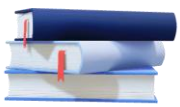
Meteorology with St. Medard



Experiment Express

STEM Field of Study

Science

Technology

Specific STEM Area

Meteorology

Age Group

5-10

Cost

Less than (<) $10

Time

Ongoing Activity (more than one day)

Materials

Paper or Styrofoam Cup; Black Marker, Ruler, Construction Paper, Straw, Tape, Thumbtack or Push Pin, Compass

Safety

It's a good idea to have an adult nearby

IEP Goals

Academic

Behavioral

Motor

Question:

Can you build a weathervane & use it to show wind direction?

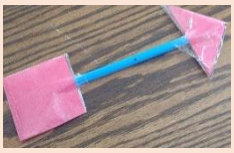
Hypothesis:

Before you do this experiment; try to predict the answer to the question above. Write down your Hypothesis in your logbook.

Instructions:

1. Gather all your materials together.
2. Review all Safety Precautions.
3. Flip your Styrofoam cup upside down. After you flip it over, using the black marker you're going to indicate the four main directions: North (N); South (S); East (E) and West (W).

4. Take the pencil and insert it into the base of the cup with the eraser at the top and the point at the base of the cup. This is going to be used as a stake to insert it into the ground.



5. With your construction paper and ruler draw a 4" square and a triangle with a 4" base. Tape the triangle on one side of the straw so that it looks like an arrow pointing and tape the square to the other end.

6. Find the midpoint (middle) of the straw and poke a push pin through the middle of the straw and then into the eraser of the pencil.

7. Time to head outside! Using your directional compass; find North. Take your cup and turn your cup until the North section of your cup is facing North.
8. Now place your cup in the ground, making sure the North side of your cup is facing North. You just made your own wind vane! Whichever direction the arrow is pointing is the direction from where the wind is blowing.

Think about it!

How is wind speed measured?

Wind is measured with a device called an ***Anemometer.*** It comes from the Greek word ***anemos*** which means wind. Some are so small you can hold them in your hand. Wind speeds can be measured in Miles Per Hour, Knots (sea), Feet Per Second, Feet Per Second or Kilometers Per Second. Take a moment to research the wind speeds that may occur in your area.

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Post Experiment Questions for Adults to ask:

1. From your experiment, what direction did the wind come from?
2. Can you name people who need to know the wind direction in order to do their jobs?
3. If you moved around your home or town, did the wind direction change? If so, why do you think it changed? If you didn't move around your home or town; what do you think can change the direction of the wind?
4. At what speed do you think the wind was travelling during your experiment? This is a guess based on the information provided in the "Think About It," section.
5. If wind speed is too fast, can it cause damage?

Let's Talk!

Discussion of Results / Post Experiment Answers:

1. Answers will vary depending on the area. This question is to help develop directional awareness. You want your student to be able to indicate that the wind came from the North, South, East or West.
2. Aside from Meteorologists, Pilots, Crane Operators, Safety Personnel such as Fire Fighters; Farmers; Sailors, just to name a few.
3. Answers will vary, however, make sure your student takes into consideration surrounding obstacles that can change wind direction near them. For example, tall buildings or trees.
4. Wind speed is measured in Miles Per Hour
5. Absolutely! Read on in the Draw Your Own Conclusion.

Draw your own conclusion:

The fastest wind speed ever reordered was 253 mph on Barrow Island, Australia during the Typhoon called Olivia. However, the fasted Tornado speed ever captured was 318 mph in May 1999 in Oklahoma. The tornado caused the death of 36 people and damages of $1 billion. Tell us why you think knowing where the wind is coming from and at what speed it is travelling is so important at: www.stemwithsaints.org.

Expansion Experiments:

We're going to speed this along and encourage you to make your own Anemometer! It's easy! The first known Anemometer was made in 1450! For a great Anemometer Experiment go to Weather Wiz Kids at: http://www.weatherwizkids.com/experiments-anemometer.htm

Log your work:

Absolutely!

We love this experiment for a logbook. Try this:

Log the wind direction in different areas around your home or town. Does the wind change direction depend on where you are?

Real World Application:

Meteorology

Weather Forecasting

Pilots

Air Traffic Control

Additional Resources:

The Magic School Bus Inside A Hurricane by Joanna Cole (Author), Bruce Degen (Illustrator)

The Magic School Bus Kicks Up A Storm: A Book About Weather by Nancy White (Author), Art Ruiz (Illustrator)

Magic School Bus Presents: Wild Weatherby Tom Jackson (Author), Sean Callery (Author), Carolyn Bracken (Illustrator)