**Sinking and Floating Lesson**

**Lesson Overview:**

*In this lesson students explore sinking and floating. Students test a variety of objects to see if they sink or float. By looking at patterns students discover that both weight and shape affect whether an object will sink or float. The lesson ends with students making aluminum foil boats and testing to see how many pennies (or washers) their boat will hold.*

**Standards:**

1st Grade – Standard 3, Objective 2:

Analyze objects and record their properties.

2nd Grade – Standard 3, Objective 2:

Compare and contrast how different materials respond to change.

**Materials:**

Per small group:

* Bowl of water
* Test objects (crayons, wood, pennies, rock, Styrofoam, etc.)
* A bag of pennies or washers

Per student:

* 1 square of aluminum foil (15 cm X 15 cm) for making a boat

**Lesson:**

**Engage:**

Show students a picture of a person floating in a pool. Ask them what the person is doing. Invite them to share their experiences with floating in a pool. What do you need to do in order to float?

**Explore:**

Tells students that today they will be learning more about floating and sinking, by investigating the question: what properties affect whether an object will sink or float? Show students the objects that they will test, name the objects. Then give each group a bag of objects. Have them predict which objects will sink and which objects will float by making two piles. Then invite the students to test the objects one at a time. You may need to model how to gently place the object in a bowl of water and observe what happens. After students have tested the objects, have them make a t-chart in their science notebooks that lists the objects that float in one column and the objects that sink in the other column.

**Explain:**

Review the objects that sank in the investigation. Ask students what these objects have in common. Students should recognize that these objects are heavy, or they weigh a lot for their size. Review the objects that floated in the investigation; ask students what these objects have in common. Students should recognize that these objects are light, or they do not weigh much for their size.

To extend student thinking about floating and sinking show students a tightly crumpled piece of heavy duty aluminum foil. Ask students what will happen to the foil when you drop it in water. Drop it in water and watch it sink. Then ask students how you might get it to float. If no one shares the idea, tell students that you could change the shape of the foil. Un-crumple the foil and shape it like a small boat. Place it in the water and watch it float. Tell students that both the properties of weight and shape affect whether an object will sink or float.

**Elaborate:**

Show students a picture of a boat. Explain that the boat is very heavy, but it still floats. Ask students how it can float. Discuss that the shape of the boat helps it to float. The shape of the boat is large and it can hold air. Air can help a heavy object float.

Tell students that they are going to design and build a boat from aluminum foil. Then they will see how many pennies (or washers) their boat can hold before sinking. Pass out 15 cm X 15 cm squares of aluminum foil to each student. Have the students shape their foil into a boat and then use their bowls of water to test their boats. If the boat floats, the students can add, and count, pennies to the boat until it begins to sink.

After students have had time to investigate invite them to share the number of pennies their boat held. Have students share the boats that held the most pennies. Discuss how the shape of these boats helps them to float even when they are holding a lot of weight.

**Elaborate**

To assess students’ understanding of sinking and floating, provide them with the following cloze paragraph. Please note that in this example, there is one extra word in the word bank. Before they begin tell students that they will not use all of the words in the paragraph.

