

Name _____ Date _____

Making a Home-to-School Connection

Family Science Night

Science in Boats:

Exploring Buoyancy

Science can be fun for the whole family!

From time to time, Family Science Night Activities like this will go home with your child. It can be challenging to come up with new and interesting evening activities. These experiments are designed to involve the whole family and get parents and children communicating. Rated in difficulty from fairly simple to difficult, some of these activities are more challenging than others, but all of them should be fun and get your whole family to start asking questions about the world around them. By reinforcing science at home, you are showing your child that you support their education and efforts at school. Plus, students who participate and return this packet completely filled out and signed by a parent can get up to _____ points extra credit!

MATERIALS:

- | | |
|----------------------------------|----------------------|
| 1. Aluminum foil | 5. Scissors |
| 2. \$2 or \$3 of pennies | 6. Washing style tub |
| 3. Note cards (3x5, 4x6, or 5x7) | 7. Water |
| 4. Masking tape | 8. Paper clips |

COST OF THIS EXPERIMENT: Less than \$15

CHALLENGE LEVEL: ○○○●○
MODERATELY DIFFICULT

TIME OF COMPLETE: 1 ½ HOURS

Questions To Be Answered:

Which homemade boat design will be able to hold the most amount of weight before sinking?

Hypothesis: (The hypothesis is your guess to the question asked above. It is o.k. to have a different guess than your family members.)

1. How much weight (in pennies) do you think boat design #1 will be able hold before sinking? Why?

2. How much weight (in pennies) do you think boat design #2 will be able hold before sinking? Why?

3. How much weight (in pennies) do you think boat design #3 will be able hold before sinking? Why?

4. How much weight (in pennies) do you think boat design #4 will be able hold before sinking? Why?

Procedures:

1. Using only the following materials per boat, design and construct four different "boats" which you feel will be able to float and hold pennies.
 - (1) 12 in. x 12 in. piece of aluminum foil
 - (2) Two note cards
 - (3) 12 in. of masking tape
 - (4) Two paper clips
2. In the data table below, carefully draw, color, and describe what each boat looks like.
3. Fill the tub with about four inches of water.
4. Place Boat #1 in the water and carefully add pennies, one at a time, until the boat begins to sink.
5. Record the total number of pennies for this boat in the data table below.
6. Remove the boat from the water, shake it as dry as possible, and test the boat two more times.
7. Repeat steps #4 to 6 for the other three boats. Record your results below.

Observations: *(The more details you include, the more points you will earn!)*

Boat Type #1: _____		
Observations:	Detailed Drawing: (use color)	Detailed Description:
What did this boat originally look like?		

Boat Type #2: _____

Observations:	Detailed Drawing: (Use Color)	Detailed Description:
What did this boat originally look like?		

Boat Type #3: _____

Observations:	Detailed Drawing: (Use Color)	Detailed Description:
What did this boat originally look like?		

Boat Type #4: _____

Observations:	Detailed Drawing: (Use Color)	Detailed Description:
What did this boat originally look like?		

Observations: *(The more details you include, the more points you will earn!)*

Homemade Boat Weight Limits in Pennies			
Boat Designs:	Trial #1	Trial #2	Trial #3
Boat Type #1: _____			
Boat Type #2: _____			
Boat Type #3: _____			
Boat Type #4: _____			

Analysis of Results: *(The more details you include, the more points you will earn!)*

1. Boat Type #1 _____

A. On average, how many pennies could this boat hold? Was it different or the same for each trial?

B. What happened to this boat once you started adding the pennies? Did it start sinking right away or did something else happen? Was it different or the same for each trial?

C. Was this the same as your hypothesis or different? Why do you think this happened to this boat?

Analysis of Results: *(The more details you include, the more points you will earn!)*

2. Boat Type #2 _____

A. On average, how many pennies could this boat hold? Was it different or the same for each trial?

B. What happened to this boat once you started adding the pennies? Did it start sinking right away or did something else happen? Was it different or the same for each trial?

C. Was this the same as your hypothesis or different? Why do you think this happened to this boat?

3. Boat Type #3 _____

A. On average, how many pennies could this boat hold? Was it different or the same for each trial?

B. What happened to this boat once you started adding the pennies? Did it start sinking right away or did something else happen? Was it different or the same for each trial?

C. Was this the same as your hypothesis or different? Why do you think this happened to this boat?

4. Boat Type #4 _____

A. On average, how many pennies could this boat hold? Was it different or the same for each trial?

B. What happened to this boat once you started adding the pennies? Did it start sinking right away or did something else happen? Was it different or the same for each trial?

C. Was this the same as your hypothesis or different? Why do you think this happened to this boat?

FINDING ADDITIONAL RESEARCH:

What additional questions would you like answered about buoyancy?

Who participated in this Family Science Night Activity with you?

Parent Signature _____ Date _____