

Paper Wasps: The Life Cycle of a Colony

Big World of Insects, Spiders & Bugs Series

Subject Areas: Science, Life Science, Biology

Synopsis: The life cycle of a paper wasp colony is shown close-up and in detail in this program. First, students will see a foundress wasp as she builds a nest and lays her eggs. The mother wasp then busily keeps the nest cool and in good repair, while also hunting insects to feed the developing larvae. Once the grubs have grown to full size, they go through metamorphosis and emerge as worker wasps, ready to assume the various tasks necessary to keep the colony functioning.

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 how a paper wasp colony develops from a single wasp.
- Objective 3)** Students will be able to list and describe the various tasks that worker wasps perform for the benefit of the colony.

Vocabulary: Define and discuss the following key terms:

Polistene, foundress, papier-mâché, humidity, pollen, grub, larva, protein, predator, multi-talented, industrious, secreted, metamorphosis, transformed, mandibles, laboriously, emerge, instinct, colony, inventive, evaporation, ravenous, hibernating

Pre-Viewing Questions and Discussion:

- 1) Compare and contrast bees and wasps. How are these insects similar? How are they different?
- 2) What do you think happens to insects during the winter?

Post-Viewing Questions and Discussion:

- 1) What is a social wasp? Describe the polistene wasp.
- 2) Why is the first wasp called a foundress? What does it mean to 'found' a colony?
- 3) What building material does this wasp use to build her nest? Where does she find this material? What is another name for this wasp?
- 4) Why does the wasp locate her nest close to flowers?
- 5) Describe the wasp's nest. What does it look like? Where are the eggs laid?
- 6) How long does it take for the eggs to hatch? What do the grubs eat?
- 7) Besides gathering food for the grubs, what else does the mother wasp do?

New Dimension Media

- 8) How does she keep the nest cool? Why is this important?
- 9) What is a disadvantage of the nest being exposed to the weather? How does the mother dry the nest out after a rain shower?
- 10) How long does it take for the larva to grow to full size? What do the grubs do when they are fully grown?
- 11) What happens to the grub when it is sealed into its cell? What is this process called? How is the wasp able to get out?
- 12) What type of work do the new wasps do? How do the new wasps know what needs to be done?
- 13) How are the wasps able to keep the nest cool?
- 14) List and describe the various tasks of the worker wasps.
- 15) What is the main job for the queen wasp?
- 16) What happens to the colony in the fall? Which wasps survive? Where do they go to survive?

Additional Activities:

- 1) Draw a detailed picture of a paper wasp. Label the head, thorax, abdomen, six legs, wings and antenna. Also include 3-5 drawings of the nest as it increases in size and the grubs grow and emerge as adult wasps.
- 2) Pretend you are foundress wasp. Describe how you start a colony and the various tasks you have to do to make sure that your colony survives. Be sure to include why you locate your nest in a particular location, what you eat, how you keep the nest cool and dry and how you are assisted by your offspring.
- 3) The paper wasp's nest is very strong. Research the structure of the nest and the building material. What makes this material so strong? Present your findings in a report.
- 4) Are these wasps considered pests or are they helpful to gardeners? Research this and present your answers to the class.
- 5) These wasps are called social insects. What does this term mean? Research this term and find out about other types of social insects.

FOR INFORMATION, OR TO ORDER CONTACT:

NEW DIMENSION MEDIA

A QUESTAR COMPANY

w w w . n d m q u e s t a r . c o m

680 N. Lake Shore Drive, Suite 900, Chicago, IL 60611

800.288.4456