

# Busy Bins for \$5 or less



Sink or Float:  
Buoyancy  
in  
Action.

**MATERIALS**

- 2 Large, clear plastic containers (same)
- Water
- Table Salt
- Spoon
- Common household objects that can be placed in water
  - Eggs
  - Grapes
  - Small Toys
- Printable Observation Sheet available at: [www.STEAMengineOKC.org/freebins#busybins](http://www.STEAMengineOKC.org/freebies#busybins)

**INSTRUCTIONS**

- Pour equal amounts of water into each of the large plastic containers. (Roughly 2/3 full)
- Add Table Salt to one of the containers. Stir until the salt dissolves. Continue adding salt and stirring until no more salt will dissolve. (The solution is now considered saturated).
- Gather objects for your experiment. Make predictions about whether each will sink or float in both the plain water and the saltwater.
- Test your predications and record the results on the Printable Observation Sheet.







## EXPLANATION

### Why do some objects float but others sink?

Density is the amount of material (or mass) that make up an object of a given size. Two objects of the same size can contain different amount of mass, which is often observed as one object being “lighter” and the other “heavier”. [Note: Mass and weight are NOT the same thing. But that’s for another lesson)

The density of an object, compared to the liquid that is placed into, will determine the buoyancy of the object –that is, if the object will sink or float. Objects that are more dense than the surrounding liquid will sink, but objects that are less dense than the surrounding liquid will float.

Salt affects the density of the water in this experiment by adding more mass, thus making it more dense (without affecting the volume very much). As the density of the saltwater solution increases, objects that are less dense than the saltwater but more dense than the fresh or plain tap water will begin to float in the saltwater solution.



# SINK OR FLOAT: PREDICTIONS AND OBSERVATIONS

<b>Object</b>	<b>Freshwater</b>		<b>Saltwater</b>	
	Prediction <small>(circle one)</small>	Observation <small>(circle one)</small>	Prediction <small>(circle one)</small>	Observation <small>(circle one)</small>
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
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## EXTENSION QUESTIONS:

- Do you think that you (human) will float better in plain water or saltwater? Why?
  - How could you test this out?
- How does sugar affect the density of water? What about baking soda? Other (safe, non-toxic) household substances?
- What other experiments could you perform to observe buoyancy in action?

