P R O J E C T C A L E N D A R

Project: "Whatever Floats Your Boat"

Time Frame: 2-3 weeks

P R O J E C T P L A N

Notes: Plan will not necessarily be taught each day, may be split up as needed.

Entry Event: Field trip to Diamond Jack tour boat in Detroit. Oftentimes large ships and barges are seen on the river. Take some time to look at the various boats, ships and vessels . If you are unable to take the field trip, you may want to watch videos of a variety of watercraft on the water and discuss what you observe.	Group discussion about the boats, ships and vessels seen on the river. Discuss the size of the boats that they saw and how they were able to float carrying a large group of people and things. Discuss things that they have seen float on the water and things that they have seen sink in the water. Create a T-Chart and brainstorm the students' experiences with things that float or sink. **Students should draw and label things that they have seen sink and float in the water. Discuss the differences with things they have seen float and sink, and what they experienced on the river.	Bring in various items (some from the list that the students brainstormed). Test the items in a tub of water. Students should draw/ label their observations in their science journal. Discuss their theories pose questions: *Why do you think that item sank? *Why did it float? *How can something so small sink, while something as large as a boat will float? * Do you think weight matters? *Do you think size matters? *Do you think shape matters?	Bring in a variety of items of different materials, shapes, sizes and weights. Allow students to manipulate the items and explore them. In small groups students may sort items based on whatever criteria they like. **Students should draw and label their sort in their science journal. For Example: Size Material Shape Weight *Make a scale available, ruler, tape measure. Students will begin to discuss which materials might be the most suitable to float.	In groups, students will decide on materials that are most suitable for floating. Students will test their items in containers of water. Students will then be presented with the task of creating a boat that will not only float, but carry cargo as well. **The cargo should be something consistent. Pennies, bingo chips etc. Students will begin to plan their boats. Students should draw their plans in their science journals.

Students begin to build their boats. They should draw each of their attempts and test it with pennies. When they have created a boat that they are happy with, they should use the attached worksheet/form titled "Float your Boat Record Sheet" to draw their final boat and make an estimate of how many pennies the boat will hold before sinking. *Give each pair of students a tub of water and a handful of pennies to test their prediction. *Ask students to place their boat on the surface of the water. Then prompt students to take turns adding pennies to the boat until it sinks. *Instruct students to record the number of pennies that the boat held without sinking. Was it more or fewer than they predicted? *Have students find the difference between their prediction and the result by subtracting the smaller number from the larger number. **Tip**: Before placing the water tubs on students' desks, take a minute to review behavioral expectations such as not splashing.	Discuss and define the word "buoyancy" . Invite each pair to display their boat and share their result. Start a discussion on the different boat designs. Ask students to offer hypotheses on why some boats held more pennies than others before sinking. Guide students in understanding that the boats with greater surface area have greater buoyancy—and can therefore hold more weight. Guide students in understanding that the boats were made of different materials that have different physical properties that can be measured and used for different purposes.			

Name: _____

Float Your Boat Record Sheet

1. Draw a picture of your boat in the box below.

2. How many pennies can your boat hold without sinking?

Prediction	Actual Result

3. Did your boat hold more or fewer pennies than you predicted? _____

4. The difference between the prediction and the actual result was _____ pennies.