

Children's Resources: Veterinary Microbiology



Animal Medical Center
Usdan Institute for
Animal Health Education



Veterinary Specialty of the Day: Microbiology

Some veterinarians and veterinary technicians undergo further training to specialize in a specific field of medicine. Veterinarians who specialize in Microbiology are experts on the microorganisms that can cause disease in animals. These microorganisms can include bacteria, viruses, fungi, and parasites.

Discussion Question

- Why is it important for veterinarians to learn about the different types of microorganisms that affect animals?

Veterinary microbiologists can specialize in...



Virology

Virology is the study of viruses.



Parasitology

Parasitology is the study of parasites, such as fleas or ticks.



Bacteriology & Mycology

Bacteriology is the study of bacteria, while mycology is the study of fungi.



Immunology

Immunology is the study of the immune system, which protects the body against organisms that cause disease.

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What's the Difference?

Infections occur when an organism invades an animal's body and causes harm. These organisms, called pathogens, include bacteria, viruses, parasites, and even fungi. Veterinary microbiologists study these pathogens as they are the cause of many infectious diseases.



Bacteria

Bacteria are tiny, single celled organisms that can be found in almost any type of environment. Bacteria come in one of three shapes: spherical (round), rod-shaped, or spiral.

Some bacteria are good for the body while others can cause an animal to become very sick.



Virus

Viruses are smaller than bacteria and cannot survive long without a host. Viruses must invade cells (the building blocks of the body) in order to reproduce. These newly made viruses then go on to infect more cells in the animal's body.



Parasite

A parasite is any organism that needs a host for nutrients, often at the expense of the host animal's health. Examples of parasites that can cause infections include fleas, ticks, and heartworms.



Fungus

Unlike plants which grow from seeds, fungi are organisms that reproduce by spreading spores. Mushrooms, for example, are a type of fungus.

These spores attach to a host in order to receive nutrients and grow. A fungal infection can cause disease in otherwise healthy animals.

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Activities



PreK - 5th Grade

How Germs Spread

Materials: glitter, water, soap, (optional) glowing germ product, UV/black light

- To teach your child the importance of hand-washing to prevent the spread of germs, follow this fun activity.
- Ask your child why it is important for everyone to wash their hands. It's because our hands might have germs on them, which can make us sick!
- To imitate "germs", you can use glitter or a glowing germ product (such as a gel or powder) that lights up only under a UV/black light. Have your child rub their hands with the product.
- Have your child rinse their hands under water without rubbing. Did the germs come off?
- Now have your child rub their hands under water with soap. Did this make a bigger difference?
- You can also have your child touch an object when their hands are covered in the "germs" - did the germs spread to the object?
- For more ways to experiment, check out the [Home Science Tools](#) webpage!

Build a Microscope

Materials: clear plastic cup, rubber band or string, plastic wrap, water, "specimen"

- Check out this activity for [Building Your Own Microscope!](#) Cut a hole in the bottom of a clear plastic cup. Stretch plastic wrap over the top and secure with string or a rubber band.
- Insert your "specimen" into the cup and add a drop of water to the top. The water will magnify the object underneath!

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Activities



9th - 12th Grade

Career Exploration: Veterinary Microbiology

Materials: computer/tablet/phone with internet access

- The field of veterinary medicine is huge and there are many job opportunities available to those interested in pursuing a career in the field.
- If your child is interested in a career in microbiology, encourage them to research the various job opportunities and programs that exist.
- Need a place to start? Check out this interview with a veterinary microbiologist: <https://www.rcpath.org/discover-pathology/careers-in-pathology/become-a-veterinary-pathologist/dr-vini-pintos-veterinary-microbiologist.html>

References:

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