Boat Challenge Lesson Plan
& Class Presentation Assignment

Goals:

What do you hope to accomplish? What do you want these students to take away from your lesson plan?

Understanding the forces of buoyancy and gravity and how to construct a boat to maximize buoyancy as you apply the weight of pennies to the boat.

What is the activity/design-challenge that you will be implementing? Describe it.

We will be implementing a project that challenges the kids to build an aluminum boat that will hold the maximum weight possible and will test each group’s boats to determine the winner.

How are you going to use this activity to engage these students?

It is a hands-on design challenge that will challenge kids to think and apply things they have learned in the lesson plan.

What are the scientific principles that every student should walk away with? Will your students understand that you’re doing science? How?

Gravity, buoyancy (force)
Design of tools can affect its ability to perform
Density
Surface Area/ Height
Agenda:

<table>
<thead>
<tr>
<th>Minutes</th>
<th>Activity</th>
<th>Leader(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Introduction/quiz</td>
<td></td>
<td>Get to know us, get the class started with an icebreaker/quiz game</td>
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<tr>
<td></td>
<td>game</td>
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<tr>
<td>10</td>
<td>Lecture</td>
<td></td>
<td>Teach them about gravity and buoyancy</td>
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<tr>
<td>15</td>
<td>Build</td>
<td></td>
<td>Use this time to design/build their aluminum boats</td>
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<tr>
<td>15</td>
<td>Test</td>
<td></td>
<td>Put the boats in water and put pennies in them to test their ability to hold weight.</td>
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<tr>
<td>15</td>
<td>Review</td>
<td></td>
<td>End activity with a tie back to the buoyancy lesson.</td>
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Materials:
aluminum foil- 3 rolls
pennies- 3$ worth
house gutters- 4
water - hose?
bucket - 2
tape - 1 roll (scotch is fine)

Student's will need:
- Notebook
- paper
- scissors
- tape

Classroom Set Up:
Split students into groups of 3
Students will be designing and building boats at their desks or on the floor of their classroom. An outdoor area for testing the boats would be preferred (weather permitting) but otherwise a large indoor space with access to water will do.
Presenters need access to whiteboard.
Access to water necessary!