
SYNOPSIS:

Millions of life forms, in infinite sizes and shapes, share our world. Each of these forms seeks its place in the chain of life. One of these places happens to be very close to home - the human body. There are more organisms living on and within the human body than there are people on earth. While some are harmless and even beneficial, others can cause us discomfort or disease.

This program zooms in on our tiny guests and some other creatures that may sometimes hitch a ride or visit for a free meal. Through amazing close-up photography, we see ourselves from a new perspective, as habitat and food source for other living creatures.

CURRICULUM UNITS:

| | |
|-----------------|--------------|
| Biology | Health |
| Ecology | Life Science |
| Entomology | Microbiology |
| General Science | Physiology |

CAREER OPPORTUNITIES:

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|----------------------|--------------------------|
| Biologist | Proto-zoologist |
| Entomologist | Public Health Specialist |
| Medical Professional | Vector Ecologist |
| Microbiologist | Veterinarian |
| Parasitologist | |

BACKGROUND INFORMATION & PROGRAM OVERVIEW:

The remarkable photography in this program offers a rare glimpse of organisms that can live on or inside the human body, take their nourishment from it, or use it as transportation. Because of these detailed close-ups, you may wish to pre-screen the program so you can prepare students by describing what they will see. Assure them that most of the creatures usually go

unnoticed, and that we have learned how to cope with those that are more annoying or harmful.

Students may have had direct experience with some of the life forms shown. They learn that all of us harbor life forms such as BACTERIA, although most of the time are unaware of them unless something disturbs the balance of their populations. When that happens, we may get sick or other organisms such as the FUNGI that causes athlete's foot may move in and thrive. Other creatures don't normally live on us, but their visits can make us very uncomfortable. Many schools have had outbreaks of head lice, almost everyone has been bitten by mosquitoes, and children with furry pets may be familiar with fleas.

Fleas are able to thrive even in homes that are vacant for sometime. The LARVA that hatches from a flea's egg can pupate for over a year until vibrations from a passing animal or person cue it to a possible meal and it emerges in adult form.

Students are introduced to the concept of PARASITES, life forms that live on or within another ORGANISM, or HOST, or feed upon it, causing it harm or discomfort. This program shows several parasites including the LOUSE, TAPEWORM, FILARIAL WORM, and BLOOD FLUKE. It also explains how several parasites can be transported from one person, or host, to another by insects such as mosquitoes and TSETSE FLIES.

Students will also see a BED BUG and a TAMPAN TICK, hardly creatures that depend on nutrient-rich human blood for nourishment, but can survive a year or longer between meals. Like mosquitoes and fleas, these creatures can find humans by tracking the carbon dioxide from our breath. The tick carries its own ANESTHETIC so the victim never feels its bite.

ISSUES AND CRITICAL THINKING:

- 1) After showing the program, ask your class to:
 - a) Name 3 life forms that may live on or within the human body. Are they beneficial to us or harmful?
 - b) Explain what can happen if the balance of life forms on or within our bodies gets disturbed.
 - c) Explain how fleas can continue to live in a home even when dogs and cats no longer live there.
 - d) Name an organism that depends on humans for food. How does it find its host?
 - e) Name a parasite which depends on an insect to carry it to a human host.
- 2) Make a list of organisms that use us as hosts and show where they might be found on a diagram of the human body. Discuss how they actually get on or in our bodies, ie., in food, jump on, etc. Organize it into a chart, adding whether the organisms are harmful or not.
- 3) If appropriate for the level of your students, discuss the three different forms of symbiosis:
 - a) Parasitism: one organism benefits, other organism is harmed.
 - b) Commensalism: one organism benefits, other not harmed.
 - c) Mutualism; both organisms benefit.
- 4) Talk to your class about Lyme disease and Rocky Mountain spotted fever carried by ticks.
- 5) Acquaint your class with the roles that parasites, insect vectors (carry parasites or pathogens to hosts and animal hosts have played historically or in stories. Suggestions are the story of the digging of the Panama Canal and yellow fever, and The Pied Piper of Malin and the bubonic plague of the Middle Ages.

6) Provide a world map on which students can “pin-point” the areas in which the parasites that were discussed are found. Ask them to form a general statement about what they observe.

7) Some communities have vector control agents connected with their public health agencies. Arrange to have an agent talk to your class about their work and its importance to the health of the community.

8) Have the school nurse talk to the class about hygiene.

9) Ask a veterinarian or other animal health worker to speak to your class about protecting pets from parasites such as heart-worms and fleas.

GLOSSARY:

Amoebae- Plural of amoeba, B microscopic organism that is the simplest form of animal life.

Anesthetic- A substance that causes loss of feeling or numbness in the body.

Antennae- A pair of flexible, thread-like structures on the head of an insect, used for touch and smell.

Bacteria- The simplest single-celled micro-organisms.

Bed bugs- Wingless insects that feed by night by sucking blood from sleeping hosts. very uncommon in developed countries.

Blood flukes- Parasitic flatworms, mostly limited to tropical areas, that live in the blood streams of their hosts.

Filarial worms- Parasitic worms that can settle in the host’s lymph glands and make parts of the body swell, usually transmitted to the host’s bloodstream by biting insects.

Fungi- Spore-bearing organisms, neither plant nor animal, that cannot synthesize their own food and there-

fore must depend on other organisms for nourishment.

Host- An organism that supports another, either by harboring the other on or within its body or providing it with nourishment.

Larva- The newly hatched form of an animal that metamorphoses, usually wormlike and very unlike the adult.

Lice- Plural of louse, tiny wingless, bloodsucking insect parasites that have clawed legs which enable them to cling to the hairs on the bodies of animal hosts.

Lymph glands- Small glands throughout the body that produce white blood cells to fight infections, and filter bacteria and foreign matter from the circulatory system.

Organism- A living individual that can metabolize, grow, respond to full stimuli, and reproduce.

Parasite- An organism that lives on or within another organism or feeds upon it, causing it harm or discomfort.

Tampan tick- A bloodsucking parasite of the desert regions of southern Africa that injects an anesthetic into its victims as it bites so that its feeding goes unnoticed.

Tapeworm- Segmented, parasitic flatworms that live in the intestines of animals.

Tsetse fly- Bloodsucking African fly that can transmit parasites and disease to humans and livestock with its bite.



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