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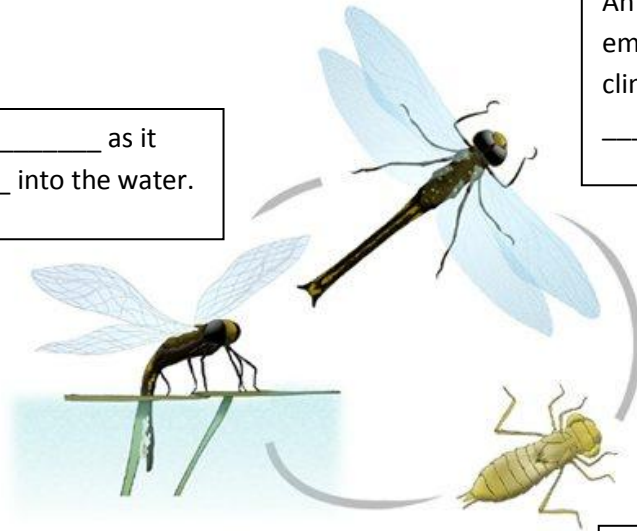
Date _____

Dragonfly Life Cycle

Connections Pre-Field Trip Student Worksheet

Fill in the missing words from the diagram of a dragonfly's life cycle. Draw arrows on the diagram to show how the dragonfly's life changes.

A dragonfly lays _____ as it dips its _____ into the water.



An _____ dragonfly emerges when the nymph climbs up onto a plant and its _____ splits.

Picture from <http://australianmuseum.net/>

A dragonfly _____ can live for 1 to 5 years under _____.

How is a dragonfly's life cycle similar to a butterfly's?

How are their life cycles different?

Connections Dragonfly Activity Pre-Trip Teacher Guide

Print the Dragonfly Life Cycle student sheets. You may have students work individually or in groups. Much of this activity is to be done as a class.

Ask students to tell about a time they saw a dragonfly. What was it doing? Where was it?

Distribute student sheets, and explain the dragonfly life cycle diagram.



Narration for the Diagram:

We often see dragonflies near water because their *life cycles*¹ depend on water. An adult dragonfly lays its eggs in the water. Young dragonflies called *nymphs* hatch from the eggs and spend one to five years underwater. In the spring and summer, nymphs crawl out of the water and onto plants or objects floating on the water. Their skin splits, and adult dragonflies *emerge*. The dragonfly must let its wings and body dry out² for an hour or two before it can fly away. A new adult usually spends some time away from the water before it returns to mate and lay eggs. An adult dragonfly only lives for a few months.

The changes dragonflies undergo during their life cycles are part of a process called *incomplete metamorphosis*. Insects that have incomplete metamorphosis start as eggs, hatch into nymphs, and shed their skins to become adults. Usually nymphs look somewhat like adult insects, but unlike the adults, nymphs do not have wings.

Help students fill in the missing words and draw arrows on the diagram. Then discuss and answer the two questions on the worksheet.

Student Worksheet Possible Answers:

- **Missing words:** eggs/tail, nymph/water, adult/skin
- **Similarities:** eggs, metamorphosis (of some kind), wings when adults but not when young, need to dry out before their first adult flights
- **Differences:** complete vs. incomplete metamorphosis (no chrysalis/cocoon for dragonfly), eggs in water vs. on plants, dragonflies are predators while butterflies eat plant material

Continue to discuss dragonflies. You may use the discussion ideas on the next page.

If desired, you could have students generate their own dragonfly questions and then research to find answers.

In closing, tell students: Keep your eyes open for dragonflies around your school or home and when you visit the nature center! (The staff at the nature center would love to hear about your observations.)

¹ You may wish to conduct a lesson about life cycles before this activity if students have not already studied them.

² The drying out process is called "curing".

Discussion Ideas:

What are some dangers dragonflies might face when they emerge from their nymph skins? *They might be damaged by weather (wind or rain), other emerging dragonflies (curing space can be hard to find), or eaten by predators.*

What are some ways dragonflies are important to a pond ecosystem? *Answers may vary but could include their roles as predators and prey.*

Dragonflies can be found in many places at Armand Bayou Nature Center. When you come to the nature center, you will visit three ecosystems: a forest, a prairie, and a pond. What do you think dragonflies might be doing in each of these places?

- Pond: adults laying eggs, searching for mates, or hunting for food; nymphs living in the mud at the bottom; eggs and shed nymph skins are rare finds.
- Prairie: (mostly young) adult dragonflies hunting for food
- Forest: not likely to find many dragonflies. You may, however, see adults flying through as they feed or search for mates. There are also a few wet areas in the forest where nymphs might live and dragonflies might lay eggs.

Other Dragonfly Facts:

- Dragonflies are *predators*. When they are adults, they eat mostly mosquitoes, flies, butterflies, and bees. As *nymphs*, they eat insects, mosquito larvae, other insect larvae, and fish fry (baby fish). Dragonflies are *prey* for birds.
- Dragonflies have compound eyes with up to 30,000 lenses in each eye. (A human eye has just one.)
- Dragonflies can fly up to 60 mph (100km/h).
- There are about 2,500 species of dragonflies.

References:

- "Dragonflies ... Helpful and Mysterious". Retrieved on August 13, 2009 from <http://www.enature.com/articles/detail.asp?storyID=568>
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- "Dragonfly". Retrieved on August 13, 2009 from <http://www.whereincity.com/india-kids/animals/dragonfly.htm>