

## Conclusion Planning Template

Write in point form for this copy BUT needs to be in sentence and paragraph form for rough and good copies of the conclusion.

### PARAGRAPH 1

Hypothesis – Restate & Evaluate the What  
(*Were you right or wrong at the beginning of the experiment?*)

My hypothesis that different solutions affect the buoyancy of an object was correct.

Observations – Qualitative  
(*What your 5 senses noticed; only the relevant ones that support your evaluation of you hypothesis.*)

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- as more substance was added it took longer for it to dissolve into the water
- the volume of the water rose each time more substance was added to it, but at different levels for salt and sugar
- when egg dropped into sugar solution its descent got slower and slower as more substance was added, this happened faster with less salt
- later on as the egg hit the bottom of the container it would actually float up a little before settling back down to the bottom
- the salt water solution made the egg float first with the least amount

Observations – Quantitative  
(*What you measured and your results and calculations. Use the math Luke.*)

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- in pure water it took the egg 0.8 seconds to sink to the bottom
- at just 1 tbs the salt slowed down to 1.24 and the sugar to 1.2 seconds
- at 4 tbs the egg floated in the salt water where it took 10 tbs of sugar to make it float
- at 3 tbs the salt water takes almost twice as long as the sugar water and is more that four times slower than regular water

**PARAGRAH 2**

Science – Explain Why This Happened

***(Okay you need to do some more research to explain the science behind the experiment. Find good science vocabulary words that you can learn and understand. Why did the experiment work the way it did. VERY IMPORTANT PART!)***

\*\* Use the second research template to help you answer questions to your project. Record your sources of information as they must be included in your lab report and on you display.

- density is the amount of matter inside an substance (solid, liquid, or gas)
- buoyant force is the upwards force that fluid pushes up on an object if it is greater than the downward force of gravity the object will float
- the greater the density the greater the buoyant force a liquid will have
- dissolving a substance into a liquid increases the density, salt crystals have a higher density than sugar crystals so they add more particles to the water when dissolved
- if you weighed a tsp of salt it would have a greater mass than a tsp of sugar
- the sugar and salt particles dissolved into the water and fit into the spaces between them and pushed them further apart (this is why the volume increases as you dissolve more)
- once the buoyant force is large enough it can make the egg float
- so any substance that can be dissolved in water should be able to make something float as long as the buoyant force is larger than the gravitational force pulling the object down
- next time I would increase the substances by 1/2 tbs so to be able to see the changes occur slowing in the timed descent
- I would also weight the mass of the water each time so I can compare how the mass changes and I would record the volume by using a graduated cylinder - with this I would calculate the density each time and correlate it with the time it took the egg to sink (another graph!)

**Finally**

Now join it all together in a rough copy then PROOF READ, EDIT, and then type up a good copy.

- Paragraph 1 = Hypothesis & Observations
- Paragraph 2 = Science

## Conclusion

My hypothesis that different solutions affect the buoyancy of an object was correct. While performing the experiment as more substance was added it took longer for it to dissolve into the water indicating that the solution was becoming saturated. For each of the tests, the volume of the water rose each time more substance was added but at different rates for salt and sugar. When the egg was dropped into sugar solution its descent got slower and slower as more sugar was added, this happened sooner with the salt water solution. Later on, as the egg hit the bottom of the container it would float back up a little before settling back down to the bottom. The salt water solution made the egg float first with the least amount of substance dissolved when compared to the sugar water. My data shows that in pure water it took the egg 0.8 seconds to sink to the bottom. With just 1 tbs the salt the egg's descent slowed down to 1.24 seconds and the sugar slowed to 1.2 seconds. At 3 tbs of salt and sugar, the salt water takes almost twice as long as the sugar water and is more than four times slower than regular water. The egg floated in the salt water at 4 tbs where it took 10 tbs of sugar to make it float to the surface of the water.

In this experiment buoyant force, density, and particle theory are explored. Buoyant force is the upwards force that fluid pushes up on an object if it is greater than the downward force of gravity the object will float. In pure water there is not enough buoyant force to make the egg float as seen in test 1. Density is the amount of matter or particles inside a substance (solid, liquid, or gas). Different substances have different densities so when dissolving sugar and salt into the water it changes the water's density. Salt crystals have a higher density than sugar crystals so they add more particles to the water when dissolved. If you weighed a tsp of salt it would have a greater mass than a tsp of sugar. The greater the density of a liquid the greater the buoyant force it will have. The sugar and salt particles dissolved into the water and fit into the spaces between them and pushed them further apart; this is why the volume increases as you dissolve more. Any substance that can be dissolved in water should be able to make something float as long as the buoyant force it creates is larger than the gravitational force pulling the object down. If I was to redo this experiment I would decrease how much I added of the substances by 1/2 tbs so to be able to see the changes occur slowing in the timed descent. I would also weigh the mass of the water each time so I can compare how the mass changes and I would record the volume by using a graduated cylinder - with this I would calculate the density each time and correlate it with the time it took the egg to sink (another graph!)