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HURRICANES AND TORNADOES



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Hurricane and Tornado Vocabulary

Teacher Resources

CHANGING WEATHER



HURRICANES AND TORNADOES

Although you cannot see air, it has weight. This weight exerts a pressure on land and water. Because the molecules that make up air are microscopic, we don't notice their weight. But air pressure has a big influence on our everyday life. A change in pressure is an indication of changing weather. Warm, moist, lighter air expands and rises. Cold, heavier air drops. High pressure indicates fair weather. Low pressure usually means a storm is on the way.

When the sun heats Earth's surface, the air above is warmed; it expands and rises. Cooler air moves in to replace it. Different temperatures in the atmosphere cause wind to flow as air moves from high to low pressure.

AIR PRESSURE: A HANDS-ON ACTIVITY

Pour about one inch of very hot water into a one-gallon plastic milk jug. Let it stand for three to five minutes. Then place the cap on tightly. Observe what happens.

The expanding heated air escapes through the opening. When the cap is put on, the jug crumples because the force of the air pressure outside the container is greater than the air pressure inside it.

TRY THIS

- Combine words and drawings to create a graphic design that shows the link between weather, sun, air, and wind. In a few words, explain this relationship that produces weather.
- Follow the directions on the following page for making a barometer, an instrument that indicates changes in air pressure.

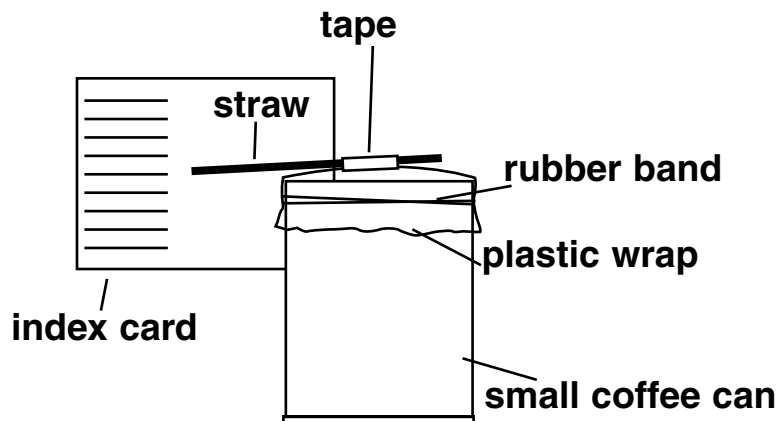
HOW TO MAKE A BAROMETER: A HANDS-ON ACTIVITY

HURRICANES AND TORNADOES

A barometer is a weather instrument used to measure atmospheric pressure. The word barometer comes from the Greek words for weight and measure. Changes in air pressure indicate changing weather patterns. Meteorologists use barometric readings to forecast upcoming weather. Follow the directions below to make an instrument you could use to predict changes in weather.

Materials:

- small coffee can
- plastic wrap
- tape
- straw
- index card
- rubber band



Procedure:

1. Cover the top of the coffee can with plastic wrap. Use a rubber-band to snugly secure the wrap.
2. Place the straw horizontally across the top so that two-thirds of it is on the can.
3. Tape the straw to the middle of the plastic wrap.
4. Fasten the index card to the can behind the straw.
5. Carefully record the location of the straw on the index card.
6. After 15 minutes, record the new location of the straw.
7. Note the difference between the two readings.

Conclusion:

When the plastic wrap caves in and the straw goes up, it indicates high pressure. High pressure usually brings good weather. Low pressure makes the wrap puff up and the straw go down. It is a sign that bad weather is on the way.

FROM THUNDERSTORM TO HURRICANE



Water, air, and wind come together to produce storms. In the tropics, thunderstorms build during the warm summer and fall months. Under the right conditions, a few will grow and become hurricanes. Moist air rises from warm ocean waters. Cool air moves in to take its place, producing winds. As the warm air continues to rise, the pressure drops, making the winds stronger. Towering clouds grow, and violent thunderstorms erupt. Lightning leaps from cloud to cloud. Because of the turning of the earth and swirling winds, the clouds begin to spin. In the northern hemisphere they spin counterclockwise; in the southern hemisphere, they spin clockwise.

What begins as a thunderstorm may, under the right conditions, turn into a tropical depression. Winds up to 38 miles (60 kilometers) per hour swirl over the ocean, feeding on rising moisture. When winds exceed 38 miles per hour, it becomes a tropical storm and receives a name for easier tracking. About ninety percent of these storms break apart. If it builds to 74 miles (117 kilometers) per hour or above, it is considered a hurricane and is carefully watched as it advances.

Depending on weather conditions, the hurricane may lose strength and revert to the status of a tropical storm or depression, or it may grow even stronger. It could continue to produce powerful winds, waves, and torrential rains. Upon reaching land, the hurricane could lead to devastating floods.

TRY THIS

A hurricane is measured by the velocity of the wind that is driving it. Brainstorm a list of definitions of wind. Include scientific and poetic descriptions. Begin each line with "Wind is _____."