



## Tornado - What is a Tornado?

### Fact

- A tornado is a violent windstorm of fast rotating air, rising in a column.
- A tornado starts with an updraft, which is air rising from near the ground into thunderstorm conditions when there's tall fluffy cumulonimbus cloud. The nimbus part of that word means rain cloud.
- The air from the updraft starts rotating. It turns as it rises and this forms a vortex.
- A vortex starts up high in the air and when it reaches the ground, it's called a tornado.
- As the air moves towards the centre of the vortex it starts rotating faster.

### Do you know

- Another name for a tornado is a "twister"
- The swirling winds in a tornado can reach up to over 300 kilometres an hour and the force of that speed can pick up cars, trucks, buildings and uproot trees it's that strong!
- The swirling water in your bathtub when you pull the plug is a vortex of liquid.
- We don't get many tornadoes in New Zealand and if we do they're not very strong, but they often get tornados in parts of America.
- We do sometimes get cyclones. Which are tropical wind storms that happen when masses of air rapidly moving in a clockwise direction, in the southern hemisphere meet large masses of air from the northern hemisphere moving in the opposite direction around a low-pressure area.

### Experiments you can do

Make your own tornado in a bottle.

#### What you need:

An adult to help you (this can be a tricky one to put together!)

2 x 2 litre plastic drink bottles (soft drink bottles)

Very strong sticky tape like Duct tape

A thin piece of cardboard

A hole punch

Scissors

A pencil

Paper towels

A ruler

### What you do:

Use the hole punch to make a hole in the cardboard. Turn one of the plastic bottle's upside down on the cardboard over the hole so you can trace around the circle of the neck of the bottle. Make sure the hole is in the centre of the circle.

Half fill one of the bottles with water. Place the circle of cardboard with the hole in it on top of the neck of the bottle. Make sure the circle fits perfectly and trim it if it's too big.

Turn your second bottle upside down so that the mouth of each bottle lines up. Use a paper towel to dry any moisture from the neck of the bottles and then wrap strips of tape around the necks of the bottles to join them together tightly.

Carefully turn the bottles so that the one with water in is on the top and give them a couple of swirls, parallel to the floor. Set the bottles on a table, with the empty one on the bottom. Watch the water flowing from the half full bottle down in to the empty one. A vortex should form in the bottle. Does it look like a tornado?

### **Other Investigations**

Next time you have a bath check out the water going down the plughole. Have a look at the vortex that is formed. The water close to the plughole will swirl rapidly and the water away from the plughole will move slowly. Just like the air in a tornado.

You can even make a vortex in a round swimming pool. Get some friends or mum and dad to help you next time your swimming in a round pool. Make a vortex by pushing through the water round the side of the pool. Keep going around and around. After a while you won't have to push through the water so hard and then when you get it going fast enough, you'll be able to float and the water will carry you along.

If you have things sitting on the bottom of your pool watch what happens to them in the vortex. If they're not too heavy they might move. Where do they move too?

### **Jokes**

Why did the tornado say pardon me? It had wind!