

## **Aquatic Insects: Larvae to Adult**

### **Big World of Insects, Spiders & Bugs Series**

**Subject Areas:** Science, Life Science, Biology

**Synopsis:** Stoneflies and spotted water beetles are shown in this program. Both insects live as aquatic larvae before transforming into their adult shapes. The stonefly is a docile vegetarian that emerges into a graceful fly. The fly is seen as it lays eggs in the stream and is caught by a hungry fish. The spotted water beetle is a fierce underwater predator, both as a larva and as an adult. Students will watch as this hunter devours several tadpoles.

**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 life cycle of both the stonefly and the spotted water beetle.
- Objective 3)** Students will be able to discuss the adaptations these insects have for life in an aquatic environment.

**Vocabulary:** Define and discuss the following key terms:

Stonefly, freshwater, prehistoric, aquatic, larva, larvae, predator, instinct, transformation, exoskeleton, emerge, unfurl, ritual, vulnerable, snorkel, attribute, tadpole, pincers, water beetle, prey, conventional, insatiable

**Pre-Viewing Questions and Discussion:**

- 1) Do all insects live on land? Can you name any insects that don't live on land? Describe the environments where these insects live.
- 2) What is the difference between a carnivore and an herbivore? Can you think of insects that fit into each of these groups? Brainstorm a list with your class.

**Post-Viewing Questions and Discussion:**

- 1) What type of stream is desirable for a stonefly?
- 2) Describe the stonefly larva. What does it look like? How does it breathe? What does it eat? What animal(s) might eat it?
- 3) How long does the stonefly larva live in the water?
- 4) What does the stonefly larva's instinct tell it to do?
- 5) Describe the transformation of the larva as it becomes an adult stonefly.
- 6) What does an adult stonefly look like? Does it resemble the larva?

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- 7) What animals are considered predators of the adult stonefly?
- 8) Describe how the adult stonefly lays her eggs.
- 9) What attracts the fish to the defenseless stonefly?
- 10) What does the spotted water beetle larva look like? Where does it live? What does it eat?
- 11) Why does the water beetle larva prefer to eat tadpoles?
- 12) Describe the adult spotted water beetle. What does it look like? How does it move?
- 13) What animal(s) are considered prey for the adult water beetle?

### **Additional Activities:**

- 1) Draw a detailed picture of the stonefly, the stonefly larva, the spotted water beetle and the spotted water beetle larva. Label the parts each creature has: head, thorax, abdomen, six legs, antenna, pincers and wings.
- 2) Compare and contrast the spotted water beetle with the stonefly. Do they have similar or different life cycles, foods, environments, appearances (both adult and larva), etc. Create a chart to help show the similarities and differences.
- 3) Research the life cycle of these insects. How long do they each live in the larval form? Describe how each species transforms from larva to adult. Find out how long the adults live. Describe the adaptations each insect has for life in the water and for catching prey.
- 4) Create a food web for each insect, both as larva and as adult.
- 5) The stonefly requires a fast moving freshwater stream with lots of oxygen to live in. Where are these streams found? What happens to the stoneflies if the streams become stagnant or polluted?

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