Time Needed: 60 minutes

Supplies:

- Duke TIP slideshows and videos (4)
- Center for Disease Control Flu Prevention page
- Art supplies for brochures or posters, or access to a Web 2.0 tool such as Thinglink that allows students to create interactive images (visuals with annotations)
- Duke TIP Public Health Message Rubric

See the end of this lesson for science standard correlation.

Content Objectives: Students will know:

- The definition of pathogen
- Potential pathogen paths

Skill Objectives: Students will be able:

- To utilize observation skills to assess the potential for a disease outbreak to occur
- To identify possible sources of disease
- To brainstorm important content for a public health brochure for a petting zoo

Essential Understandings: Students will understand:

- One important task of the epidemiologist is to make recommendations to control and stop a disease outbreak.
- A disease outbreak may have multiple, plausible potential sources.
- Basic principles of epidemiology are useful in determining a likely pathogen.
- Certain behaviors or practices may be a factor in the spread of pathogens.

Essential Question: Students will explore:

- What are potential pathogen paths?
- How do we inform the public about them?
- How do we influence people's behaviors to protect them against disease?

Activities

Prework:

Present students with the next day's challenge: You and your classmates are team members who manage a petting zoo for kids at the State Fair. There have been illness outbreaks before and you must make sure your petting zoo is not providing the potential cause.

Students should watch the two Duke TIP slideshows (Pathogens and Paths of Pathogens) and jot down any information relevant to an employee who manages a petting zoo. What potential pathogens might we find in our petting zoo? What are the potential paths?

- Pathogens (7:34)
- Paths of Pathogens (4:49)

Group Challenge and Video Observation (5-10 minutes)

Share with the students the public health problem they will tackle today: the petting zoo at the State Fair as a potential location for disease spread. Bad news update: a parent just posted on YouTube her footage of her kids' day at the petting zoo and the comments are blowing up with concerns about petting zoo safety!

If the team does not determine what information the public must know before they enter the petting zoo, warn them of potential diseases, and publicize this information appropriately, then the petting zoo will be shut down.

Watch the petting zoo observation video as a class and tell students to add to their homework notes as they ask themselves, What are the potential paths for pathogens?

- Petting Zoo (1:00)

Play the video multiple times if needed.

Connect the Dots (20)

Students should meet in assigned groups to list all the information to communicate to petting zoo visitors. They should complete a chart:

Key Information for the Public	Helpful Words and Images	Best Ways to Share Information

Reporting In (20)

Ask groups to report in as you answer these questions as a class.

- What information is most essential for visitors to the petting zoo to know—need to know versus nice to know? Why?
- What is bonus but distracting information? How do you know?
- What key words and images might be helpful in conveying to the public where pathogens lie and potential paths? Why?
- What tone do we want to strike to get the message across?
- How should we communicate so we can ensure that behaviors change?
- Should we communicate in a same or different manner to parents and children? Why?
- What would be the best methods of sharing this information with the public in the petting zoo space?

Modeling

This is how the Center for Disease Control sets up its web page to encourage people to protect themselves against the flu. What can we learn from

- Information shared on this page
- The key image and its icons?

What is working? What is not, when you think about the questions we just discussed for the context of a petting zoo?

Homework or Next-Day Challenge

Invite students to consider these questions as they create an interactive image, a brochure, or a poster to get the public's attention so that disease transmission can be prevented in the petting zoo. If students are particularly interested in effective communications and public health, they can research other governmental and corporate organizations whose specialty is public health awareness. This CDC fact sheet on disinfecting schools can also be reviewed.

Use the Duke TIP Public Health Message rubric as students peer review and you review their messaging. You can also practice with this student brochure model, Katherine's Flyer, and discuss what she has done well and where her communication could be improved.

Students particularly excited about other methods of communicating key public health concepts might enjoy watching and analyzing two videos showing how hospitals communicate ways to ensure infection control at their institutions. They might decide to develop their own video to help their peers know how to prevent disease outbreaks at your school.

- Infection Control: break the chain
- Wash your hands—it just makes sense
- Handwashing Gangnam Style

Science Standard Correlation

The North Carolina Science Essential Standards, 8th grade Science

8.L.1. Understand the hazards caused by agents of diseases that affect living organisms.

- 8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.

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- 8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.
- 8.L.1.2 Explain the difference between epidemic and pandemic as it relates to the spread, treatment and prevention of disease.