

Creating a Wind Vane

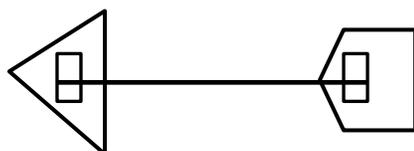
Overarching question – How can I make an instrument that displays wind direction?

Supplies

For each wind vane made, you will need
1 copy of compass rose and arrows on cardstock
straw
tape
new pencil
straight pin
glue
Styrofoam plate
modeling clay
compass

Directions

1. Cut out the arrow shapes and the compass rose. Set aside.
2. Tape arrow shapes to each end of the straw. It should look like this.



3. Press the straight pin through the middle of the straw. Then press the pin into the eraser of the pencil. There should be enough room for the arrows to spin.
4. Center and glue the compass rose to the Styrofoam plate.
5. Place a golf ball sized piece of clay in the middle of the compass rose. Press.
6. Insert the pencil into the clay. Make sure the wind vane is secure. Allow the clay to dry.
7. Wind vane complete!!!!
8. Set the rain gauge outside in a spot free from trees and buildings. Use the compass to insure that the compass rose on the plate is correct.
9. Monitor wind direction. It is best to check the direction at the same time of day for a more accurate reading. Activity sheet below.

Extension Questions

- Which part of the wind vane indicates the direction? (the triangle)
- What is the purpose of the compass?
- Why was the wind vane placed away from trees and buildings? (so that when the wind blows, the trees and buildings don't block the wind causing the measurements to be incorrect)

Levels of Inquiry

Confirmation – Provide the students with the overarching question and the procedure. Place several instrument artifacts around the room so that students can check their progress.

Structured - Provide the students with the overarching question and the procedure. Allow students to discover the finished product on their own.

Guided – Provide the students with the overarching question and materials. Students are to create and write their own procedures and determine which materials to utilize. Allow students to discover the finished product on their own.

Open - Students are given a scenario where the instrument is needed, but not identified. From this scenario, students are to generate an overarching question. From that point, students are to create and write their own procedures and determine which materials to utilize. Allow students to discover the finished product on their own.

Possible scenario – Stacey knows that air pressure determines the type of weather, but she needs to know the current air pressure.

Extension Activities

Idea One – Create a class weather station with handmade anemometers, rain gauges, barometers, and wind vanes. Monitor the weather and collect data at the same time of day. With the data, create charts and graphs, either by hand or by graphing software, such as Excel. (T)

Idea Two – Create a class blog that details the weather conditions for the school, including the weather data collected from the class weather station. (T)

Common Core (Grades 6-8)

L6-8RST3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

L6-8RST7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

L6-8WHST2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

- a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
- b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
- d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
- e. Establish and maintain a formal style and objective tone.
- f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

Georgia Performance Standards

S6E4. Students will understand how the distribution of land and oceans affects climate and weather.

a. Demonstrate that land and water absorb and lose heat at different rates and explain the resulting effects on weather patterns.

