans, like the common cold, or not contagious, like cancer. Contagious means that the illness spreads easily through contact with the infection or germs.

Number 3

Other human health issues can come from food and not be animal related. For example, improper storage or handling of food can result in food-borne illness or food poisoning, like eating egg salad after it has been sitting on the counter for three hours.

Number 4

Animal health issues are health issues affecting only animals. They cannot be spread from animals to humans. Animal health issues also cannot be caught by animals from humans. Animal health issues can be contagious among animals within the same species, or contagious among animals of varying species. Animal health issues can also be unique to the animal, therefore not contagious among humans or animals, like colic in horses.

Number 5 Zoonotic health issues: health issues affecting both humans and animals. Diseases that can be transferred from animals to humans or from humans to animals, like Salmonella, rabies, H1N1, or E. coli.	Number 6 Zoonotic diseases can be spread through direct contact with the infected animal or by consuming a contaminated animal product. E. coli is an example of a zoonotic human-animal health issue that can be transferred both by consuming contaminated meat or by coming in contact with an infected live animal.
Number 7 H1N1 is an example of a zoonotic human-animal health issue that can only be transferred by coming in contact with an infected animal, not by consuming the animal products. Other health issues like West Nile Virus, carried and spread by infected mosquitoes, can be harmful to both humans and animals.	Number 8 The United States Department of Agriculture (USDA) and Center for Disease Control (CDC) help monitor, regulate, research, and prevent human-animal health issues. USDA Animal and Plant Health Inspection Service (APHIS): sets regulations and plans to help protect and promote the safety of agricultural animals and reduce health risks.
Number 9 The CDC National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED) is responsible for working to understand, prevent, control, and if possible, eliminate infectious diseases within a larger ecologic context, which is a major global effort.	Number 10 A few steps we can take to prevent the spread of human health risks and animal health risks is to • Wash your hands with soap and warm water • Prepare and store food properly • Keep animals healthy by monitoring their health and nutrition



Multiple Choice

Name _____

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

1. **Human health issues can be contagious among humans, but cannot be transferred to animals.**
A. True
B. False
2. **Health issues that can be spread from humans to animals or from animals to humans are called _____ diseases.**
A. Virus
B. Contagious
C. Zoonotic
D. None of the above
3. **All human health issues and animal health issues are contagious.**
A. True
B. False
4. **Zoonotic diseases can be spread by human contact with an infected animal or by human consumption of the contaminated food product.**
A. True
B. False

Short answer.

5. **List two government agencies that are responsible for research, regulations, and prevention of the spread of human-animal health issues as listed in class.**
A. _____
B. _____