

## WHO IS IT FOR?

- ◆ Young Scientists . . .
- ◆ Evolving Mathematicians . . .
- ◆ Emerging Linguists . . .
- ◆ Sprouting Historians . . .
- ◆ Budding Artists . . .

**TARGETED LEVEL:**  
(Third Grade)

## THE CHALLENGE:

The students will . . .

- ⇒ analyze, interpret and make conclusions about collected organisms.
- ⇒ create graphs based on collected data.
- ⇒ design and create informational book about aquatic and terrestrial insects.

## SAFETY ISSUES & CONCERNS:

None

## WHAT'CHA NEED?

*Science Journals* from the Elm Fork Education Center with sketches and locations of insects collected.

Activity A:

*Journals* with insect names and habitat/location.

Blank graph master (optional)

### Activity B:

Science Journals with insect sketches, names and habitat/location.

Paper for book pages

Pencils, colored pencils, markers

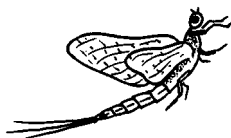
Materials for binding books

## TIME NEEDED FOR THE ADVENTURE:

Minimum of 45 minutes  
for each activity.

# Home:

# Where the Habitat is!



## Post-Visit Activity

Scientists must analyze data that they collect in order to be able to draw conclusions about their investigations and/or field collections.

The student scientists also collected data while investigating at The Elm Fork Education Center. The fieldwork conducted by the student scientists at the EFEC was focused on aquatic invertebrate habitats and how these habitats provide the basic needs for survival. This *post-visit* activity will provide the students the opportunity to analyze the data they collected in the field.

While at the EFEC, the students focused on the following aspects of an aquatic invertebrate's habitat:

**FOOD:** As in any ecosystem, aquatic invertebrates play certain roles in the food chain of their habitat. For example, some insects that live in the water during their immature stage, such as the dragonfly, will eat different types of food as larvae than they will as adult dragonflies. Although the dragonfly is a predator throughout its life, where it lives (in the water or on land) will determine what it will eat and, in turn, what will eat it.

**AIR:** Most aquatic insects breathe through gills that filter out dissolved oxygen in the water. Insects that live on land breathe through holes on the sides of their abdomen called *spiracles*. These holes simply allow air to enter into the insect so that they may obtain oxygen. Some insects that live under water also have spiracles. They use their spiracles by either forming an air bubble to surround themselves or by swimming to the surface to get the air.

**SHELTER:** Almost all aquatic invertebrates are considered prey by aquatic insects, fish, or other animals so shelter, which includes camouflage and movement, is a critical component of an aquatic invertebrate's survival. Insects that live on the bottom of a pond, for instance, will usually be brown to blend into their environment and have a soft outer covering. Terrestrial insects may be more brightly colored to attract mates and have a hard outer shell to keep moisture in their bodies, etc.

**WATER:** All organisms big and small must have water to survive. This component is extremely important to both aquatic and terrestrial insects. Aquatic insects cannot survive for very long outside the water because they will dry out quickly due to their soft, moist bodies. Additionally, they have gills designed to breathe in water. Many invertebrates not only need water to drink, but many also need water in which to lay their eggs.



## WORDS TO KNOW?

1. Invertebrate
2. Aquatic
3. Terrestrial
4. Characteristics

## DID YOU KNOW . . .

Dragonfly larvae have mouths that can shoot out away from their body to catch prey as it swims by?

The way to tell the difference between an adult dragonfly and an adult damselfly is in the wings? Unlike damselflies, dragonflies are unable to fold their wings back and will always hold them out to the sides.

## EXTRA STUFF?

Related books/stories and on-line sources:

Aquatic Ecosystems:

[www.aquatics.org/](http://www.aquatics.org/)

Digital Dragonflies:

[www.dragonflies.org/](http://www.dragonflies.org/)

Iowa State University Dept. of Entomology:

<http://www.ent.iastate.edu/>

Young Entomologist Society (Y.E.S.):

<http://hometown.aol.com/YESbugs/bugclub.htm>

## TEKS

### CONNECTIONS:

Science TEKS - Third Grade:

3.2 (D) The student is expected to communicate valid conclusions.

3.2 (E) The student is expected to construct simple graphs, or organize, examine, and evaluate information.

Denton ISD Science S.P.O:

S1.3 The student will ask well-defined questions, analyze and interpret information to construct reasonable explanations, construct simple graphs and organize, examine and evaluate information.

S3.2 The student will recognize, analyze, predict, illustrate, and demonstrate patterns in organisms.

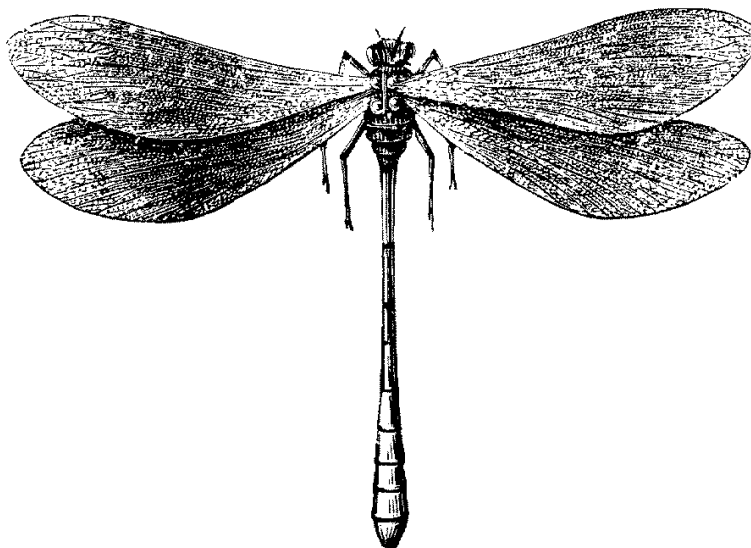
S6.2 The student will observe, identify, and analyze how different characteristics and adaptations help a species survive.

## PROCEDURES:

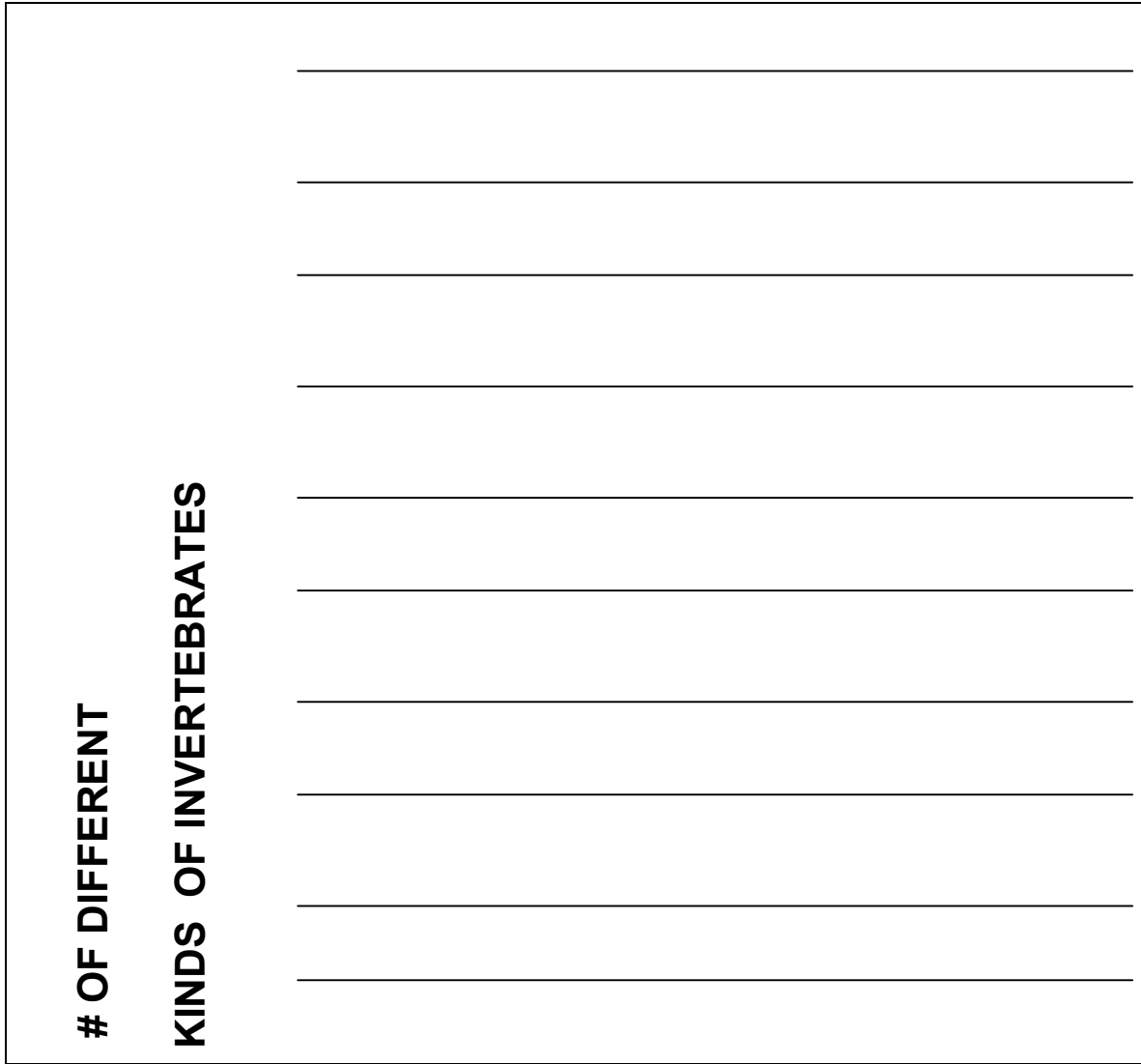
### Assessment:

Activity A: Students should produce a graph that represents the number of kinds of invertebrates that they found during their visit, and their habitats. Each graph should have a title, horizontal and vertical axis labels and labels for habitat types.

Activity B: Each student should produce a page for the group book including a sketch of the invertebrate as well as the name, habitat and labeled characteristics for the invertebrate.



**The Bottom Line:** The students will analyze, interpret, and present information collected during fieldwork.



**AQUATIC INVERTEBRATE HABITATS**