Climate Change & Oceans Experiment

Did you know that our oceans, rivers and lakes play a very important role regulating our climate? Our planet is warmer than it used to be, and our oceans are very important because they absorb this extra heat and slow down the effects of climate change.

Let's have a look at how water and air react to heat.

Set up time: 5 minutes Wait time: None

What do you need?

1. 2 x balloons
2. 1 packet of matches or a lighter
3. Access to a tap

Warning! Fire is dangerous. Do not do this experiment without the help of an adult!

Eco-tip: At Green-Schools we don't like using balloons because they are a single-use plastic and are very harmful to wildlife if released into the environment - but we haven't found a better alternative for this experiment yet. Make sure you dispose of the balloons correctly in the general waste bin and remember that balloons that get released into the air come back down again as litter in our oceans and our forests.

What do you do?

1. Fill one balloon with air and tie it off. It doesn't have to be really big.

2. Carefully, fill the second balloon with water. The easiest way to do this is gently stretch the top of the balloon over the tap and hold it in place. Slowly turn the tap on – if the pressure is too high, the balloon will fly off! Be patient, it might take a few tries. When it's filled (make sure you don't leave air in the top!), tie a knot in the balloon and wipe any water off the outside with a cloth.

3. Hold the air balloon out away from your body (don't drop it!). Ask your adult assistant to light a match and hold it just under the balloon. How long do you think it will take for the balloon to pop? Count the seconds!

4. Now repeat Step 3 using the water balloon. How long do you think it will take for the water balloon to pop? If you can, count as far as 10 to see if it pops.

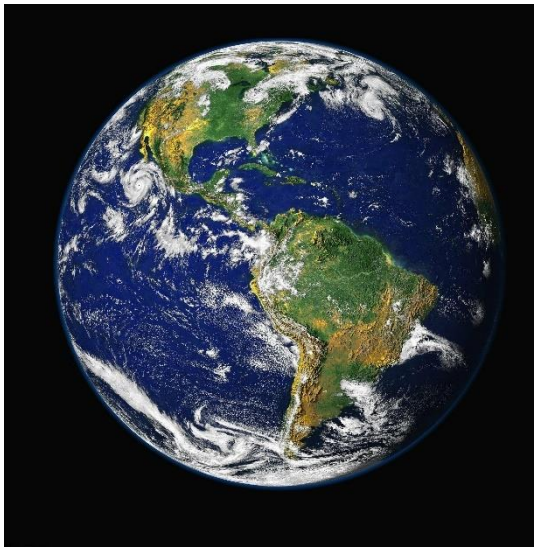
   Note: If you feel nervous you can hold the water balloon over the sink. If you feel very brave you can ask your adult assistant to sit underneath it for 10 seconds as they hold the match 😊

Questions

1. Before you started, what did you predict was going to happen to each balloon?

2. Which took longer to pop? Why do you think they were different?

Explanation:



Water can absorb more heat than air because it is denser. In this experiment, the air in the first balloon expanded very quickly as it heated up, stretching the rubber and causing the balloon to pop.

The second balloon did not pop because the water could hold a lot more heat.

As the water at the bottom of the balloon heated up, it travelled up to the top of the balloon and was replaced by cool water moving down – much in the same way our ocean currents move warm water from the equator to the North and South Pole.

Ireland's waters are kept ice-free because of a warm water current coming from the Caribbean called the North Atlantic Drift.

Learn more about climate change and see a demonstration of this experiment here:

https://www.youtube.com/watch?v=6Fthw65WUpU