Tornado Twist-Up: Understanding Nature's Fury

Missouri Learning Standard Alignment: This lesson aligns with MO Learning Standard 6-8.ESS3.B.1 (Natural Hazards), focusing on understanding natural hazards like tornadoes to help forecast future events and understand safety measures.

Lesson Activities:

1. Introduction: What is a Twister? (15 mins)

Let's start by thinking about what we already know. Have you ever seen a tornado in a movie or read about one? What do you think they are? We'll watch a short, age-appropriate video clip showing tornado footage (Parents: Please preview content from sources like National Geographic or NOAA). Discuss initial thoughts and questions. Key question: What makes a tornado different from just strong wind?

2. How Tornadoes Form: Recipe for a Storm (20 mins)

Tornadoes need specific ingredients! We'll explore the conditions needed: warm, moist air meeting cool, dry air, and changing wind speed/direction (wind shear), often within a powerful rotating thunderstorm called a supercell. We can look at diagrams and simple animations online (Search for 'NOAA tornado formation for kids'). Discuss: Why do these ingredients create rotation?

3. Make a Tornado in a Bottle! (15 mins)

Let's build a model! Fill one 2-liter bottle about two-thirds full with water. Add a drop or two of dish soap and some glitter (optional, for visibility). Place the empty bottle upside down on top of the water-filled bottle, aligning the mouths. Securely tape the bottle necks together with strong tape (duct tape works best). Now, turn the bottles over so the full bottle is on top. Swirl the top bottle in a circle vigorously for a few seconds and watch the vortex form! Discuss: How does this swirling motion mimic what happens in the atmosphere?

4. Measuring the Fury: The EF Scale (15 mins)

How do scientists measure how strong a tornado is? We'll learn about the Enhanced Fujita (EF) Scale (EF0 to EF5). Look at pictures or descriptions of damage caused by different EF-scale tornadoes (Use NOAA or National Weather Service websites). Discuss: Why is it important to estimate a tornado's strength? How does the damage change as the number gets higher?

5. Tornado Alley and Missouri Risk (15 mins)

Where do most tornadoes happen in the USA? We'll look at a map of 'Tornado Alley'. Find Missouri on the map. Why do you think this area gets so many tornadoes? (Hint: Think back to our 'ingredients'!). We can quickly search for recent tornado activity or historical tornado facts for Missouri (use reputable news or weather sites).

6. Staying Safe: Tornado Safety Plan (20 mins)

Knowing what to do during a tornado warning is crucial! Discuss the safest places to be: basement, storm cellar, or an interior room on the lowest floor away from windows (like a closet or bathroom). What if you are outside or in a car? (Get to a sturdy building if possible; otherwise, lie flat in a ditch, covering your head). Let's create a simple Tornado Safety Plan poster for our home. Draw the layout

and mark the safest spot.

7. Wrap-up and Review (10 mins)

Let's review! What are the key ingredients for a tornado? What scale measures tornado strength? What's the most important safety rule you learned? What part of the lesson was most interesting?

Optional Extension Activities:

- Research a famous historical tornado event (e.g., Joplin, MO 2011).
- Compare and contrast tornadoes and hurricanes.
- Learn about storm spotters and the role they play.