

Ocean Commotion Activity: A Weighty Issue

Lesson Objective

Students will design a barge that will hold the greatest number of pennies before sinking.

Grade Level

Grades 3-8, small group activity

Materials per group

- One piece – 12-inch square heavy-duty aluminum foil
- Small tub of water (plastic shoe boxes or mixing bowls work well)
- 100 pennies or small washers
- Ruler

Procedure

1. Discuss with students some or all of the following concepts: water displacement, various boat designs and uses, transportation of materials on the Mississippi River.
2. Give a set of the materials to each student group. Allow each group time to design and build a barge. Each group can test and modify the barge design so that the barge can carry the maximum number of pennies possible before sinking to the bottom of the container. Groups may obtain additional pennies if needed, but no additional foil may be given to a group.
3. Groups will be required to turn in the final measurements of their barge, a drawing of the barge, a written description of the modifications they made to their barge after each test, the number of pennies it held for each test, etc. Charts and graphs made in a computer graphing program are a nice way to chart each group's success. These can also be hand-drawn.
4. Group presentations describing their barge design can be given before a class competition is held.

Assessment

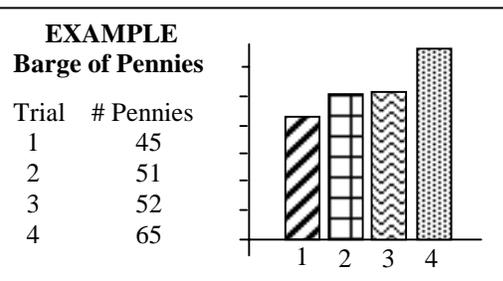
- Written descriptions and drawings from #3 could be used as an assessment.
- Ask student to describe a method of building a barge from modeling clay.
- AFTER FIELD TRIP TO OCEAN COMMOTION: Ask students to describe a boat (real or model) they saw Ocean Commotion. How is their aluminum barge similar to and different from the actual boats.

Notes

- This is a good activity to use when forming new student groups.
- How would the design of the barge differ if a liquid or a gas were to be the cargo?
- Students could research the types of barges and their cargoes that move on the Mississippi River; recent barge accidents, agencies that regulate barge traffic.
- Guest speakers could include river pilots, environmental professionals that deal with barge accidents.
- Fieldtrips to a port facility or a chemical plant port facility would be interesting.

LA Science Frameworks

- SI-E-A2 – planning and/or designing and conducting a scientific investigation.
- SI-E-A5 – using data, including numbers and graphs, to explain observations and experiments.
- SI-M-A2 – designing and conducting a scientific investigation.
- SI-M-A4 – developing descriptions, explanations, and graphs using data.



Ocean Commotion 2000: Becoming Stewards of Our Coast and Sea