

DIY Tornado in a Bottle



Skill Level:

Easy

Time:

10 minutes

What Do I Need?

- A clear plastic bottle with a cap
- Water
- Glitter (we recommend using biodegradable glitter)
- Washing up liquid

How Do I Do It?

1. Fill the plastic bottle about a quarter full with water.
2. Add a few drops of washing up liquid and a few pinches of glitter (this will make your tornado easier to see).
3. Put the top on tightly.
4. Turn the bottle upside down and hold it by the neck.
5. Quickly spin the bottle in a circular motion for a few seconds (and then stop the bottle).
6. Look inside. You should see a mini tornado forming in the bottle.

Continued overleaf

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Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS: This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

- Be careful when spinning the bottle as it can easily slip out of your hands.

What's Happening? The Sciency Bit:

Spinning the bottle makes the water inside spin like a whirlpool. It makes a long thin V shape in the middle down to the cap. This is called a vortex and looks like a mini tornado.

You need to spin the bottle fast enough to start the vortex (your mini tornado). The water spinning around is trying to escape; the bottle is pushing back. The same effect can be seen with the solar system. The planets are spinning around the sun and the forces balance each with other so each planet stays in orbit. With a weather tornado, warm air rises from the ground and is made to spin by strong winds.

I Can't See A Tornado In My Bottle... What Can I Do?

- This investigation often needs practice to get the right amount of spinning. It can be frustrating but stick with it. If you don't see a tornado, spin it a little faster for a little longer to start the vortex.
- Try it with 1 litre and 2 litre bottles. Some people find it easier with smaller bottles.
- You can buy a joining device in some toy shops to fix two bottles together. If you fill one of the joined bottles three quarters full of water, spin them quickly then stand them up, you will see a tornado.