

Preventing Disease in Meat Animals

Skills: Language Arts

Objective: To develop research and interpretation skills while learning about livestock diseases.

Background

An important function of the US Department of Agriculture (USDA), the Centers for Disease Control and Prevention (CDC), the US Food and Drug Administration (FDA), and other government agencies, is to safeguard the health of American livestock and consumers. Epidemiologists are scientists employed by agencies like these to monitor disease outbreaks in human and animal populations. They often travel to the site of an outbreak and collect data regarding symptoms, the number of those affected, how widespread the disease is in the population, commonalities among those affected, and other clues as to the source and cause of the disease. Once the disease is identified, public health officials are better prepared to help the sick and control the spread of the disease, preventing additional cases.

Even in the absence of a disease outbreak, animal and human health is a top priority, and many routine procedures are in place to prevent the occurrence or spread of disease. Health inspectors check the cleanliness of restaurants and make sure food is being prepared at the right temperatures and handled in a sanitary way. Government inspectors and veterinarians check the conditions of processing plants and the health of the animals being harvested. Information on how to handle animals and foods safely (lessening the chances of contamination) is passed on to producers and consumers. Imported animals are quarantined, and surveillance measures are in place to monitor any potential threats to our food supply.

Activities

1. Read and discuss background.
2. Lead a discussion about root words associated with farm animals. (Bovine = cattle; equine = horse; porcine = pork; ovine = sheep; caprine = goats)
 - Hand out copies of the worksheet.
 - Students work in groups to complete the table by predicting which animal may be infected by which disease.
3. Students select an animal disease from the worksheet to research.
 - Review “How to Write a Research Paper” and “How Reliable Are Your Sources?” included with this lesson.
 - Suggest categories to get students started, e.g., cause of disease (bacte-

P.A.S.S.

GRADE 6

Reading—1.1a,2b; 5.1,2

Writing—1; 2.2,7; 3.1

Oral Language—2

GRADE 7

Reading—1.1,2b; 5.1,2

Writing—1; 2.8; 3.1

Oral Language—2

GRADE 8

Reading—1.1; 5.1,2

Writing—1; 2.8; 3.1

Oral Language—2

Resources Needed

computer/library access

ria, virus, etc.), incubation period, symptoms, treatment, species and number of animals affected annually, areas of state/country/world where disease occurs or is most problematic, etc.

—Students use online search engines or library reference resources to conduct research.

—Each student will write a short report over his/her chosen disease.

—Students will exchange papers for peer editing.

—Students will share their reports with the class via oral presentations.

—Students review predictions from the tables they completed in Activity # 2 to see how well they did with their predictions.

4. Students will use online search engines to research local, state, national and international agencies that focus on livestock or food safety.

—What are the specific roles of the different agencies?

—How are the agencies funded?

—What careers are available within each agency?

5. Students use online search engines to research new agencies, regulations, or career opportunities in which food safety have appeared since the 2001 terrorist attacks?

—Have any livestock diseases been used as bioweapons?

—Why would a country's livestock be a target for war or terrorist attacks?

Vocabulary

epidemiology—the study of the causes of diseases and how they are spread (and controlled)

quarantine—period of isolation from other animals, usually in a special facility designated for such purposes

surveillance—monitoring a population for the occurrence of a particular disease

Extra Reading

Friedlander, Mark P., *Outbreak: Disease Detectives at Work*, Lerner, 2001.

Goldsmith, Connie, *Invisible Invaders: Dangerous Infectious Diseases*, Twenty-first Century, 2006.

Max, DT, *The Family That Couldn't Sleep: A Medical Mystery*, Random House, 2006.

Tracy, Kathleen, *Robert Koch and the Study of Anthrax*, Mitchell Lane, 2004.

Sheen, Barbara, *Mad Cow Disease*, Lucent, 2004.

Name _____

Livestock Diseases

Place an X in the box below the farm animal you think is affected by the disease in the first column.

LIVESTOCK DISEASE	poultry	horses	sheep	cattle	swine
fowl cholera					
rinderpest					
fowl typhoid					
glanders					
avian tuberculosis					
hog cholera					
scrapie					
leptospirosis					
bovine spongiform encephalopathy (bse)					
listeriosis					
brucellosis					
equine encephalomyelitis					
equine infectious anemia					
pseudorabies					
equine influenza					
Q fever					
equine rhinopneumonitis					
West Nile virus					
foot and mouth disease					

Name _____

Livestock Diseases (answers)

Place an X in the box below the farm animal you think is affected by the disease in the first column.

LIVESTOCK DISEASE	poultry	horses	sheep	cattle	swine
fowl cholera	X				
rinderpest					X
fowl typhoid	X				
glanders		X			
avian tuberculosis	X				
hog cholera					X
scrapie			X		
leptospirosis				X	X
bovine spongiform encephalopathy (bse)				X	
listeriosis			X		
brucellosis				X	X
equine encephalomyelitis		X			
equine infectious anemia		X			
pseudorabies		X	X	X	X
equine influenza		X			
Q fever			X	X	
equine rhinopneumonitis					
West Nile virus	X				
foot and mouth disease				X	

How Reliable Are Your Sources?

When conducting research, make sure you use reliable information from legitimate sources. Reliable information is well-researched from sources that are well-respected and as objective, or neutral, as possible. The best way to find legitimate sources is to go to the library and use scholarly journals, reference books and other well-researched sources.

Another place to find information is the Internet. Conducting research on the Internet is convenient, but it can also be tricky. There are many thousands of Web pages that have little actual content and are mainly links to other pages, which may be links to other pages, and so on. Anyone can post anything to the Internet. To make sure you have found a reliable source of information, ask yourself these questions:

1. Who is responsible for the Web site? Is the Web page associated with a reliable organization, such as a university or a government agency? What interest does the organization responsible have in the information presented. For example, will the organization profit from the information presented?
2. Who wrote the information? If the author is not listed or has no credentials, it may not be a credible source. Pay attention to the author's credentials or experience. Is the source really an authority on this particular matter or someone with an impressive title that has no connection to the subject matter?
3. When was the information written? Is it current? Is it still relevant?
4. Are there other sources that agree with statements made on the site, or do other sources contradict this source? In that case you may need to search further. It's always a good idea to gather more than one source.
5. Are any sources cited? If the author does not document anything, then the information may simply be someone's opinion. If statistics used come from a survey, how was the data gathered? Who conducted the survey or poll? Was the sample representative of the population? How many were surveyed? What percent of the population?

When choosing between the library and the Internet keep in mind that up to 90 percent of the contents of college library collections are not on the Internet. Because of copyright laws it is too expensive to put all scholarly work on the Internet. This means that the most comprehensive source of information is still the library.

How to Write a Research Paper

1. Select a topic for research.
 - Gather ideas through class discussion, reading, thinking, free writing, brainstorming, etc.
 - Choose a topic which interests and challenges you.
 - Narrow the topic down. Select a subject you can manage. Avoid subjects that are too complicated or for which there are not enough source materials available.
 - Get your teacher’s approval for your topic.
 - If you are not sure what is expected, reread your assignment sheet or ask your teacher.
2. Find information.
 - Use search engines to find sources online. Make sure your sources are reliable.
 - Use a card catalog to find books in the library that relate to your subject.
 - Look at other print materials available from the library—encyclopedias, magazines, newspapers, etc.
 - Use note cards or a journal to write down important information along with full bibliographical information (author, title, place of publication, publisher, date of publication, page numbers, URLs, creation or modification dates on Web pages and your date of access to the Web page).
3. Create an outline.

The purpose of the outline is to help you think through your topic carefully and organize it logically. Check your outline to make sure the points covered flow logically from one to the other. Include the following:

 - I. Introduction: State your thesis and the purpose of your research paper. Explain briefly the major points you plan to cover and why readers should be interested.
 - II. Body
 - A. Supporting Details (three or more)
 - II. Conclusion: Restate or reword your thesis. Summarize what you have learned. Explain why you have reached this conclusion.
4. Organize your notes according to your outline.
 - Choose the best of your sources.
 - Make sure your information is up-to-date and factual. (Is it backed up by at least one other source?)
 - Do not include information that is not related to your topic.
 - Do not include information that you do not understand.
 - Make sure the information you have noted is carefully recorded and properly credited.
5. Write your first draft.
 - Explore your topic without worrying about grammar, spelling or punctuation.
 - Start with the first topic in your outline. Read all the notes that relate to that topic. Summarize, paraphrase or quote directly for each idea you plan to use.
 - Make sure you are using your own words. Give credit for ideas you are borrowing or quoting.
6. Revise your outline and draft. Be your own critic.
 - Add, delete, or rearrange the material to follow your outline. Reorganize your outline if necessary, but always keep the purpose of your paper in mind.
 - Locate and correct errors in punctuation, capitalization, spelling, usage, and sentence structure.
 - Share your writing with peers for proofreading.
8. Type your final paper.
 - Read the assignment sheet again to make sure your paper meets the requirements.
 - Proofread again for spelling, punctuation, missing words or duplicated words.
 - Make sure your final paper is clean, tidy, neat and attractive.