

## WHO IS IT FOR?

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

**TARGETED LEVEL:**  
(First Grade)

## THE CHALLENGE:

The students will . . .

- ⇒ be introduced to amphibians, reptiles and insects.
- ⇒ recognize some of the attributes of the various organisms they analyze.
- ⇒ use their senses to make observations about their surroundings.
- ⇒ recognize and begin to analyze the differences between a variety of aquatic organisms.

## SAFETY ISSUES & CONCERNS:

- \* Students need to demonstrate care with sharp objects.

## WHAT'CHA NEED?

1. Three large sheets of poster paper.
2. Various colored markers.
3. An easel or chalkboard to put the poster paper on.
4. Student Science Journals
5. Crayons or colored pencils.
6. Construction paper
7. Tracing paper
8. Walnut shells
9. Glue
10. Paints
11. Eyes

## TIME NEEDED FOR THE ADVENTURE:

Minimum of 45 minutes.



# Pond Life



## Post-visit Activity

**T**he students interacted with a number of organisms while at the Elm Fork Education Center (EFEC). For this post-visit activity, the students will go beyond learning the physical attributes of these organisms, into a deeper understanding of their individual characteristics and/or adaptations, which continue to promote their survival.

**Insects:** Insects are the largest class in the animal world, with a minimum of 800,000 known species. Insects vary in size from less than .025 cm in length to up to 30 cm in length.

*Mayflies* are aquatic insects. Their larvae can be found on rocks in streams. They are food for birds and fish. The adult mayflies are usually found near streams and only live from a few hours to several days, and they do not feed during this time. After mating, females will drop their eggs over water as they fly by.

*Dragonflies* are another type of aquatic insect. One key characteristic of the dragonfly is that it is a predator – feeding upon other invertebrates when it is immature and feasting on large quantities of mosquitoes and other small flying insects as adults.

**Reptiles:** This class includes snakes, lizards, turtles, crocodiles, alligators, the tuatara, and a number of other extinct fossil species.

*Turtles*, like most reptiles reproduce by laying eggs. They are omnivores, which means that they eat just about everything, plants and small invertebrates alike. Like most other reptiles, turtles breathe with lungs and lay their leathery eggs on the shore, buried beneath the soil. Turtles are unable to moderate their own body temperature, and therefore, they hibernate in the cold winter months and bask on rocks or the shoreline in the summer months, absorbing the sun with their dark shells.

**Amphibians:** A common characteristic of amphibians is that most must stay close to the water in order to survive. Their skin is generally smooth and moist. Like reptiles, amphibians are unable to moderate their body temperatures and they also hibernate through cold winters.

*Frogs* have sticky tongues that help them trap insects, which is their main food source however, they also eat worms, spiders and the occasional centipede. One critical difference between frogs and turtles is the development of their young. While turtles lay their hard, leathery eggs on the shore, frogs lay their gelatin like eggs in the water. When turtles hatch, they immediately resemble a smaller version of the adult. On the other hand, when baby frogs hatch they more closely resemble fish and are known as tadpoles and breathe under water through gills. As the tadpole develops it will eventually lose its tail, will form front and hind legs, and will develop lungs in its quest to become the adult frog.

## WORDS TO KNOW?

7. Aquatics
8. Amphibians
9. Habitat
10. Herbivores
11. Insects
12. Larvae
13. Metamorphosis
14. Omnivores
15. Pond
16. Reptiles

## DID YOU KNOW . . .

The larva of beetles are called grubs; those of butterflies and moths are known as caterpillars; and the larval forms of certain flies are called maggots?

Among true vertebrates, the best-known example of a larval form is the tadpole stage of the frog?

The earliest reptiles appeared during the Upper Carboniferous period of the Paleozoic era?

Only 4 of the 23 orders of reptiles that have existed have living representatives?

Despite the extreme variations in appearance among insects, all adults have common body types— head, thorax and abdomen?

Adult amphibians are carnivores (mainly insects), where as amphibian larvae are mainly herbivores (plant eaters)?

## EXTRA STUFF?

Related books/stories and on-line sources:

<http://www.microscopy-uk.org.uk/pond/insects.html>

<http://web.ukonline.co.uk/conker/pond-dip/>

## TEKS

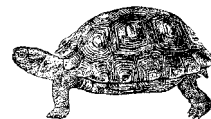
### CONNECTIONS:

Science TEKS - First Grade:

- 1.1 (A) – Students will demonstrate safe practices during field investigations.
- 1.2 (A) – Students will ask questions about organisms, objects, and events.

# P

## ROCEDURES:



Ready, Set, Go . . .



1. Instruct the students to take out their EFEC Environmental Journals and their crayons and/or colored pencils.
2. Encourage the students to color the pictures that they drew while they were at EFEC.
3. As the children are working in their Journals, begin a discussion with them about the characteristics or attributes of the various organisms that they discovered on their adventure.
4. Have ready, three pieces of butcher paper or poster board. One should be titled – Amphibians (Frogs). The next should be titled – Reptiles (Turtles), and the third should be titled – Insects (Aquatic).
5. Beneath each title have the following sub-headings: *Characteristics*, *Water*, and *Why*.
6. Place one of the posters on the wall and allow the children to call out the characteristics that they wrote, under observations, in their journals while they were at the EFEC.
7. Accept all answers.
8. Ask the children if there are any other characteristics that they might know about or can think of concerning this particular organism. Begin to share with the students the characteristics that you have knowledge of.
9. Once this list has been exhausted, ask the children, yes or no, if this organism must live in or near water to survive. Mark their answer under the Water sub-heading.
10. Ask the children to offer reasons Why this organism needs to be near water. Write the answers as the children call them out.
11. When this list is exhausted, draw lines between characteristics and reasons. For example, the children might say that one characteristic of frogs is that they eat insects. They might say that one reason that frogs live in or near water is so that they can find insects. Draw a line from the characteristic to the reason in order to concretely demonstrate for the students the relationship between some of the characteristics and/or attributes of the organism and the reasons why it lives where it lives in order to have its basic needs met or survive.
12. Repeat this activity with the two remaining categories.

## TEKS

### Continued:

1.2 (C) – Students will gather information using simple equipment and tools to extend the senses.

1.6 (B) – Students will observe and describe the parts of plants and animals.

1.9 (A) – Students will identify characteristics of living organisms that allow their basic needs to be met.

1.9 (B) – Students will compare and give examples of the ways living organisms depend on each other for their basic needs.

### Denton ISD Science S.P.O. – First Grade:

S1.3 The student will exhibit enjoyment and curiosity when engaging in science endeavors through observations while using as many of their senses as they can during a whole class activity.

S5.1 The student will be able to discuss, identify and illustrate how the basic needs of living organisms are met and affected by the availability of the earth's resources.

## Procedures continued . . .

13. When all three charts are finished, lead the children to understand that all organisms, in order to survive, must have their basic needs met. If organisms do not find ways to meet their basic needs for food, shelter, etc., then there is a chance that they will die.
14. A fun way to end this, at times, very somber discussion is to allow the students to do a project about one of the organisms from their Journals. One example is to have the students make their own turtles:
  - a) Draw or trace a pattern of a turtle onto tracing paper and then cut it out and transfer it onto construction paper, thus allowing for the making of as many turtles as you would like.
  - b) Break walnut shells (or shells of other nuts of the same shape) in half and glue the shells onto the construction paper. Paint and add eyes to the shells.
15. This is also the time to remind the students to complete their class pond. In order to complete the pond the students will need to:
  - a) Allow the pond water that they obtained from the EFEC to sit in an open container.
  - b) After a few days, pour the pond water into the aquarium, very slowly, so as not to disturb the plants or gravel.
  - c) Allow this to sit for a few days, adding more pond water as desired.
  - d) Encourage the students to use their new found knowledge about aquatic organisms in order to collect a few water insects, tadpoles, crayfish and or snails to place in their class "pond"! (As a reminder – no real turtles, as they need special food, and may carry some diseases like *Salmonella*. Any live animals in the classroom should be researched before introducing them to the children.)

## Assessment

### EFEC Journals



**The Bottom Line:** The students will observe and explore the similarities and differences between the various organisms that live in and around a pond in order to understand how these organisms basic needs are met.