

Topic: Weather and seasons

What Absorbs More Heat?

<http://www.sciencekids.co.nz/experiments/lightcolorheat.html>

When you're out in the sun on a hot summer day it pays to wear some light-colored clothes, but why is that? Experiment with light, color, heat and some water to find out.

What you'll need:

- 2 identical drinking glasses or jars
- Water
- Thermometer
- 2 elastic bands or some sticky tape
- White paper
- Black paper

Instructions:

1. Wrap the white paper around one of the glasses using an elastic band or sticky tape to hold it on.
2. Do the same with the black paper and the other glass.
3. Fill the glasses with the exact same amount of water.
4. Leave the glasses out in the sun for a couple of hours before returning to measure the temperature of the water in each.

What's happening?

Dark surfaces such as the black paper absorb more light and heat than the lighter ones such as the white paper. After measuring the temperatures of the water, the glass with the black paper around it should be hotter than the other. Lighter surfaces reflect more light, that's why people wear lighter colored clothes in the summer, it keeps them cooler.

Topic: Weather

Tornado in a Bottle

http://www.madaboutsience.com.au/store/index.php?main_page=page&id=17

Tame the destructive force of a tornado by creating a mini one in a bottle. It's fun and easy!

What you will need:

- Empty plastic bottle with lid. Any size, 500ml works well
- Two drops of liquid detergent (clear detergent works best)
- Teaspoon of glitter (optional)
- Food colouring (optional)

What to do:

1. Almost fill the plastic bottle with cold tap water.
2. Add the liquid detergent.
3. Add glitter to the bottle.
4. Screw on the cap tightly.
5. Hold the bottle by the neck and turn it upside down. Rotate the bottle in a circular motion hard and fast. When you stop rotating a mini-tornado should form inside the bottle. Some find it easier to hold the bottle horizontally and then with a hard flick of the wrist flip it upside down. It may take several goes before you get it right – all part of the fun.

Note: add a small amount of food dye for a colourful effect, or some tiny animal toys and watch them swirl in the vortex. Coloured lamp oil makes just the vortex coloured.

How does it work?

Most people encounter their first vortex as bath water drains from the bathtub. A vortex is a type of motion that causes liquids and gases to swirl around a center line. In this experiment you have created a water vortex by rotating the bottle. The vortex looks like a tornado in the bottle and is very similar to the effect you see with a real tornado except the medium is water as opposed to air.

For a longer lasting tornado in a bottle check out our vortex valves!