

# POWER FOR EVERYONE EVERYWHERE

Electricity is used by millions of us, from the moment we wake up to the moment we go to sleep.



## TASK

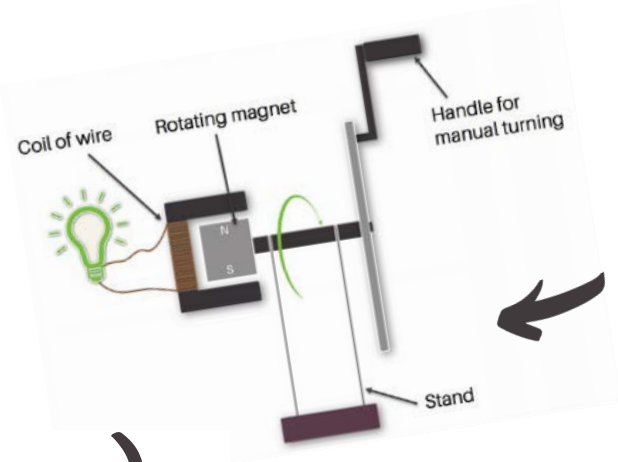
How do you use electricity?  
Make a list of at least 10 things that use electricity.



**Why is electricity important?**  
Access to electricity lets us do so many things; we can see at night by turning on the light, we can keep food frozen in a freezer and talk to our friends on our mobile phones. It's hard to imagine what life would be like without it. Electricity makes our lives easier and gives us more time for things like going to school, working or seeing friends and family.



But, there are one billion people around the world who still don't have access to electricity. That is nearly 1 in every 8 people.



Most of the world's electricity comes from power stations. In these power stations giant magnets are rotated near copper wires which causes an electrical current. This is demonstrated in a simple manual torch diagram.



**How is electricity made?**  
For those of us who are lucky enough to have electricity, we have to consider where it is coming from and how it is made.



## TASK

List 10 things you wouldn't be able to do without electricity.

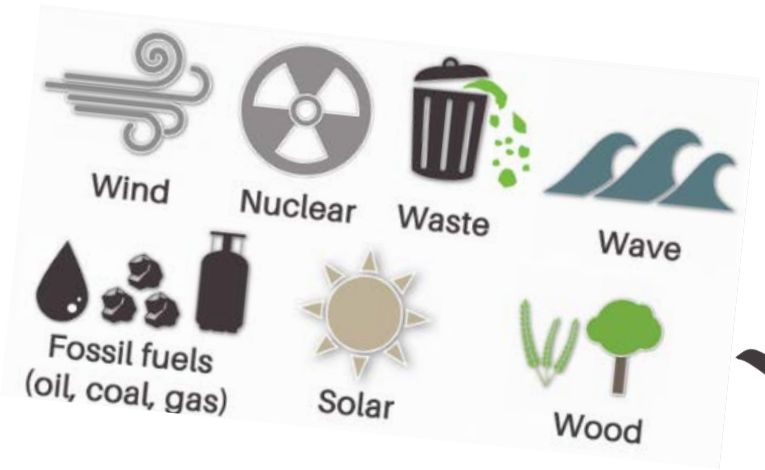


However, this is a non-renewable way of making electricity. Non renewable means the resource **cannot** be replaced after it has been used, such as fossil fuels. But good news- there are some renewable resources, that can be replaced after they have been used, such as wind and solar power.



## TASK

Look at the images of both renewable and non renewable resources. Circle all of the renewable resources.



Did you circle wind? Wind is a renewable resource. Electricity can be made using wind turbines. When the blades of turbines spin in the wind it creates power which can be turned into electricity. The bigger the turbine blade, the more surface area there is for the wind to hit, making more electricity.



1. Put your cotton reel in the centre of the card and draw around it to make a circle.
2. You are now going to draw blades around the circle. Take some time to decide how you want your turbine blades to look, will you have four big ones or lots of smaller ones? Make sure to draw these in pencil so you can try a few ideas.
3. Once you are happy with your blades, consider how you might use any other materials such as cardboard or straws.
4. Cut out the blades and stick them onto the cotton reel with the sticky tape.
5. Add any other materials you want to your design.
6. Once finished put the cotton reel onto a pencil or rod and use a hair dryer to see if the blades spin. Start with a small amount of power and slowly increase over time.
7. Take time to see if you can adjust your design to ensure it is most efficient!

Take a photo of your wind turbine and post on Twitter tagging @ewbuk and using #power4everyone



### Conserve electricity

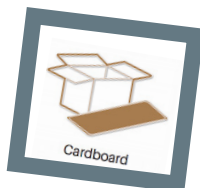
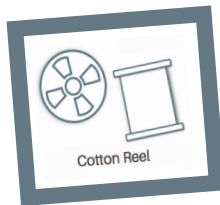
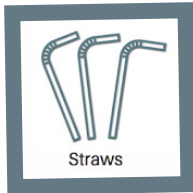
Turn off the lights when you leave a room and switch off equipment such as TVs, computers and chargers completely instead of leaving them on stand-by. What else can you do to conserve electricity?

### Become an engineer!

Engineers help create so many items we use everyday. From televisions to traffic lights, engineers have helped us progress to how we live today. Engineers are also responsible for making sure we use more renewable energy sources such as wind power, to make sure we are not damaging the environment further and we are building a better future for all people and the planet!

## ACTIVITY

Build your own wind turbine!  
You will need a few things to get started...



**The magic of engineering**  
You have engineered a wind turbine!  
Through the magic of engineering, everyone everywhere will one day have access to affordable, reliable, sustainable and modern energy.

What can you do to help this happen?

