

Scientific Investigation Worksheet: Floating eggs???

Begin by reminding students of past experiments where they dissolved substances in water. Dissolving means that the substance gets “hugged” by water molecules and you can’t see it anymore. Does water get thicker when things are dissolved in it? What would happen if you poured LOTS of sugar in water..would it all dissolve? No—you’d end up with wet sugar. So there’s a continuum of how “thick” the water is...pure water to a mound of sugar that is damp. Density measures how many molecules, little bits of water and sugar for example, are packed into a space. Today we’ll be looking at what happens to an egg when we increase the density of water. How can we get the egg to float? Would it fall through this table? No....why not? Would it sink in water? well...test it. How could you get it to float???

Step 1 – Question – What do you want to know

Can I get an egg to float?

Variables I will keep the same

- egg, temperature of water, amount of sugar in each spoon
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Variable I will change: how much sugar is in the water

Variable I will measure: does the egg float?

Step 2 – Prediction – What I think will happen . . .

If I add enough sugar to the water
refer to changed variable

then I predict the egg will float
refer to measured variable

Step 3 – Materials – What I will use . . .

- 1 cup
- water in cup, close to 2/3rds full (so it’s obvious that the egg sinks or floats)
- sugar
- spoon
- egg

Step 4 – Procedure – The steps I will take . . .

1. test the egg in water, does it float?
2. REMOVE egg.
3. add one level spoonful of sugar, stir until it dissolves
4. test egg again, does it float? record observation and remove egg.
5. repeat steps 3-4 until egg floats

Step 5 – Data collection (my observations during the experiment):

TRIAL 1:		TRIAL 2: (if there's time)	
Amount	Result (float or sink?)	Amount	result
<u>1 sp</u>	_____	_____	_____
<u>2</u>	_____	_____	_____
<u>3</u>	_____	_____	_____
<u>4</u>	_____	_____	_____
<u>5</u>	_____	_____	_____
<u>6</u>	_____	_____	_____

**Overall Results - What was observed using multiple trials from the class.
Amount needed to make egg float using sugar:**

(How can you describe these data? Mode? Median? Range? Average? Graph it? The classroom teacher could do this as a follow-up exercise)

Step 5 – Conclusion

My prediction _____
(state prediction)

was _____
(Supported or not supported by the data)

Concluding statement: _____

Questions for discussion: Questions for discussion: Would a boat in the ocean (salt water) be able to carry more weight than the same boat in freshwater? How could you test this in the classroom? What might cause variation in results between groups? (egg size, amount sugar in spoons, etc.—things we wanted to control exactly...but can't). What would you predict for large vs. small eggs from the store-which would require more sugar to float? Why?