

Water Stories Lesson Five: “Who relies on this water?”

Academic Question: What living things rely on the fresh water supply in your area?

Objective(s):

- To understand the inhabitants of an aquatic habitat
- To understand the importance of biodiversity
- To understand the importance of riparian habitats
- To determine the major threats to water quality of the local waterways

Process (Activities):

1. Begin by exploring history and ecology of your watershed. Add the following information to the hallway map:
 - a) A brief history of your county. (Who settled it? Who discovered it? Who lives there now?) The Handbook of Texas Online at www.tsha.utexas.edu/handbook/online/ is an excellent resource of this information.
 - b) A brief description of the ecology of your county
 - c) A brief description of the climate of your county
 - d) A brief description of the natural resources found in your county.
2. Have students discuss how humans over time have relied and the water in your watershed. Have students look at a map of Texas and discuss where most people in Texas have settled. Discuss these settlement patterns and the proximity to water.
3. Brainstorm with students the other living things that rely on the water in the watershed. Introduce the components of an aquatic habitat including the riparian zone.
4. Allow students to create a traditional representation or model of an aquatic habitat. (Student may wish to create a three dimensional model in an aquarium or a two dimensional drawing.) This representation will be used later to document the living things that are found in your watershed.
5. Conduct a biodiversity study of the living things found at waterway. When recording biodiversity information it is important that students not only record what they saw but where they saw it. Cyberways web site contains information explaining the process of biodiversity monitoring of species found in the water. Student can observe the biodiversity study of other specie found out of the water using the following methods:
 - Birds, Reptiles and Mammals: Sit in one spot and conduct a visual observation
 - Plants: Place a transect line on the ground and record the plants found along this line. To do this, draw a rough map of the study area. With eyes closed, put a pencil mark on the map - this is locating a random starting point of the transect line on the map. Extend the line in a due north direction. If there is a building or some other immovable object in the line pathway, try again. Fasten the line at both ends with a wooden skewer. Assign jobs. Each line transect needs a walker, an identifier and a recorder. A walker will pace the steps along the transect string. The identifier will bend down, make note of the plant. The plant recorder will enter the identified plant.

Plants and Insects: Place a 1-meter grid on the ground and record all living things

within the grid and the space each living thing takes up

Insects and Spiders: Place a white sheet under a tree or large plants, shaking the limbs, and record the insects and spiders that fall onto the sheet.

Amphibians: Go out at dusk and count/identify frog calls. See Texas Parks and Wildlife Project Amphibian Watch for more identification information.

Large Mammals: Create a track recording area by carefully smoothing the mud of an area where water can be accessed. This methods will take several visit to the site to record the results.

6. Complete the Cyberways biodiversity worksheets to determine the species diversity: <http://www.cyberwaysandwaterways.com/en/tryThisAtHome/fieldWorksheets>.
7. Have student add representations of the species diversity they found in their an aquatic habitat model they created before conducting the biodiversity study.

Product/Application: Ask students to describe what living things rely of the water source you studied. Ask students what they think would happen if any one of the species disappeared from the habitat. Ask students what they think would happen to these living things if this water source was threatened (be sure students include human beings).

Assessment/Evaluation: Have students create a conceptual map of the connection among all living things in the your watershed and their connection to water.

Resources: The Cyberways web site contains many resources to complete the above activities: <http://www.cyberwaysandwaterways.com>. The Handbook of Texas Online at www.tsha.utexas.edu/handbook/online/ is a multidisciplinary encyclopedia of Texas history, geography, and culture. It comprises more than 23,000 articles on people, places, events, historical themes, institutions, and a host of other topic categories.

Time Frame: Four to five 45 minutes class periods.

Grade Level: 6th- 12th