

## Tornado Energy Activity

You've probably enjoy playing with the homemade "tornado in a bottle" toy, but have you ever thought about the science you can learn from it? In this activity you will focus on the "organization" that needs to occur in order for a tornado (vortex) to form.

### Materials:

Homemade tornado in a bottle apparatus (using two 2L bottles)  
Stop watch or clock with second hand

### Procedure:

Turn the apparatus upside down and time how long it takes for the water in the upper bottle to completely move down into the lower bottle. Repeat twice more and record each of the times. Calculate the average time.

For the second part of the experiment, give the apparatus a good swirl as you invert it. Time how long it takes for the water to move into the lower bottle. Repeat twice more and record each of the times. Calculate the average time.

### Results & Discussion:

Graph your data.

Is there a significant difference between the two situations?

Why is one situation faster than the other?

Explanations can be found at:

<http://www.exploratorium.edu/snacks/vortex.html>

<http://www.stevespanglerscience.com/experiment/00000122>

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### Extension Activity:

Listen to a weather report. How does the weather person describe the conditions in the atmosphere prior to a tornado forming? Do you hear the word "organized" being used?