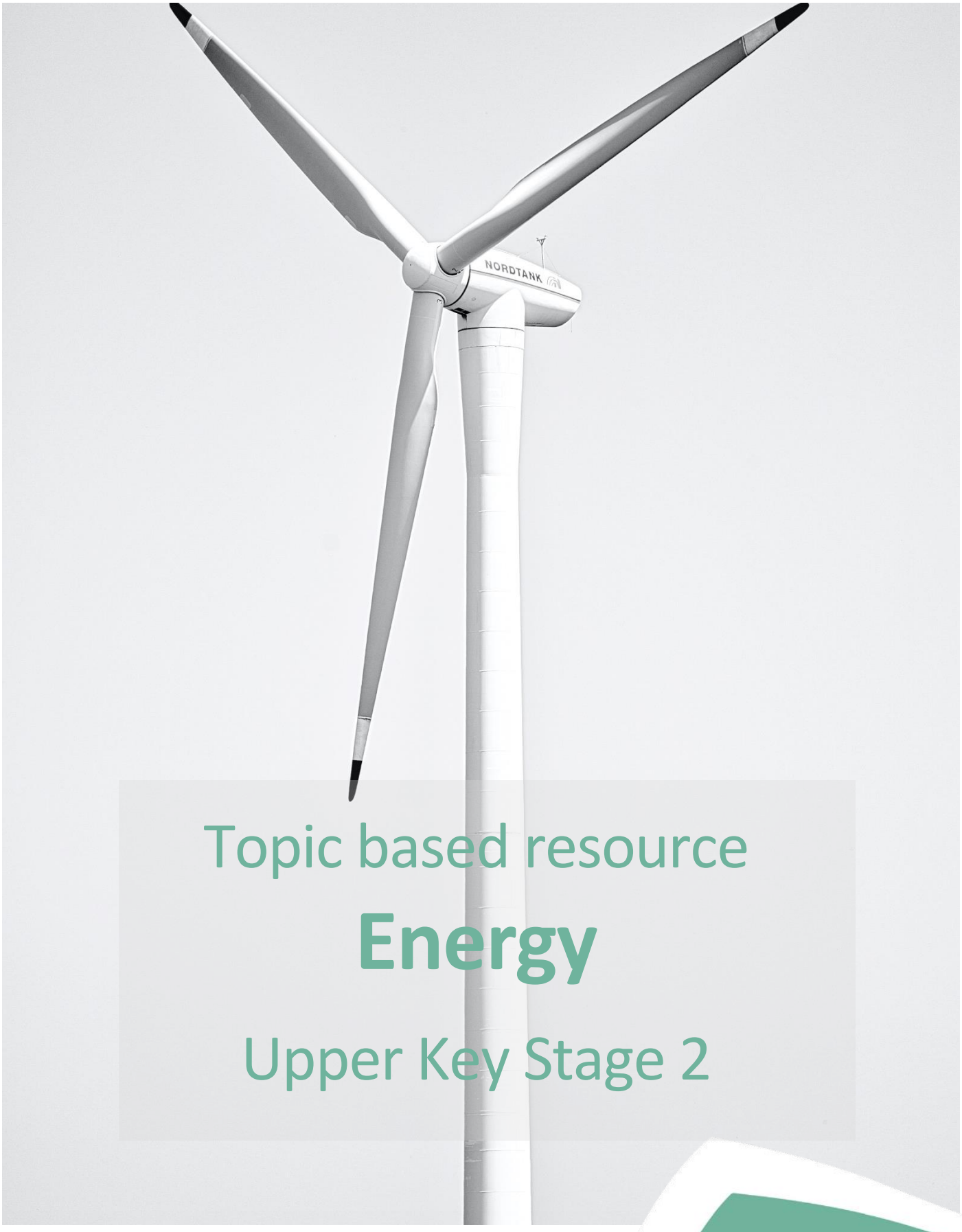


Topic based resource

Energy

Upper Key Stage 2

Eco-Schools
Eco-Sgolion

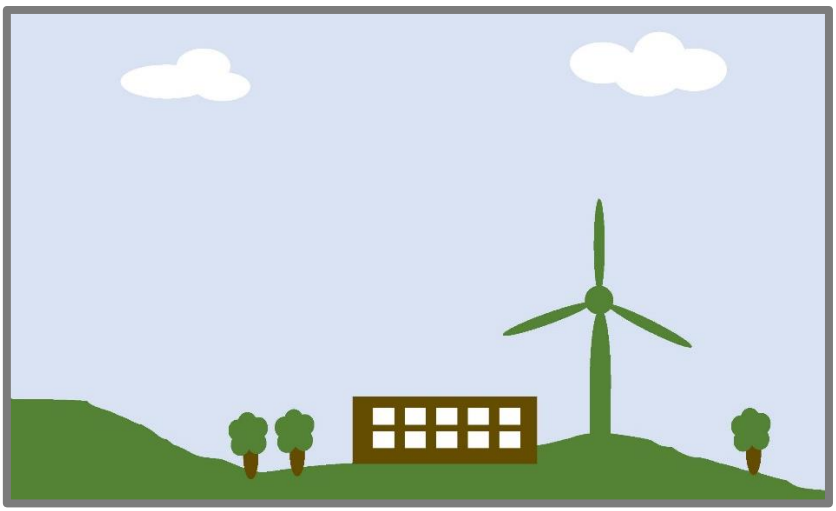
Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

7 AFFORDABLE AND CLEAN ENERGY

cadwch keep
gymru'n wales
daclus tidy

Background information

We need energy in all areas of modern life from watching television and cooking our food to powering our cars and manufacturing the goods that we use. Traditional sources of energy are coal, oil, and gas, but we now know that these fossil fuels are damaging the planet so we are looking to greener sustainable solutions to provide us with the energy we cannot manage without. These activities allow the children to explore a sustainable energy and understand how it works.



Climate perspective

The use of wind turbines is particularly important when it comes to climate change. The use of fossil fuels has long been known to be a huge contributor to climate change and the push is towards sustainable energy production. The UK is one of the windiest countries in Europe, so it makes sense to make the most of this. In 2017, 15% of the UK's entire electricity was generated from wind energy, enough to power 12.7 million homes across the country and this figure is growing. We cannot rely on wind energy alone though as this is not a totally reliable source. Other forms of energy such as Biomass, Tidal power, Hydro, solar and Geothermal all have a part to play in the push towards green energy which will hopefully slow down climate change.

Where do you want your wind turbine?

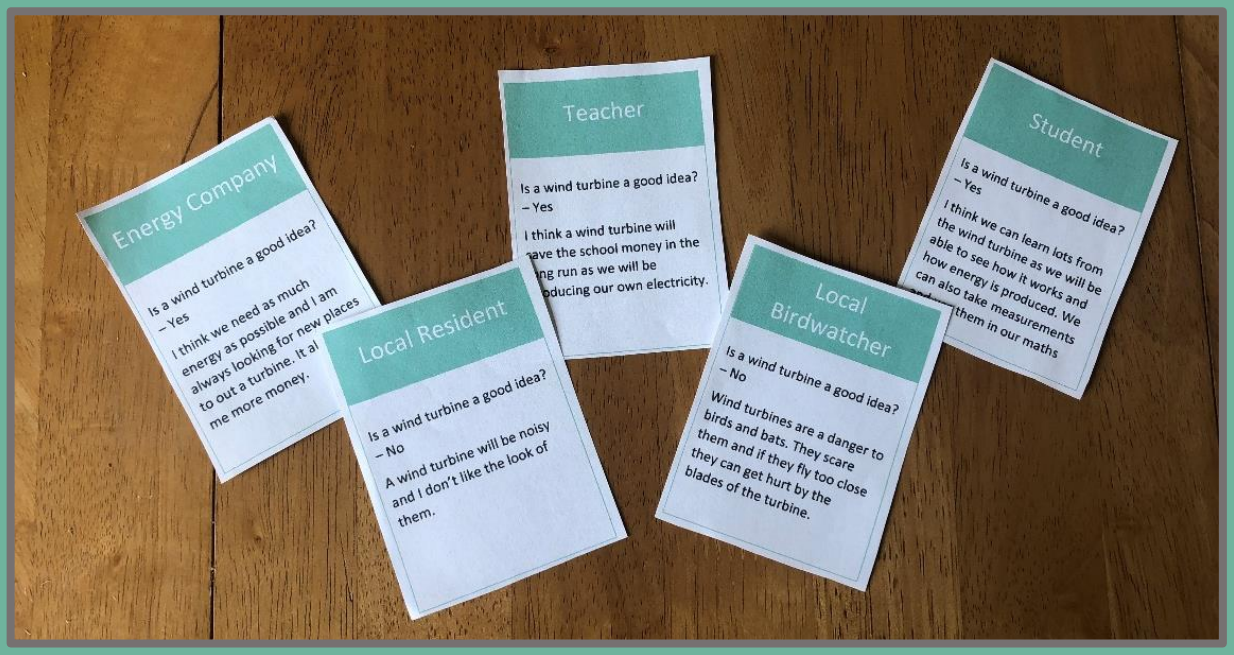
Upper KS2

Before children can understand how wind turbines work and their importance when it comes to creating sustainable energy, they need to understand what wind actually is. Wind is something that is tricky to explain as we cannot see it, but we can feel it on our skin, we can hear the rustling in the trees, and we can see the leaves moving across the ground.
Wind is created by the uneven heating of the world's surface and differences in temperature cause the air to move. Warm air is less dense because the air molecules move apart and exert less pressure. Colder air exerts more pressure because the molecules are closer together making it denser. During the day the land is warmed by the sun, so the lighter, less dense air above begins to rise. The cooler air over the seas exerts pressure and expands to fill the space. This movement of air of different temperatures causes wind. This process is exaggerated in areas where the contrasts of temperature is more extreme.

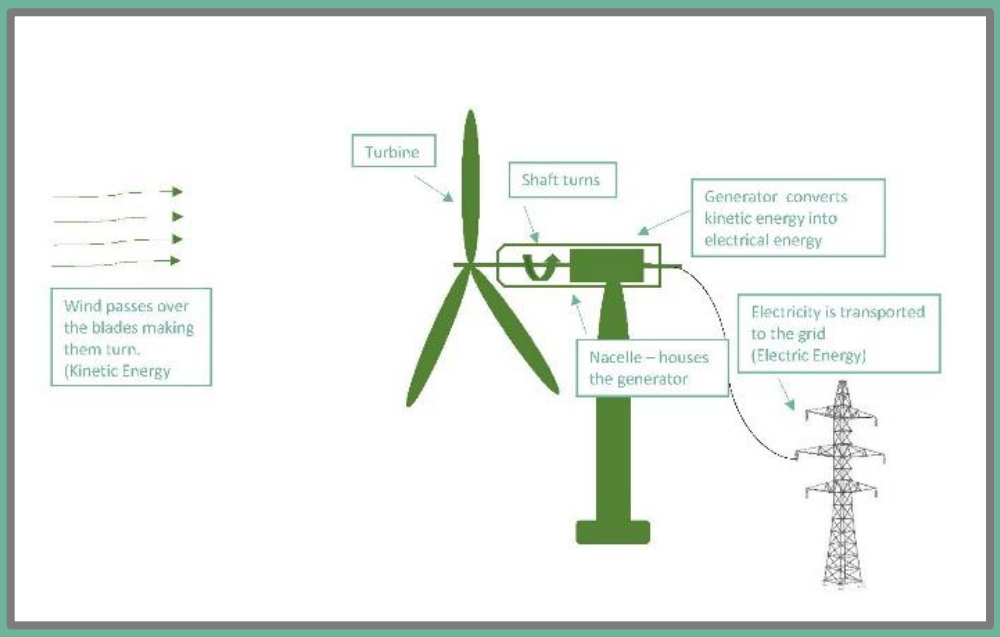
In this activity we are encouraging the children to think about the pros and cons or wind turbines and decide whether they are a good thing or not.

Materials needed:

Character cards



Step 1



Ask the children to look at the data collected from the first activity and decide on a possible location for a school wind turbine. Is the windiest spot the right place or are there other factors to consider such as noise and accessibility?

Step 2

Having decided on a suitable location space they need to consider that not everyone will want to see a wind turbine built there. Some people are opposed to wind turbines for various reasons. Divide the class into groups and give out the character cards. Give them time to research their parts and think of good reasons for their position on the building of a wind turbine.

Step 3

Gather at the proposed location and give each group the opportunity to state their case for or against.
Once each group has given their arguments there should be time to ask them questions, so everyone feels that they have the information they need to decide.

Step 4

After the debate give everyone a chance to cast a vote as to whether they would want the wind turbine to go ahead. This can be done by a simple show of hands, by standing on one side of the area or the other or a full secret ballot. Give the children the opportunity to say why they reached their decision and if they had been swayed by any of the arguments they heard.

Curriculum Links

Area of Learning and Experience - Science and Technology

Statement of what matters:

Forces and energy provide a foundation for understanding our universe.

Area of Learning and Experience - Humanities

Statement of what matters:

Our natural world is diverse and dynamic, influenced by processes and human actions.

Next steps and other ideas

- Follow up the debate by looking at the other forms of energy and researching the pros and cons of each. Is there another energy source that they think would work better in their school grounds? If they could only choose one form of energy to provide all the energy that we need on Earth which would they choose?

Local Resident

Is a wind turbine a good idea? – No

A wind turbine will be noisy and I don't like the look of them.

Local Birdwatcher

Is a wind turbine a good idea? – No

Wind turbines are a danger to birds and bats. They scare them and if they fly too close they can get hurt by the blades of the turbine.

Energy Company

Is a wind turbine a good idea? – Yes

I think we need as much energy as possible and I am always looking for new places to out a turbine. It also makes me more money.

Teacher

Is a wind turbine a good idea? – Yes

I think a wind turbine will save the school money in the long run as we will be producing our own electricity.

Student

Is a wind turbine a good idea? – Yes

I think we can learn lots from the wind turbine as we will be able to see how it works and how energy is produced. We can also take measurements and use them in our maths lessons.

33-35 Heol yr Eglwys Gadeiriol, Caerdydd, CF11 9HB | 33-35 Cathedral Rd, Cardiff, CF11 9HB
029 2025 6767 keepwalestidy.cymru info@keepwalestidy.cymru