



Windy days - DIY activity

Overview

Have you heard the wind whistle past your ears? Have you seen the wind pick up and fly a kite into the sky? Wind has always been very important to us on Earth, many years ago sailors would rely on the wind to cross the seas, right up to the modern day where we use wind as a renewable energy source. In this activity you will learn what is wind and how it is formed, as well as creating your own windmill.



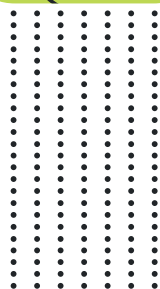
Time required

60 minutes



Materials required

- **Windmill template**
- Colouring pens
- Scissors
- Pencil or knitting needle
- Blu-Tack (or similar)
- A paper fastener
- A small bead that can go through the paper fastener
- A cardboard tube (from kitchen towels would be ideal)
- Stopwatch or timer



Activity Steps

01 What is wind?

How do we use the wind to help us in our day to day lives? Why is it so important? Discuss with your friends and family what you use the wind for. Some ideas could be drying our clothes, drying our hair, or you might like to go kitesurfing!

So what is wind? Well, wind is air moving from one place to another. It can be a light breeze or a strong gale. We can't see it, but we can feel and see how it affects our world. But why does air (or anything else) move? You may have looked at forces in your lessons. I wonder what forces you can remember. See if you can list them!

Although we can't see it, the air is made up of lots of tiny particles. The wind moves when these air particles move around in the Earth's atmosphere. We need the sun to help us also. As the sun warms the ground and sea, it also warms the air particles. When the air around us gets warmer, it rises, and when the warm air rises, the space it leaves is replaced by cold air, which is heavier. This rushing movement of air is the wind.

Tip – if you like to learn more about how these particles behave, have a look at our video here: <https://www.youtube.com/watch?v=edsNPCwU9lo>

02 How is the wind measured?

The Met Office uses anemometers to measure wind speed (how fast the wind is moving) and these are located at weather stations all around the world.

We also use a scale to measure the wind called the Beaufort scale. This was initially used by ships and introduced in 1806 by Adm. Sir Francis Beaufort, who sailed on the HMS Beagle with the founder of the Met Office, Admiral Fitzroy. How fascinating!

Tip - You can read more about the Beaufort scale and our maritime history here: <https://www.metoffice.gov.uk/research/library-and-archive/archive-hidden-treasures/beaufort-scale>



Activity Steps

03 Making a windmill

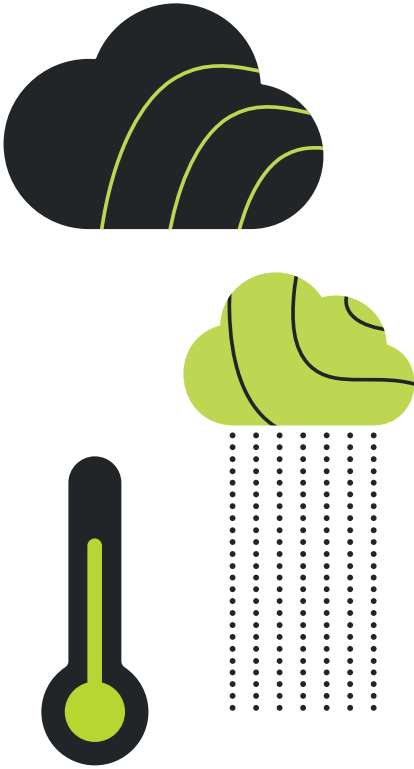
As we've mentioned, wind can be used in many ways to help us. For many years, people have used wind energy to help them in their day to day lives, and one of these is using windmills. Large windmills convert wind energy into mechanical energy that can be used to grind grain or pump water for people.

Have a go at making your own windmill.

(You might need some adult help)

- Print the windmill template and cut it out along the dotted lines.
- Decorate with colourful patterns.
- Put a lump of Blu-Tack under the little circle where you need to make a hole.
- Use a pencil or knitting needle to make a hole. You need to make five holes, as shown on the template.
- Fold towards the centre and push a paper fastener through all five holes.
- Thread a small bead on the back of the paper fastener.
- Make a hole near the top of your cardboard tube.
- Push the paper fastener in the hole and fold the ends back to stop it from coming out again.





Activity Steps

04 Let's experiment

Today, we use energy from wind to power wind turbines that generate electricity, this is a form of renewable energy, this means it does not produce any pollution and is a good alternative to burning fossil fuels.

Let's try an experiment with your windmill:

- Find 3 locations outside around you school or home
- Hold you windmill in the air
- Using a stopwatch or timer, count how many times your windmill spins in each location for 30 seconds
- Record for each location
- Monitor the wind speed over a few days to calculate an average over the week
- What was the windiest location? Why do you think that?
- Can you record the wind for each season?
- Is there a difference in wind speed across the seasons?.

Learn more about what is important to our Meteorologists when forecasting for wind - https://www.youtube.com/watch?time_continue=36&v=SqbTrbxWT1o&feature=emb_logo

Interesting wind facts:

- The strongest winds can be found in tornadoes and these can reach upwards of 250mphs!
- The wind has helped shaped the land through the process of erosion.
- You can find wind in Space; these are called solar winds. If you would like to learn more about Space Weather, have a look at our Space Weather lesson.
- Wind is energy in motion, and you may have heard of term kinetic energy.



The Met Office provides free education content to support young people aged 7-14 to be prepared for the effects of weather and climate change on them and their communities. Find out more at www.metoffice.gov.uk/schools

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