

7 AFFORDABLE AND CLEAN ENERGY



Goal 7: Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy.

Our daily living relies on access to energy. It is needed in our homes, in our hospitals, in our schools, in our shops and businesses, and on our farms.

World leaders want everyone in the world to have access to their energy needs. They are aiming to do this by investing in renewable energy, improving the ways in which we use our energy, and ensuring everyone has access to energy.

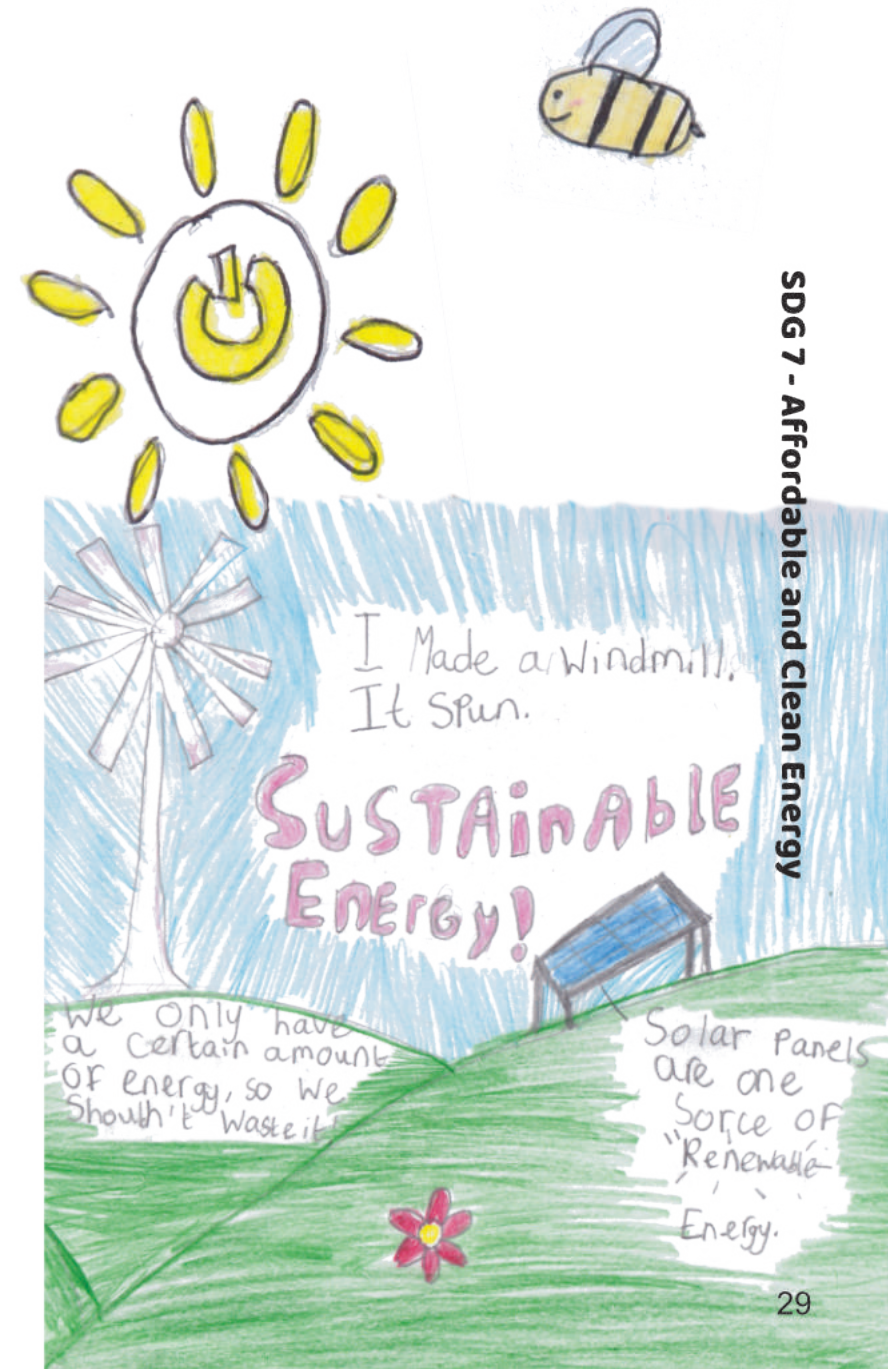
We are now going to explore the sources of energy from the elements of nature and build wind turbines.

What is renewable energy?

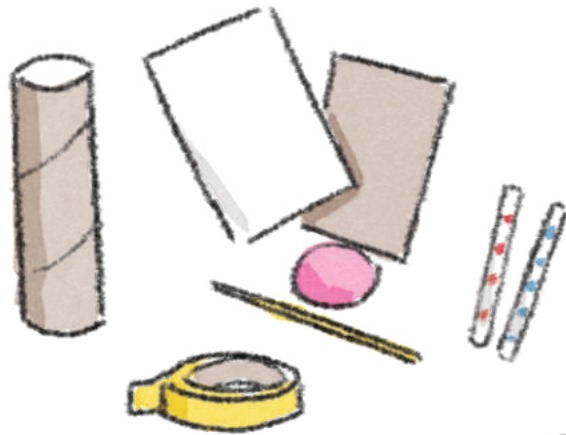
Energy comes in many different forms including thermal energy from heat, radiant energy from light and kinetic energy from movement. We are constantly using energy in our daily lives, and we are constantly changing energy from one form to another. For example, we change the energy from the food we eat to the energy that makes us move.

Renewable energy is made from sources that are naturally replenished, like the sun, wind, and water. Solar energy comes from the sun's rays, which can be converted into electricity. Wind energy is harnessed by windmills that spin and generate electricity. Hydraulic energy comes from rivers or oceans and can turn turbines to create electricity. These types of energy are important as they don't produce greenhouse gases that can harm the environment.

1. To replenish means to refill or restock or rebuild. 2. To harness means to capture and make use of.

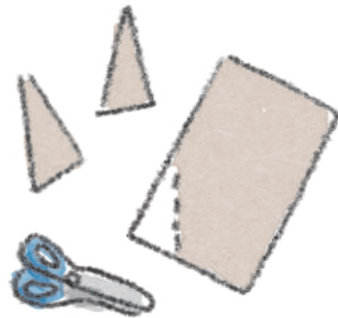


Experiment - Build a Wind Turbine

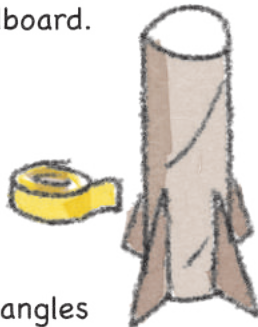


What you need:

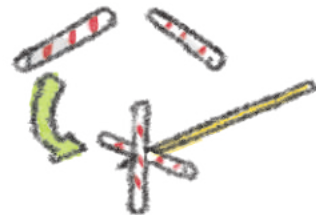
- A cardboard tube (the insert from kitchen roll)
- A-4 cardboard
- A-4 sheet of paper
- 2 straws
- Large wooden skewer
- Play-dough
- Tape
- Scissors



1. Cut 4-triangle shapes from the cardboard.



2. Tape the triangles onto the tube as shown.



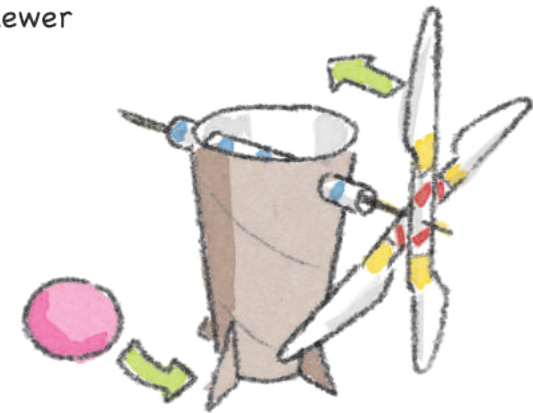
3. Cut a straw in two. Place the straw pieces on the skewer as shown (you can use tape to help them stay on).



5. Tape a propeller blade onto each of the straw arms.



4. Cut 4 propeller shapes from the A4 sheet of paper. Tip: trace around a butter-knife for the shape.



6. Pierce a hole through the top of the cardboard tube. Insert a straw into the hole and insert the skewer into the straw as shown. Put play-dough in the bottom of the tube to make it more stable.

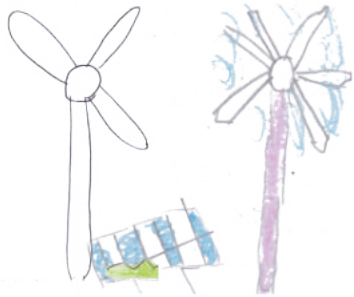
Try placing the wind turbine in different locations to explore how quickly it rotates.

What are your thoughts?

Have you learned something new about renewable energy?

What would you do to ensure we have clean energy for all?

What Do We Learn From This Experiment?



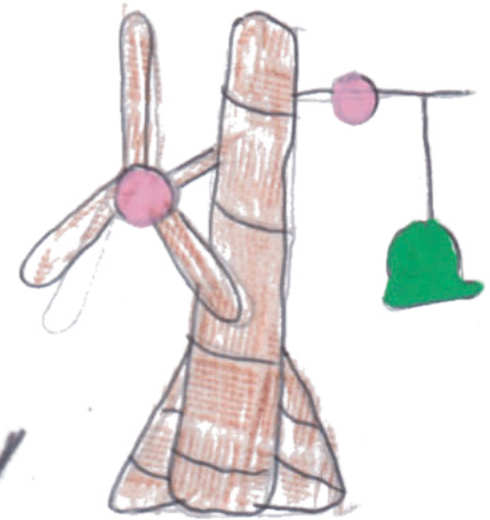
Build a Wind Turbine

The wind turbine needs to be placed in a location that will capture the wind's energy. As the wind flows across the blade it creates a difference in air pressure across the blade that causes the blade to turn. The wind speed will affect how quickly the blades turn. The shape of the blades will also affect how quickly it will turn.

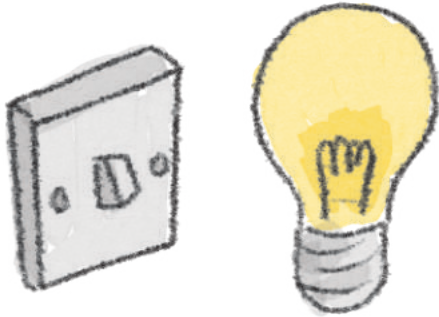
Did you notice any differences when you placed the wind turbine in different locations? Did you notice any differences in the speed of the different wind turbines in the class?

Did you know wind speeds are measured on the Beaufort scale? This scale was created by the Irish Hydrographer Sir Frances Beaufort. A hydrographer studies oceans, seas and rivers. In 1805 Sir Frances measured wind speeds at sea and developed the scale that is still used today.

Did you know that energy can neither be created nor destroyed, and that the total amount of energy in the entire universe is constant? Therefore, it is important that we are clever in how we use our energy so that we have enough energy to enjoy our daily lives.



What Can We Do?



Turn off your lights or devices when they are not in use.

SDG 7 is all about ensuring access to affordable, reliable, sustainable and modern energy.

It can be hard to know the things we can do in our lives to make a difference, but by following some of the tips on this page we can start making the world better for everyone. You may not think that little changes will make a difference, but everyone making little changes adds up to big change.



Encourage your family to walk or use a bike for short trips where possible.



Learn about ways to reduce energy consumption.



Make posters for school on how to reduce energy consumption.



Organise an energy saving challenge with friends and family.