Class Starters & Enders

Making the Most of Instructional Time
Five Minute Lessons

Class Starters and Enders help utilize the last minutes of class when a lesson ends but there is not enough time to start another, or for an interest approach at the beginning of class. Mini-lessons correlate to GPS in the programs areas below.

Animal to Human—Zoonotic Diseases

Program Areas: Healthcare, Veterinary Science, and Animal Science

Instructions: Read the material and make notes of important points, answer questions, and be ready to discuss this topic.

Sneezing and coughing are ways humans spread colds, influenza, and other diseases between each other, but did you know there are some diseases which can be spread between humans and animals?

These are called **zoonotic diseases**, and they are usually **transmitted** between **vertebrate** animals. However, zoonotic diseases are caused by **pathogens**, such as parasites, fungi, bacteria, and viruses. These pathogens can survive in **reservoir hosts**, animals which harbor the pathogen without contracting the disease.

Animals such as bats, rodents, and insects can spread various types of zoonotic diseases – including rabies, ebola, and West Nile virus – to humans.

Though many species of animals can contribute to the spread of zoonotic diseases, the ones most associated with it include bats, birds, rodents, insects, and small apes. About 60 percent of all diseases can jump between species, usually by humans coming into contact with infected animals, their environments, and their feces. This is one reason why washing hands often and cooking food properly are so important.

One of the most famous zoonotic diseases is the **bubonic plague**. This affected Europe in the Middle Ages and can still be found today in some countries. Infected fleas bite humans, and the plague-causing bacteria travel to a **lymph node**, which the bacteria cause to swell as it reproduces. In some cases, the bacteria can travel to the bloodstream and even cause a pneumonia-like infection.

If you have a dog or cat, chances are you've had to give it a rabies vaccine. **Rabies** is a zoonotic disease caused by a virus. Wild animals, including raccoons, skunks, foxes, and bats – as well as unvaccinated domestic animals – can get rabies, and if an infected animal bites or scratches a human, they are able to spread the disease through saliva.

Both **avian influenza** and **West Nile virus** have been in the news a lot the past several years. Avian influenza is a **strain** of the flu virus which normally only infects birds, but evolved so humans can contract the virus from both wild and **domestic** birds and poultry. West Nile is spread by infected mosquitoes, and can cause disease in humans, horses, and other mammals.

Review

1. What pathogens cause zoonotic diseases?
2. What animals commonly spread zoonotic diseases?
3. What percent of diseases can leap between species?
4. How can humans contract zoonotic diseases?
5. How is bubonic plague spread?
6. What types of animals usually get rabies?
7. Name a zoonotic diseases in the news recently.
8. How is avian influenza spread?
9. T F Animals can catch diseases from humans.
10. What animals can contract West Nile virus?

Language Connection

Define the following terms.

Avian Influenza	Lymph Node	Reservoir Host	Vertebrate
Bubonic Plague	Pathogen	Strain	West Nile Virus
Domestic	Rabies	Transmitted	Zoonotic Disease

History Connection

Research the Spanish Influenza outbreak of 1918 and write a one-page report about it. Was this influenza strain zoonotic? Why or why not?

Science Connection

Research a zoonotic disease not mentioned in this class starter. Include the pathogen, transmission path, and human symptoms.