

Tornado in a Bottle

"Toto, I've a feeling we're not in Kansas anymore." - *The Wizard of Oz*

Tornadoes are both fascinating and dangerous at the same time. Meteorologists track weather patterns to predict when a tornado will most likely accue to help warn the public. Gather your materials to explore a tornado's vortex safely in your home!

TEKS:

1.8D Demonstrate that air is all around us and observe that wind is moving air.

3.3C Represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials

4.3C Represent the natural world using models such as rivers, stream tables, or fossils and identify their limitations, including accuracy and size.

How To

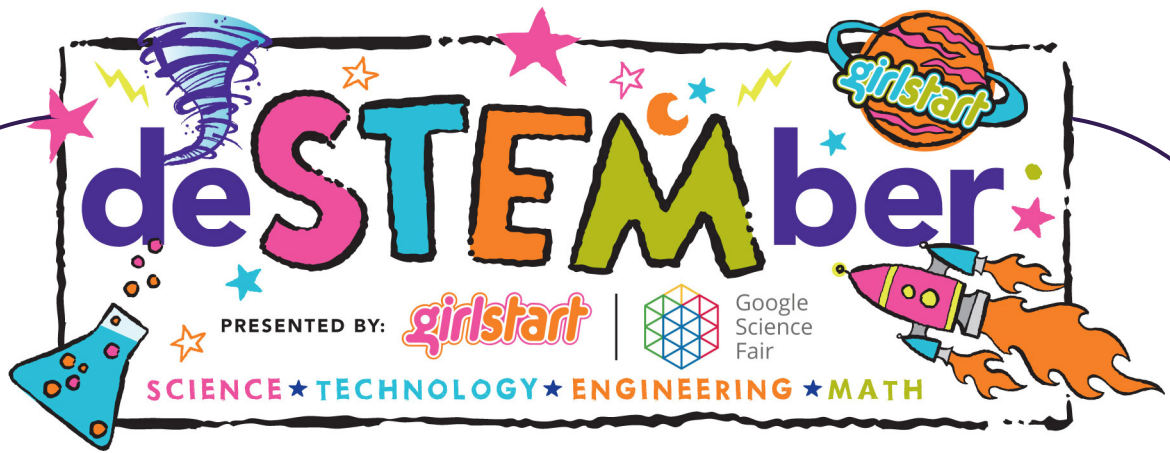
Materials:

- 2– 2 liter plastic soda bottles (clear bottles work best)
- Duct tape
- Glitter (optional)
- Water

1. Fill one bottle 3/4 full with water. Add food coloring and glitter if desired.
2. Tape the other bottle on top of the one with water in it. Make sure the spouts are aligned and you want to have a strong tape seal. (You don't want water to leak out.)
3. Turn the bottles over so that the one with water is on top. See how the water has a hard time going down.
4. To make the water go down into the other bottle, swirl the bottles in a circular motion really fast for a few seconds. Don't shake it up and down or it won't work. The water should swirl into the bottom bottle.
5. Did you see the whirlpool created when you swirled the bottles?

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Why Does it Work?

By swirling the bottle, the water begins to move in a circular motion. When the water moves fast enough, it pushes out against the bottle and leaves a hole in the middle. There is only air in the hole. The hole allows the air from the bottom bottle to come up to the top bottle. When the air moves, it opens up space in the bottom bottle, which makes room for the water from the top to flow downward. This sort of water movement, with the special hole in the middle, is usually called a whirlpool. A tornado happens in air and a whirlpool happens in water. So, it is really a "Whirlpool in a Bottle."

Resource: <http://www.stevespanglerscience.com/experiment/00000056>

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