

Ants & Aphids: A Symbiotic Relationship

Big World of Insects, Spiders & Bugs Series

Subject Areas: Science, Life Science, Biology

Synopsis: Students will see close-up the unique relationship that ants and aphids have developed to their mutual benefit. Ants are shown hurrying between the nest and the colony of aphids, also called greenflies, that is living at the top of a tree. Once full of their cargo of honeydew, the ants return to the nest and participate in the important work of taking care of the young ants. Ants care for the colony of aphids by providing protection against fierce predators like caterpillars and ladybird larvae.

Learning Objectives:

- Objective 1)** Students will be able to describe and identify the characteristics of an insect, including the three body parts and six legs.
- Objective 2)** Students will be able to describe the different tasks that worker ants do.
- Objective 3)** Students will be able to describe how an aphid gives birth.

Vocabulary: Define and discuss the following key terms:

Greenfly, aphid, carnivorous, honeydew, excrete, sap, agitation, galleries (rooms), cocoon, nymph, emerge, larva, larvae, industrious, stylettes, proboscis, asexual, predator, prey, precarious, species, symbiosis

Pre-Viewing Questions and Discussion:

- 1) What is symbiosis? Can you think of any animals that help each other so that each one benefits? Do you think this type of relationship can happen with insects? Can you think of any examples?
- 2) Why are some insects considered pests?

Post-Viewing Questions and Discussion:

- 1) What have the ants discovered up in the tree? Why is this discovery important?
- 2) What are the ants attracted to? What is honeydew?
- 3) How do the ants care for the greenflies?
- 4) Describe the ants. What do they look like? Where do they live? How do they move?
- 5) What do the ants do when they are full of honeydew? How much honeydew can each ant carry?
- 6) Describe the ants' nest. How is it organized? What is it made of?
- 7) What do the ant cocoons look like? How do the ants regulate the heat in the nest?

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- 8) How do the adult ants care for the nymphs?
- 9) What do 'housekeeper' ants do?
- 10) Describe what the young ant looks like.
- 11) Several different greenfly species are shown. Describe them.
- 12) What do greenflies eat? How do they eat? What specialized mouthparts do they have?
- 13) How do greenflies give birth? Why is this special?
- 14) How long might it take for a colony of greenflies to overtake, or kill, a plant?
- 15) Name some of the greenflies' predators. What is the worst enemy of greenflies?
- 16) Describe the relationship that ants have with greenflies. What do the ants do to unwelcome intruders? What benefit(s) do the ants get from the relationship? What benefit(s) do the greenflies get from the relationship?
- 17) How do the ants make the greenflies produce more honeydew?

Additional Activities:

- 1) Draw a detailed picture of both an ant and an aphid. Label the head, thorax, abdomen, six legs, antenna, and wings.
- 2) What insects can be used for biological pest control against greenflies? Do you think this method is better than using pesticides? Why or why not? What pesticides might be used against greenflies? What other animals might be harmed by these pesticides?
- 3) Research the life cycle of these insects. How long do the baby ants take to hatch? Describe how greenflies are able to reproduce asexually. What does this mean? Present your findings in a written report.
- 4) What do the ants use honeydew for? Present your findings to the class.
- 5) Create a picture story that shows ants caring for a colony of greenflies.

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