

## Discovering Density



### TEKS for Activities and Presentation

Kindergarten: K.4 (B), K.5 (A), K.6 (C), K.6 (D)

First Grade: 1.3 (B), 1.5 (A), 1.6 (C), 1.6 (D)

Second Grade: 2.2 (A), 2.3 (B), 2.5 (A)

Third Grade: 3.5 (A), 3.5 (B)

Fourth Grade: 4.5 (A)

Fifth Grade: 5.5 (A)

### Program Vocabulary

Density, Float, Mass, Observe, Prediction, Sink, Size, Test, Weight

### Pre-visit Activity: Scientists Observe

#### Students Will:

- Practice making scientific observations
- Use their senses to collect information about an object.

#### Materials:

Object from the classroom

#### Procedure

1. Explain to the class that they will soon have a presentation in which they will be required to make careful observations.
2. Write the word observation on the board. Discuss the meaning of the word observation with the class.
3. Explain that scientists make direct observations about the world using their senses and other tools, such as microscopes. When students collect information by using their sight, hearing or other senses, they are making observations.
4. Hold up an object chosen from the classroom. Ask students to use their senses to make observations about the object. Allow students to share their observations. A good response may include, "I used my eyes to observe that the pencil has not been sharpened."

### Post-visit Activity: Sink or Float Boats

#### Students will:

- Design a boat that will float while carrying a mass
- Test and reengineer their boats in order to be successful

#### Materials:

Dish tubs or other containers for water, Aluminum foil, objects with a constant weight, such as pennies, towels for clean-up

#### Prep-Work

- Gather supplies
- Fill tubs with water
- Tear aluminum foil into sheets

#### Procedure:

1. Remind students that density (how heavy something is for its size) determines whether an object will sink or float. If the object is lighter for its size, the object will float. If the object is heavy for its size it will sink.
2. Provide each student or team a piece of foil. Allow time to build their boats. Encourage them to test them to make sure they float before adding weight.
3. Allow students to begin adding weight to their boats by adding pennies or other weights, one at a time. Encourage them to continue adding weight until the boat sinks.
4. Encourage students to make observations while they test the boats. What happens before it sinks? What shapes seem to work best?
5. Distribute additional foil and allow students to redesign their boats based on their observations from the first test.