



**STEMulates
Project-Based Challenge**

Challenge: Tornado in a Bottle (K-3)

Learning Outcome: We are going to create a tornado in a bottle using water instead of wind

Explanation (What is Happening)

A tornado is a spinning wind. This is a mini version made with spinning water.

The water spins because we move it in a circle (swirl it).

Question for Student

"What happens when you spin it fast? What if you don't spin it?"

Procedure

1. Prepare the Bottles:

- Fill one of the bottles about 3/4 full with water
- Add a few drops of food coloring and/or glitter or small beads to make the tornado more visible (optional).

2. Attach the Bottles:

- If using a tornado tube connector:
- Screw one bottle onto the bottom of the connector and the other onto the top, creating a tight seal.

3. Create the Tornado:

- Turn the bottles upside down so the bottle with water is on top.
- Hold the bottles by the neck (or connector) and swirl them in a circular motion.
- A vortex (tornado) will form as the water spirals into the bottom bottle.

Materials:

- **Two plastic bottles (1-liter or 2-liter, empty and clean)**
- **Water**
- **Glitter or small beads (optional, for visual effect)**
- **Food coloring (optional)**
- **Tornado tube connector**