



Eggsperiment

Density
& Salinity

Materials

- A glass
- Table salt ½ cup - 1 cup
- A fresh egg
- A spoon
- Tap water



Method (Part 1)

1. Fill the glass with fresh tap water
2. Carefully place the egg in the glass of water

The egg sinks because it is denser than the water. That means that the egg has more mass, and is heavier than, the equivalent "egg-sized" volume of water.

Method (Part 2)

3. Scoop out the egg
4. Add the salt to the water and mix until mostly dissolved.
5. Add the egg to the salt water

*If the egg doesn't float, just scoop it out, add more salt, and try again.

Woohoo!
Floating egg!



Do you notice the elastic scattering?
The water has turned white.
Physics!



The saltwater solutions becomes denser than the egg. The solutions contains H₂O (water) and sodium chloride (salt). So now the egg has less mass, and is lighter than the equivalent "egg-sized" volume of salty water.



Sink or Swim

Density & Temperature

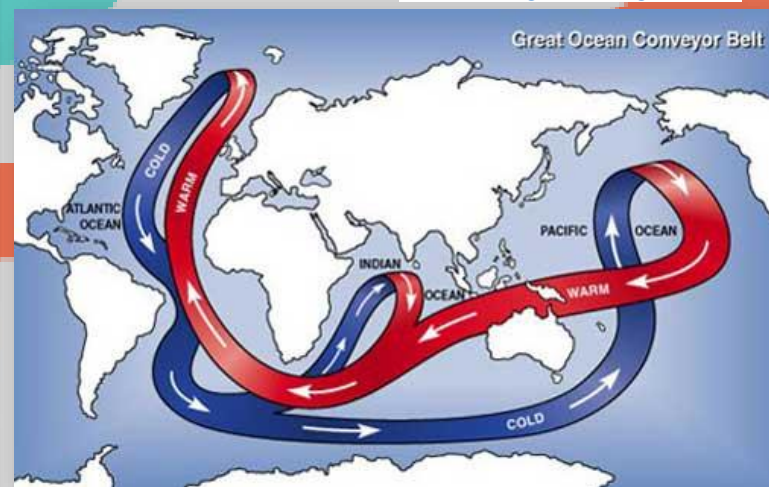
Materials

- A large clear container (like a fish tank)
- Blue & red balloons
- A spoon or BBQ tongs
- A kettle to boil water
- A big block of ice
- 2 large salad bowls

Method

1. Fill the large container with tap water
2. Fill the balloons with water and squeeze out any air
3. Immerse the red balloons in hot water from a boiled kettle
4. Immerse the blue balloons in ice cold water
5. Leave the balloons to sit for a few minutes so the water inside them heats up and cools down
6. Using the tongs or spoons, add the hot and cold balloons to the room temperature water in the large container

External Resource: <https://svs.gsfc.nasa.gov/3658>



Warmer water floats

Colder water sinks



Iceberg right ahead!

Materials

- A large clear container (like a fish tank)
- A large block of ice coloured with food dye
- BBQ tongs

Method

1. Using the tongs, add the block of ice to the room temperature water in the large container
2. Watch closely to see coloured water melt and sink to the bottom



Density & Temperature

The cold blue liquid melting from the ice block is sinking down.

This is similar to what happens when polar ice and glaciers melt into the ocean.



H₂O takes 3 forms:
Solid (ice)
Liquid (water)
Gas (water vapour)

The cold ice melt sinks down the water column and pushes water upwards.





ACTUALLY, IT'S

PHYTO- PLANKTON!



pH of
water

Ahhhhh! Acid

Soda makers force carbon dioxide gas into water creating carbonic acid.



Materials

- Soda maker (such as a SodaStream) & bottles
- A pH test kit (aka indicator dye)
- 3 contrasting water samples (e.g., tap water, rainwater, and soda water)
- 3 small cups or test tubes

Method

1. Make some bubbly water with your soda maker.
2. Collect other samples like rainwater and tap water
3. Place water samples into small cups or test tubes
4. Following the instructions or your pH kit, add the indicator dye to each sample
5. Use the pH chart to view the results and note them down

Materials

- pH test kit
- water samples
- a glass
- a straw

Method

1. Add indicator dye to your water samples
2. Use the straw to blow Co2 from your lungs into the sample.

Watch the colour (and the pH level) change almost instantly!

DO NOT INGEST! ALWAYS FOLLOW SAFETY INSTRUCTIONS ON THE pH TEST KIT WITH ADULT SUPERVISION.



We breathe out Carbon Dioxide