Mr. Gunstenson
Science 8

FD 8.2 Indicator #1

1. Identify questions to investigate arising from problems and issues involving floating, sinking, and buoyancy:
    - What factors affect the amount of cargo a barge can hold?
    - Why do some objects float and some objects sink?
    - How can a ship made of steel float in the ocean?
2. Explain the concept of force with examples. Think about:
    a. Contact forces
    b. Non-contact forces.
3. Illustrate, using force diagrams, the movement of objects in fluids in terms of:
    a. balanced forces
    b. unbalanced forces
4. Use a spring scale to determine the relationship between mass and weight.
5. Explain how buoyancy is controlled in nature:
    - fish, humans, and sharks
6. Explain how buoyancy is controlled in constructed devices
    - submarines, airplanes, airships, scuba gear, and hot air balloons
7. Conduct a fair test to identify which factors determine whether a given object will float or sink, and discuss reasons why scientists control some variables when conducting a fair test.

Autobumps:

1. Create a lab write-up for "Exploring Mass and Weight"
2. Create a lab write-up for "Create a Cartesian Diver"
3. FD 8.2 Question Set #1

FD 8.2 Indicator #2

1. Examine contributions of people from various cultures to understanding the principles of buoyancy:
    a. Archimedes Principle
    b. Development of watercraft such as canoes and kayaks.
2. Design, construct, and evaluate a prototype of an object that floats and can carry the greatest amount of cargo.
3. Analyze designs of traditional and contemporary watercraft with respect to buoyancy:
    - Canoe, Kayak, Lake boat, Catamaran, Jet-ski
4. Explain the operation of technologies whose development is based on scientific understanding of the properties of fluids:
    - personal flotation devices, float planes, surfboards, gliders, anti-freeze tester, heart pumps
5. Compare how different fluids change the buoyant force on a given object.

Autobumps:

1. Complete a lab write-up for " The Best Boat"
2. Buoyant Device Presentation
3. Create a lab write-up for "Floating One Gas on Another"
4. Create a lab write-up for "Buoyant Forces of 3 Liquids"
5. FD 8.2 Question Set #2