

GEORGIA AG EXPERIENCE

A MOBILE CLASSROOM POWERED BY



LESSON TITLE: "Poultry"

Subject: Biosecurity in Poultry	Grade Level: 3-5	Estimated Time: 1 hour
Resources & Materials: Microorganism PowerPoint, hairnet, booties, disposable coveralls, facemasks, black bulletin board paper, baby powder, water in bowl large enough to fit feet , white marker (to label paper), Chicken on the Move Worksheets, Posters with pictures and names for the six places (Hatchery, Farm in Minnesota, Production Facility, Transportation Vehicles/Chicken Trucks, Wild Ducks, Farm in Nebraska), Slips of paper with the groups and with the directions for the activity (Bulleted list in the Learning Activity 3, Brief Content Area)		
References: • J. P. Jacob, G. (2018, March 07). Avian Influenza in Poultry. Retrieved from https://edis.ifas.ufl.edu/ps032 • Melton, A., MacLachlan, M., & Ramos, S. (2017, December). Impacts of the 2014-2015 Highly Pathogenic Avian Influenza ... Retrieved from https://www.ers.usda.gov/webdocs/outlooks/86282/ldpm-282-02.pdf?v=2090.1 • Singh, M., & Dunkley, C. (2020, April 01). Biosecurity for On-Farm Pathogen Control in Poultry. Retrieved from https://extension.uga.edu/publications/detail.html?number=B1306		
Standards: SS14.b Construct an argument using scientific evidence to support a claim that some microorganisms are harmful.		
Learning Objectives: 1. The students will be able to define biosecurity as it pertains to the agricultural industry individually to 80% accuracy. 2. The students will be able to track the path of pathogens from multiple poultry related settings in a scavenger hunt activity, correctly answering 5 out of 6 questions on the correlated sheet. 3. The students will be able to describe methods of reducing the spread of microorganisms in agricultural settings and at home to 85% accuracy.		
Guiding Background Knowledge & Fun Facts: Ask Students what they know about germs and pathogens and spreading germs at home or at school.		

INTEREST APPROACH:

Estimated Time: 3 Minutes
Ask students if there are methods that their parents or doctor have told them to avoid getting sick. (Washing their hands, wearing a mask in light of Covid-19, getting vaccinations, eating a healthy diet, etc.) Explain that while we know how we get sick and ways to prevent that, animals can also get sick and we have ways to prevent that too, and that we would be talking about what causes that sickness and ways for prevention in the case of poultry.

LEARNING ACTIVITY #1: Microorganisms and Biosecurity Overview

Estimated Time: 18 minutes
Resources & Materials: Instructor Directions: Review material before presenting it to students. Teach material to serve as background knowledge for the second and third learning activities. Materials: Microorganism PowerPoint, hairnet, booties, disposable coveralls, and facemasks
<u>Vocabulary:</u> Hatchery: facility that raises chicks from eggs before they are transferred to the farm Microorganism: microscopic (tiny) organisms that can have one or many cells Biosecurity: procedures used to prevent the introduction and spread of microorganisms in poultry flocks. Layers: chickens raised for laying eggs
Instructor Directions: Microorganism and Biosecurity Overview: So what makes us and animals sick? Microorganisms make us and animals sick! *Microorganisms Microorganisms or microbes are microscopic (tiny) organisms that can have one or many cells. Some microorganisms are helpful, but others can make us or animals, such as poultry, sick. *How do Microorganisms/sickness spread? In poultry houses... -On contaminated equipment -Exposure to contaminated footwear or clothing of humans -From bird to bird *Why is it bad when animals get sick? -How do you feel when you are sick? The animals are not happy or healthy.

-Farmers need the animals to make a living. If the animals are sick or die, the farmer can no longer sell that animal and lose money.

***Avian Influenza**

Avian=Bird

Influenza= Flu (Sickness)

BIRD FLU!

This is a kind of microorganism that can make birds sick.

***Symptoms in Chickens**

-Ruffled feathers

-Loss of appetite

-Drop of egg production

-Trouble breathing

-Inability to walk or stand

***Avian Influenza Outbreak of 2014-2015**

-A major outbreak (a pandemic of sorts) impacted the poultry industry in 2014 and 2015.

-Occurred mostly in the Midwest and hit Minnesota particularly badly.

LEARNING ACTIVITY #2: Chickens on the Move

Estimated Time: 15 minutes

Resources & Materials:

Chicken on the Move Worksheets, Posters with pictures and names for the six places (Hatchery, Farm in Minnesota, Production Facility, Transportation Vehicles/Chicken Trucks, Wild Ducks, Farm in Nebraska), Slips of paper with the groups and with the directions for the activity (Bulleted list in the Learning Activity 3, Brief Content Area)

Vocabulary:

- **Hatchery:** a place to help young animals develop inside their eggs and then break out or be born.

Instructor Directions:

Prepare the room by hanging posters of each of the six areas and review the content outlined.

- Hatchery
- Farm in Minnesota
- Production Facility
- Transportation Vehicles/Chicken Trucks
- Wild Ducks
- Farm in Nebraska

Teaching Procedure:

Put students in six different groups. Pass out the Chicken on the Move Worksheet to each student or one per group. Assign each group with an area to go first (i.e. Your group will be chicks at the hatchery.) This can be randomly or strategically chosen by the instructor. Direct the student to move

to their first location in the room. If they were assigned as the chicks at the hatchery, they should go to the hatchery station. At each station, they should find a slip of paper that directs them to go to their next location, so the hatchery chicks should go to the farm in Minnesota next. However, to decrease chaos, only allow students to rotate stations when instructed by the teacher. Before they rotate to the next station ensure they mark on the worksheet where they are supposed to travel. Repeat the last step for the four rotations. Every group should end at the processing facility except for the wild ducks and the farm in Nebraska. Ask students why they think this was the result. Place emphasis on the fact that the wild ducks were the source of the pathogen and the farm from Nebraska probably used more effective biosecurity measures.

Chickens on the Move Activity:

Your group will be chicks at the hatchery.

- First: Move to a farm in Minnesota.
- Second: Move to the transportation vehicle/chicken truck.
- Third: Contract the pathogen from the Wild Ducks.
- Fourth: Carried the pathogen to the production facility.

Your group will be chickens from a farm in Minnesota.

- First: Moved to farm in Nebraska.
- Second: Contract the pathogen from Wild Ducks.
- Third: Carried the pathogen to the transportation vehicle/chicken truck.
- Fourth: Carried the Pathogen to the production facility.

Your group will be workers at a production facility.

- First: Contract the pathogen from Wild Ducks.
- Second: Carried the pathogen to chickens from a farm in Nebraska.
- Third: Carried the pathogen to chicks at the hatchery.
- Fourth: Carried the pathogen to the production facility.

Your group will be transportation vehicles/chicken trucks.

- First: Move to the hatchery.
- Second: Pass by the production facility.
- Third: Move to farm in Minnesota.
- Fourth: Contract the pathogen at the production facility.

Your group will be wild ducks:

- First: Carried the pathogen to the worker from the production facility.
- Second: Carried the pathogen to chickens from a farm in Minnesota.
- Third: Carried the pathogen to chickens from a farm in Nebraska.
- Fourth: Carried the pathogen to the hatchery.

Your Group will be chicks from a farm in Nebraska.

- First: Move to the transportation vehicle/chicken trucks.
- Second: Pass by the hatchery.
- Third: Pass by the production facility.
- Fourth: Move to a farm in Minnesota.

Content/Procedure: Engage, Explore, Test and Improve

Engage:

Students participate in an activity where they will learn how germs and bio hazards can be transmitted from place to place

Explore:

Asking the students to break up into different groups to represent different stages and steps in the poultry industry helps them learn about the need for sanitization practices at each step.

Test and Improve:

Students will be asked a series of questions to help connect all activities in the lesson to gain comprehensive knowledge on biosecurity in the poultry industry.

LEARNING ACTIVITY #3: Pathogen Spread

Estimated Time: 20 Minutes

Resources & Materials:

- Black bulletin board paper
- Baby Powder
- Water in bowl large enough to fit feet
- White marker (to label paper)

Vocabulary:

- **Pathogens:** tiny living organism, such as a bacterium or virus, that makes people and animals sick.

Instructor Directions:

Lay out a long sheet of black bulletin board paper on the floor. Ask for three volunteers. As students complete the activity emphasizes how much or the lack of baby powder ("pathogens") are shown on the black paper. Explain how the water after the baby powdered represented a dip bucket. The dip bucket and the booties are both successful methods to limit pathogens

Three students will volunteer to remove their socks and shoes in order to participate in this activity.

One student will dip their feet in a bowl of water then into baby powder. The baby powder is used to represent pathogens.

The student will then walk with their baby powdered feet on the sheet of black bulletin board paper starting at the label "entrance of poultry house" at the beginning of the walk and "exit" labeled at the end.

The student will then have a paper towel to clean their feet and will put on their socks and shoes.

The second student will then come up and repeat the process but dip in water an additional time to remove the baby powder just applied.

The student will walk the length of the bulletin paper like the previous student then washes off their feet and put on their shoes.

Finally, the last student will dip their feet in water, then baby powder, and then will put on their booties (or plastic bags if booties are unavailable) before stepping onto the paper. Once the booties are on, the student will follow the same path as the previous volunteers.

Once the three volunteers have finished, instruct students to return to their desks and write 3-5 sentences on the following writing prompt: Using examples from the activity, why do we use biosecurity measures?

Content/Procedure: Engage, Explore, Test and Improve

Engage:

Students participate in an activity where they learn how germs and pathogens are tracked from one place to another.

Explore:

Through the activity students learn how important it is to maintain a clean environment around animals to keep them healthy.

Test and Improve:

Students will combine their knowledge to complete the scavenger hunt worksheet and pathogen spread activity participation.

SUMMARY: Reflection

Estimated Time: 3 Minutes

Questions for review:

- What is biosecurity?
- What did the baby powder and water represent?
- How does biosecurity help to keep animals happy and healthy?

EVALUATION:

Estimated Time: N/A

Formative: Scavenger Hunt/Worksheet and Pathogen Spread Activity participation

Summative: The decision is up to the teacher to choose if a summative assessment is needed.