

# **Community in the Classroom Presentation Plan**

Lesson Name Buoyancy: Who Sank the Boat?

Presenter(s) Sam Tia

Grade Level K Standards Connection(s) An object's ability to sink or float is related to its size, shape and weight.

## **Abstract:**

*Your opportunity to tell teachers and kids what's going to be fun and interesting about your visit!*

What makes an object sink or float? In this presentation, we use the very funny children's story Who Sank the Boat? by Pamela Allen to explore some basic concepts about buoyancy. Children will use their powers of observation to draw some conclusions about why some things float while others don't. We will perform some easy experiments using miniature "boats" in a tiny bay to try and get to the bottom of this question and find out who really sank the boat.

## **Vocabulary/Definitions:**

*3 – 6 important (new) words*

Buoyancy – The ability to float

Capsize- To overturn

Din – Many loud sounds

Bay – A part of the sea that is mostly surrounded by land.

## **Materials:**

*What you'll bring with you*

*What students should have ready (pencils, paper, scissors)*

Clay – for molding into boats

Small Plastic Containers – Uniform size, for simulating boats

Groups of Paper Clips and coins – For loading into small "boats"

Large Plastic Bins – To simulate a body of water

## **Classroom Set-up:**

*Student grouping, Power/Water, A/V, Light/Dark, set-up/clean-up time needed*

Before starting with the presentation, the plastic bins will be filled with water to an appropriate depth. Each station will be supplied with several balls of clay, small plastic containers, and many paper clips.

## **Classroom Visit**

### **1. Personal Introduction: \_\_\_\_\_ 5 \_\_\_\_\_ Minutes**

*Who are you? What do you want to share with students and why? How will you connect this with students' interests?*

My name is Sam and I study bioengineering at UC Berkeley. Bioengineering is where biology (the study of life) meets engineering (using math and science to solve problems). I come from Florida, where I also have two little brothers, and in my free time I like to read comic books, listen to music, and play basketball. I also really like science and today we are going to learn about a science concept called buoyancy.

### **Topic Introduction: \_\_\_\_\_ 5 \_\_\_\_\_ Minutes**

*Big Idea(s), vocabulary, assessing prior knowledge. What questions will you ask to learn from students?*

Introduce the term buoyancy: who knows what it means? Write it on the board.

Next, read the book Who Sank the Boat? by Pamela Allen.

Introduce the terms: bay, din, capsize. Show a picture of the San Francisco bay.

Afterwards, ask: Who really sank the boat? Why did the boat sink? Why do some object sink and others float?

What are some examples of things that sink and things that float?



## 2. Learning Experience(s):

25 Minutes

*Demonstrations, hands-on activities, images, games, discussion, writing, measuring... What will you do, what will kids do? Describe in order, including instructions to kids.*

### Part 1:

Bring in some objects and have the children make predictions if they will sink or float. Put them in the water and see if their predictions are correct.

### Part 2:

Next, take several equal sized balls of clay and drop one of them into the large plastic bin. It should sink to the bottom. Take another ball of clay and have the children mash it into a flat panel. Place this flat piece of clay onto the surface of the water. Does it sink or float? Take another ball of clay, mash it flat, and bend the edges up to form walls. This clay "boat" should now be floating. Does the shape make a difference?

Ask: How many paperclips do you think this boat can hold? Listen to predictions.

Experiment: Load the clay boat with paperclips until it sinks.

Record: How many paperclips did each hold? Compare results among groups and against predictions.

### Part 3:

Float the small plastic containers inside the bins. These are the boats on Mr. Peffer's place. Several groups of coins, labeled: cow, donkey, pig, sheep and mouse will be prepared at each station. Read the story again while loading the "animals" into the boat. Try it again, this time switching up the order of the animals (i.e. mouse, pig, sheep, cow, donkey). What happens if the boats are not properly balanced? Does the order of loading matter?

## 3. Wrap-up: Sharing Experiences and Building Connections 5 Minutes

*Putting the pieces together – how will students share learning, interpret experience, build vocabulary?*

Review vocabulary words, and go over the important questions. Does the shape and size of the object matter?

What about the order that the animals get into the boat? What about balancing it? Who is really responsible for sinking the boat, and why do we blame the mouse?

## 4. Close:

5 Minutes

*How can kids learn more? Thanks and good-bye! Clean-up*

What are the factors that determines if something sinks or floats? Well today we saw that, in general, the ability of an object to float or sink has to do with how big it is, how much it weighs and its shape. Finally, make sure that all of the bins, full of water and objects, get cleaned and dried out without making a big wet mess.

**TOTAL 45 Minutes**

## **Follow-up – After Presentation**

Suggest students write a letter explaining "How we learned about \_\_\_\_\_?"

List or attach examples of activities, websites, connections for additional learning.

Attach worksheets, hand-outs, visuals used in classroom presentation.

