Barge Building

A team of two students will construct a barge using heavy-duty aluminum foil that can support a large weight of cargo (stone pebbles*). This event will also test the team’s weight estimation skills.

1. Each team will be given one 18 x 18 cm sheet of heavy-duty aluminum foil. They will be allowed 10 minutes to construct a barge.

2. The students will quickly load their barge with the pebbles while the barge is floating in a container of water (approx 16 x 24 in. Rubbermaid type container). Organized grouping or counting of pebbles is not permitted.

3. Loading pebbles onto the barge must stop as soon as water enters the barge. At that point the students will estimate the weight of the pebbles, in grams. They will be allowed to hold the pebbles in a baggie for their estimation. Under and overestimation is allowed.

4. Only the pebbles will be weighed by the event captain on an electronic scale. The scores will be calculated using the formula below.

5. Scoring

<table>
<thead>
<tr>
<th>At or under estimation</th>
<th>Over estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of pebbles: 178 grams</td>
<td>178 grams (doubled) = 356 grams</td>
</tr>
<tr>
<td>Team’s estimation: +150 grams</td>
<td>206 grams (-average)= -28 grams</td>
</tr>
<tr>
<td>Team’s score: 328 grams</td>
<td>328 grams</td>
</tr>
</tbody>
</table>

**Important:** Students should practice gram estimation of stone pebbles or other suitable weight before the competition

6. Bonus Scoring

If the team’s estimate is equal to the actual weight of the pebbles in their barge, the team will receive a bonus of 20 points added to their score.

If the team estimates between 1-10 grams of the actual weight of the pebbles in their barge, the team will receive a bonus of 10 points added to their score.

*Stone pebbles can be found at Michael’s and Home Depot. They are often called mini river rocks.*

[Michael’s Ashland Mini River Rocks](#)

[Home Depot River Pebbles](#)

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