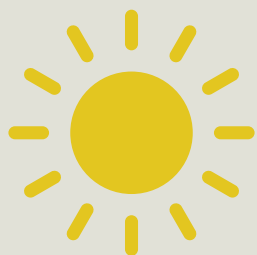


WHICH WAY DOES THE WIND BLOW?

The Earth's atmosphere is a layer of air surrounding a planet. We can't see air but we know that it is made up of a mixture of gases, mainly nitrogen and oxygen. When lots of the gas molecules move, usually in one direction, we call this wind.

As the sun warms the Earth's surface, the atmosphere is also heated. Differences in air temperature cause differences in air pressure. Warm air rises which lowers the air pressure while cold air sinks and produces high air pressure. When warm air rises, the cold air moves in to replace it. This movement is what we call the wind. Winds can also be known as a breeze, gale, storm or hurricane depending on their strength. The wind direction is given by the direction from which the air comes. Weather vanes are used to indicate the direction of the wind.



ENGINEERING CONNECTION

Information about wind direction can help us in many ways. It can help us predict weather changes or help us decide which way to face wind turbines. The direction of the wind is important at airports and pilots need real-time data to assist them in their journeys. Engineers design sensors to collect data on wind direction.

WHAT YOU WILL NEED

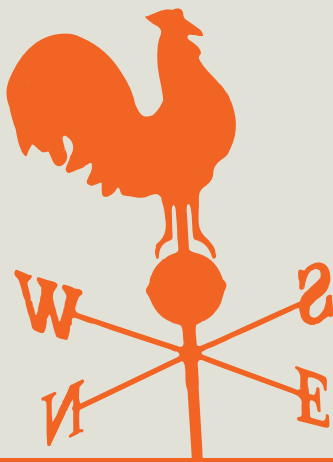
- Two Paper plates
- Glue
- Round drinking cup
- Scissors
- Pencil with an eraser
- A weight (pebbles/sand/clay)
- A pin or a tack
- Compass
- Card paper
- A marker
- Drinking straw (a straight one or cut off the bendy part!)



ACTIVITY SHEET 1

HOW YOU CAN DO THIS

1. Use the guide below to draw the weather vane head and tail on your card paper. Carefully cut them out with scissors.
2. Take your drinking straw and cut a slit down either end.
3. Slide the head and tail into the cuts in the straw (glue or tape them in place if they fall out).
4. Take the paper plate and turn it upside down. Moving from the top of the plate, clockwise mark the directions North (N), East (E), South (S) and West (W) on it.
5. Fill your second paper plate with your weight (enough to stop it blowing away).
6. Place one plate over the one with the weight and glue them together.
7. Glue your drinking cup in the centre of the top plate.
8. Pierce the centre of the cup and the upper plate with the pointy side of the pencil (If you used clay, press the pencil into the centre of the clay to help stabilise the pencil).
9. Balance the straw on your finger to find the centre of gravity. Take the pin, pierce it through the drinking straw's centre of gravity and attach it to the top of the pencil eraser. Make sure that the straw is turning smoothly and freely.
10. Take your vane outside and use your compass to find north. Line north and south on your vane with north and south on the compass.
11. Record the wind direction! The arrow will point in the direction the wind is blowing from. If the arrow points northwest, the wind is blowing from the northwest.



WHAT ACTUALLY HAPPENED?

As the Earth's atmosphere was heated unevenly, it caused low and high pressure areas to form. This caused air to move around as wind. The tail of the vane is slightly bigger so the wind blows it away and turns the head into the wind.

