

Keep My Boat Afloat Project

Planet Holloway Physics

Objective:

To build a model barge that can stay afloat for 30 seconds in a large bucket of water, while holding 2-4 kg of mass as cargo. Your model will be used for reference and to demonstrate several physics concepts that apply to floating (and or sinking).

Materials:

Do use – up to 100 standard popsicle sticks (size 4 1/2" x 3/8") and appropriate glues and waterproofing. One continuous sheet of plastic (think trash bag) 24" x 24" trimmed to fit your boat. That's all and that's it.

Write up:

Research the physics of floatation, boats and barges and include explanations of three to five different concepts and how each concept was incorporated in your design. Cite your source carefully and use at least three different references for this project.

Include photos or illustrations with your explanations where appropriate. Explain you engineering ideas.

Include a section for qualitative and quantitative data about the float. What did it do as you added weight? Be specific, down to the beam.

Conclude with a relative analysis of your float compared with your expectations and what improvements need to be made for longer floats or holding more cargo.

Extra Credit: Have the top rim (edge) of your boat within 1 cm of the water while holding 4 kg.