nanogirl's LAB

SUPER POWER: Geothermal Energy!

CONVECTION CANDLE

LAB NOTES...

BUILD TIME 10 MINS

YOU WILL NEED

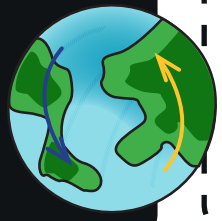
- Kitchen foil
- String
- Pencil
- Scissors
- Ruler
- Tape
- Small candle and lighter

or a mug of boiling water (adults only)

Why does it spin?

There are lots of hot places all over the Earth, and the middle of the planet is scorching hot as it's filled with flowing molten rocks called "magma". Humans use the power of the earth's heat to make a type of energy called "geothermal" energy. Just like wind, the core of our planet is always going to be hot, and so we'll never run out of this type of renewable energy.

The heat from the candle or boiling water warms the air underneath the spiral. Warm air rises up, as it does it pushes on the underside of your spiral. This force is enough to make your spiral spin due to its shape. The warm air keeps rising until it cools enough to sink back down again. We call heated air movement a "convection current" and it happens all over the surface of the earth thanks to the heat from the sun. This creates patches of warm air across the earth which create wind!



TO MAKE YOUR SPIRAL...

1. Watch Nanogirl making her spiral.
2. Draw and cut out a big spiral on a square of kitchen foil, leaving a little circle in the middle.
3. Using your pencil, poke a small hole in the centre of that little circle.
4. Cut 20cm of string, and thread one end through the little hole tying a knot to secure.
5. Tape the other end of the string onto the end of a ruler, then tape the ruler over the edge of a table or chair so that the spiral hangs down but doesn't touch the floor. Do this somewhere away from open windows, where there's no breeze.
6. Ask an adult to help you light a candle or get a mug of boiling water, and place on a heat-proof base right underneath your spiral.
7. Watch your spiral spin!

Investigate...

- Do you think a shape other than a spiral would also move?
- Why do you think foil is a good material to use in this experiment?
- How far above the heat source can you move your spiral and still have it spin?
- Go hunting for convection currents around your home. Can you find a warm place, like a radiator or window sunbeam that also makes a convection current?