



## PET Bottle Cyclone - Teacher's Notes

Tropical cyclones are extreme weather systems that mainly affect the northern part of Australia, most often during 'cyclone season' which runs from approximately November to April. They are massive storms that form around low pressure cells over warm water, rotating rapidly around a central 'eye' and involve strong winds and heavy rain.

Some interesting fact about cyclones:

- They spin counter clockwise in the northern hemisphere and clockwise in the southern hemisphere, due to the Coriolis effect.
- Cyclones can also be found on Mars and Neptune.
- There are no cyclones at the equator - they only form at least 5° north or south of the equator.
- Hurricanes, typhoons and tropical cyclones are all the same thing, the name depends on where they form. Hurricanes form in the North Atlantic/Central & North Eastern Pacific oceans, typhoons form in the Western Pacific ocean and tropical cyclones form in the South Pacific and Indian oceans.
- The Bureau of Meteorology names cyclones by following a set list of names alphabetically.

The Bureau of Meteorology's website has some excellent explanations and diagrams about cyclones <http://www.bom.gov.au/cyclone/about/> They also have a series of weather related activities including one on plotting the path of Cyclone John on a map

[http://www.bom.gov.au/info/ftweather/page\\_39.shtml](http://www.bom.gov.au/info/ftweather/page_39.shtml)

Cyclones can have devastating effects, destroying buildings and other infrastructure and ruining crops. Severe tropical cyclone Yasi hit the



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Queensland coast in 2011 causing widespread damage, estimated to have cost \$3.5 billion.

### PET Bottle Cyclone

Students can get an idea of how the air moves in a tropical cyclone by making and observing a simple PET bottle cyclone. Whilst it is difficult to observe air movements, the same movements occur in water, which is what this model uses.

#### Materials

- 2 x PET bottles with lids of the same size. Ones with a classic funnel shaped top work best.
- Strong glue
- Drill or hammer and large nail
- Water
- Food colouring (optional)

#### Method

1. Remove the lids of the two bottles and glue them together, top to top.
2. Allow the glue to dry then drill a hole through both lids (approx. 60mm in diameter) or use the hammer and nail to make a hole.
3. Fill one of the bottles about three-quarters full and add a few drops of food colouring, if you like.
4. Keeping the bottle standing upright, screw the joined lids onto the filled bottle then screw the empty bottle on top (it will be upside down).





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5. Ensure the lids are secure then turn the bottles over so the empty bottle is on the bottom. You will have to support the bottles so they don't tip over.
6. Observe the way the water moves, rotating around the bottle as it drains through the hole. This is how the air moves in a cyclone.

You may like to experiment with different sized holes, timing how long the bottle takes to empty (using the same volume of water to keep a fair test) or seeing the effect of using different shaped or volume bottles.

