

# Creating a Freshwater Ecosystem

## from the Texas Memorial Museum

### Objective

To correctly identify some fishes of Texas and parts of their ecosystem.

### Materials

[Freshwater Fishes of Texas handout](#) (PDF\*, 65KB)

Activity worksheet (included)

Scissors

Colored pencils

Wire clothes hangers

String

Glue or tape

Pencil

Cardboard

Toothpicks

Holepunch (optional)

### Introduction

In this activity, we will make a replica of a freshwater ecosystem as it might appear in nature. The replica should resemble a mobile. A mobile consists of separate pieces hanging from one central structure, in which the pieces balance one another and may be moved by air currents. We are going to construct our mobiles so that once they are put together, they will look like a freshwater ecosystem. It is important that we follow all the rules that must be followed in nature. For example, the relative sizes of organisms must be correct, we must obey predator-prey relationships, and we must obey food chain relationships.

### Instructions

1. Color and cut out all of the pictures on the Freshwater Fishes of Texas handout. Color them as they would appear in nature. Use a reference book to see pictures of the fishes. Also, using scratch paper, make and attach fins and any other parts of the fishes that are missing from the handout. Don't forget about the tail fin!
2. In pencil, trace each picture on the cardboard. Cut the shapes out of the cardboard and glue the paper pictures to the cardboard shapes. The cardboard side will be the back of the mobile piece and the colored picture will be the front side.
3. On the back of the piece, write the name of the fish that is pictured on the front. Also, do some research at the library or on the internet to find where it is commonly found and one interesting fact about it. Write these three things on the back of the piece.
4. With an adult's help, unwrap a wire clothes hanger and stretch it to its full length. CAUTION: The ends are very sharp and should never be pointed toward another person! Bend it so that it makes a half circle. Do the same to another clothes hanger. Attach the two hangers at their midpoints with string, tape, or glue so that they are perpendicular to one another. This is the central structure of your mobile.
5. Connect the mobile pieces to the central structure using the hole punch and a long piece of string, or connect them by taping or gluing a long piece of string to the back of the mobile piece.
6. Next, position all of the mobile pieces so that they are interacting as they would in a freshwater ecosystem. You can adjust the length of the strings so that there are many

different levels to your ecosystem. Also, try attaching the pieces from all sides of the central structure to make your ecosystem as large as you'd like.

7. Finally, draw or look in a magazine or newspaper to find pictures that you can add to your ecosystem to make it more realistic. For example, you may wish to attach pictures of other animals and plants that may be seen in a freshwater ecosystem. Add 5 new pieces to your ecosystem.

### **Hints**

- It is best to plan your ecosystem before you permanently attach pieces. Try to set up your ecosystem on a table or the floor and make necessary adjustments.
- This project will be much easier if you have many pieces to work with. When looking through magazines and newspapers, also consider nonliving things that may be found in an ecosystem such as a piece of trash or plastic, rocks, or fishing line. However, the majority of your ecosystem should be living objects.
- If you need pieces to be connected more rigidly, use toothpicks to connect them.

### **Teaching Strategies**

- For safety precautions, if you are working with younger students, you may want to make the central structure of the mobile for the students before class begins. Put silly putty or play-doh on the ends of the hangers to eliminate the possibility of injury.
- You may want to make your own mobile, so that students can see an example before they start their own.
- It is suggested that you bring as many old magazines as possible to class, so that students are guaranteed to have at least one source for extra pictures.

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## Activity Worksheet

### Investigation

1. What are some other occupants in the ecosystem that a freshwater fish lives in?
2. Which of these, if removed, would affect the lifestyle of a freshwater fish? How?
3. Describe some interactions of organisms that occur in your ecosystem.
4. How do the nonliving objects that you added help or hurt the living organisms in the ecosystem?