



Curiosity Guide #607

Convection

Accompanies Curious Crew, Season 6, Episode 7 (#607)

Spinning Snowflakes

Investigation #2

Description

Find out why snowflakes spin!

Materials

- Snowflake Spinner
- Candle
- Match

Procedure

- 1) Position the candle in the spinner.
- 2) Light the candle.
- 3) What do you notice?

My Results

Explanation

As the lit candle warms up the air around it, the air particles begin to collide more quickly and more forcefully, making the air less dense. As a result, the warmer air begins to rise. The particles begin to create an air current and collide with the fan blade. The fan blade begins to rotate and spins the snowflakes. This is a visible example of the convective updraft, which occurs in fluids like liquids and gases. The model shows the rising of the warmer, less dense air and the sinking of the cooler, denser air. This is the same kind of motion of energy transfer that is observed in the atmosphere, the ocean, and even in the mantle of the earth.

Explore further. Search for "convection current" online and select a diagram from Images to help you think about this. When liquids and gases experience a temperature change, something interesting happens! The fluids move and can create currents. This process is called convection. Convection is both a heat and a mass-transfer process. Particles in gases and liquids are in constant motion, bumping into each other and ricocheting away to another collision. But particles that are heated up move faster, collide with more force, take up more space and rise. As the heated particles cool, they slow down and sink. This circulation is a convection current.

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