

Ants and How They Live

Synopsis

In this film, a young boy named Chris, his mother, and his friend Jan explore the remarkably organized lives of ants.

Setting out some jam as bait, the mother and the youngsters follow the trail of ants back to their nest. They carefully scoop up the ants and take them home to study.

After making a simple ant farm, the group begins to explore ants' complex behavior. Chris's mother points out that a queen must be present to have a nest. She shows how to identify the queen, and the eggs, larvae, and pupae kept nearby. She explains it is the behavior of the queen that determines whether an ant will be a male, queen, or worker. The workers then are divided into two groups; one that gathers food, and another that cares for larvae and pupae.

The ant's anatomy is then observed, along with its method of eating and storing food. An ant's jaws, or mandibles, crush food into liquid form; one of its two stomachs holds food for its own body, the other stores food for the nest.

Heading out into the field, the trio looks at other types of ants with very different behaviors. One group keeps aphids almost like dairy cows, milking them for honeydew and protecting them from ladybugs. The pupae of another species are kept in

cocoons, while yet another type squirts acid to fend off enemies. The youngsters discover the one group even has a queen that lives up to fifteen years.

Program Vocabulary

Abdomen: the rear section of an ant's body.

Antenna: a long sense organ on the head of an insect, occurring in pairs.

Cocoon: a case formed by a larva, where it lives during the pupa stage.

Entomology: the study of insects.

Excrete: to eliminate from the body.

Larva: the wormlike form in which insects hatch from an egg.

Mandibles: two jaws on either side of an ant's mouth.

Nest: a place where eggs are laid and hatched.

Pupa: an insect in an intermediate stage of growth, when it is in a case or cocoon.

Regurgitate to throw back or out, or vomit.

Questions to Ask Before Viewing

- Have you ever been on a picnic that was "invaded" by ants? What seemed to attract them most?
- What different kinds of ants can you identify?

- Has anyone ever had an ant farm? What interesting things did you learn about ants?

Questions to Ask After Viewing

1. How do ants communicate? (By rubbing their antennae together.) What reason for communication is shown in the film? (To tell other ants the location of food.)
2. What is the name for an ant's home? (A nest.)
3. What type of ant is necessary to make a nest? (A queen ant.) How can a queen ant be identified? (She has a much larger abdomen than the other ants.)
4. Describe an ant larva. (It's the form in which ants hatch from an egg. It's white, with one end rounded and the other end pointed.) Where is the larva's mouth? (At the pointed end.) How does a larva get food? (Worker ants feed it.)
5. Describe an ant pupa. (It's the intermediate stage of development, and looks frozen or dead; its legs are tucked up against its abdomen, and it has long hairs sticking out all over its body.) What happens to pupae? (They turn into adult ants.)
6. What is the queen's job? (She lays eggs; her behavior determines which ants will take on which role. She gives off a sort of chemical message that determines the sex and duties of each ant.)
7. What are the duties of worker ants? (Some collect food, others are in charge of the larvae and pupae.)
8. Why are queen larvae and worker larvae fed differently? (Queen larvae get more protein to help with their egg laying; worker larvae get more sugar for energy to do all their work.)
9. How many stomachs does an ant have? (two.) What are the functions of these two stomachs? (One stomach digest food for the ant's own body, the second stores food to share with other ants.)
10. Describe how an ant eats food and brings it back to the others. (The ant first crunches up food with its jaws, or mandibles, because it can only digest liquids. Then it regurgitates the food for other ants to eat.) What does "regurgitate" mean? (To spit back out.)
11. Chris and Jan discover other ants under a rock. Why don't they bring these ants back to their ant farm? (The new ants might not get along with the different kind of ants they had at home.)
12. How are the wood ants Helen finds different from the ants at home? (They're bigger, and fierce; they can squirt acid.) Why do wood ants squirt acid? (To get rid of enemies if they feel attacked or frightened.) What is the acid

called? (Formic acid.) How does it smell? (Sort of vinegary.) Can the formic acid that wood ants squirt hurt humans? (No.) How long does the wood ant queen live? (Ten to fifteen years.)

13. What is the liquid called that aphids make? (Honeydew.) How do aphids make honeydew? They suck the sap from plants, then excrete the liquid.) How do ants get the honeydew from aphids? (They stroke the aphid with their antennae until the aphid excretes the liquid.) Why do ants protect aphids from ladybugs? (Ladybugs eat aphids.)
14. When the male ant and queen ant get ready to mate, what happens to them physically? (They develop wings, then fly off and mate.) What happens after the queen and male ant mate? (The male dies, and the queen forms a new nest.) What does the queen do in her new nest? (She breaks off her wings, using the muscles for food over the winter; she lays her eggs in the spring, eating some if she must.)

Additional Activities

- A simple ant farm like the one shown in the film can be made with two pieces of clear plastic, four lengths of wood about 1/2-inch thick, and heavy tape such as duct tape. Tape the frame on its bottom and sides, leaving the top piece loose for adding ants. Drill a hole in the top through which you can add food and

water. A cotton plug will keep ants from escaping. Collect ants from outdoors, examining them to ensure you have a queen, because ants will not nest without one. Transfer the ants and their soil into the farm and moisten the top of the soil slightly. Keep the colony out of direct sunlight. (Covering the glass with dark paper for a few days will encourage tunneling near the glass.) Soon the ants will have built a new nest. A few drops of water and sugar or honey once a week will keep them fed.

- Have students read the story of *The Grasshopper and the Ant*. From what they've learned about ants, why do you think the ant was an appropriate choice for the character in the story?

Other Titles in the AIMS "Animals and How They Live" Series

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| 8223 | Worms and How They Live |
| 8224 | Spiders and How They Live |
| 9984 | Frogs and How they Live (Revised) |
| 9985 | Snakes and How They Live (Revised) |
| 8270 | Newts and How They Live |

Length

- 18 minutes

Subject Area

- Life Science

Audience Levels

- Intermediate-Junior High

Catalog Number

- 8222

Annotation

A boy's curiosity prompts his mother to explore with him the fascinating world of ants. Colorful photography and a homemade ant farm show how ants eat, communicate, nest reproduce, and protect themselves. Workers, queens, larvae, and pupae are identified and studied. By Cicada Productions.

Discussion Guide

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Objectives

- To explore the behaviors and characteristics of ants.
- To illustrate the complex social structure of an ant community.
- To explain the reproductive cycle of ants.
- To introduce various species of ants and show their similarities and differences.
- To stimulate respect for nature and the environment.