Boats Afloat Lesson Plan

Amount of time Demo takes: 3 mins.
Try this at home!

Materials
- 2-3 rolls of aluminum foil
- 1 package of small washers
- Bring aquarium over from storage (will add this demo to Flinker)

Set-up Instructions
1. Use the flinker tank as a body of water.
2. Pour 5-6 inches of water into the tank.

SAFETY! Safe Demo!

Lesson’s Big Idea
- This lesson is about finding the best way to construct a boat that will float while holding weight. The students can try different boats and see what is the best design.
- When you put an object into a fluid, its behavior is governed by Archimedes’ Principle. This is an object in fluid experiences an upward buoyant force. The strength of the buoyant force is determined by the weight of the fluid displaced by the object. More-dense objects tend to sink, while less-dense objects float or ‘flink’ (neither float nor sink).

Instructional Procedure
1. Invite the students to construct a boat out of a small sheet of foil.
2. Have them estimate how many washers the boat will be able to hold before it sinks. Test their guess!

Assessment/sample questions you can ask
1. What causes boats to float? Was the estimate right?
2. How would you change your design to make it work better? Where in the real world do you see boats with the same design as yours?

**Clean Up**
- Wipe up any spilled water and dry off the washers as best you can. Any foil left intact can be reused for future demos.
- Pour the water out of the tank and dry it before putting it away.

**References**
- University of Winnipeg: [http://theory.uwinnipeg.ca/physics/fluids/node10.html](http://theory.uwinnipeg.ca/physics/fluids/node10.html)

**Next Generation Science Standards**
- K-5
  - 3-PS2-1
- 6-8
  - MS-PS2-2
- 9-12
  - HS-PS2-1/4