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.

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Sink or Float:
Predictions and Observations

Object	Freshwater		Saltwater	
	Prediction (circle one)	Observation (circle one)	Prediction (circle one)	Observation (circle one)
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT
	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT	SINK or FLOAT

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?