STEM Ahoy! Soap Boat Engineering Design Challenge

Situation

Experimentwith surface tension and physics!

Problem & Career Focus

It's finally summer! You've either been to the beach, played with toys in a pool, or watched cartoons of boats. Have you ever wondered how some boats move on water? Your task is to research the design of boats to make yours move in water in an interesting way! Your team of marine engineers, outside machinists, and port engineers to design a STEM boat propelled by soap! What role does a boat design have in successful propulsion? How does surface tension effect boat propulsion?

Things to Consider

1. How does the design of a boat effect how it moves in water?
2. How does physics and surface tension effect how a boat moves in water?

Criteria:

Create a boat design propelled by soap!

Materials:

Suggested Items:
* Scissors
* A sheet of clear PVC or styrofoam (I used Amazon to purchase clear PVC)
* (Optional) Colored Paper and Straws
* Liquid Dish Soap
* Adult supervision!

Constraints:

* Use materials as directed
* Work as a family engineering team!
* Create your own criteria!

Investigating Questions:

How does soap effect surface tension?

Why does the boat stop propulsion after multiple tries?

What steps of the engineering design process did you use?

Educational Standards Correlations

Language Arts, Engineering, Science, Physics, Mathematics

VMASC Old Dominion University

Digital Shipbuilding