

This is the work for each of the other subjects - some of them are individual tasks and some like the Science are project-based.

STEM - Wind Turbines

1. Write a report to answer these questions.
 - What are renewable sources of energy and why are they important?
 - What do they mean to isolated populations, those without electricity and those who wish to use renewable power sources?
2. Read the book 'The Boy Who Harnessed the Wind'.
The file is attached as a PowerPoint file.
3. Building your turbine
You will need: 2 small plastic bottles with lids, paper clips, some straws, Sellotape and a counterweight (marbles or baking beads work well for this) to stop the turbine falling over in order to build your turbine.

Step 1

Cut the larger bottle to a shape that can support the smaller bottle. Fill the base with your counterweight.



Step 2

Prepare the smaller bottle by making a hole in the lid and the base so that a straw can be passed through the bottle with a bit hanging out of each end.



Then attach the two bottles together using Sellotape.

SCIENCE

Step 3



Thread the straw through the bottle. Wrap Sellotape around the outside of the end of the straw that protrudes from the base end of the bottle. This will help to keep the straw in place.

Step 4



Twist the paper clip so that it looks like this. This will attach the straws to the turbine. A straw will be inserted over each of the three prongs and fixed.



The vertical straw will then be inserted into the red straw that is inside the upper bottle of the turbine, as shown below.

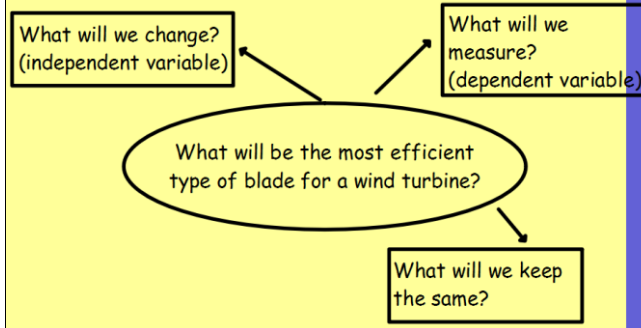


4. Planning your investigation (You will need a fan to make the blades rotate, a piece of string and a washer).

Investigate the different types of blades that a wind turbine can have and decide on which type you are going to use.

Remember that your turbine only has 2 blades.

Make a prediction about the type of blade which will work best and why.



Use this format in your book to record your planning.
You could either choose to change the area of the blades or the shape of the blades.

What will you test in order to find the most efficient blade? What will efficient look like?

Use the square paper to make your blades either changing the area of the blade or the shape of the blade.

How will you use the squares to calculate the area?

5. Once you have made the blades, you can test each set to find out which is the most efficient blade.

To test your blades you will need a piece of string with a washer attached at one end. Attach this to the rotor so that you can time how long it takes for the string to wind the washer to the top. Record your results in a table.

6. What did you find out?

Write a conclusion based on your results.

Remember to:

Make a point.

Explain how you know - linking it to your results.



Elaborate on your explanation.

Link back to your prediction.

R.E.

Imagine that you were one of the Jewish slaves in Egypt. Write a diary entry before you were freed by Moses and then a second diary entry for after crossing the Red Sea.

Remember diary entries need to be written in the first person, in the past tense and it should include thoughts and feelings.

D.T.	 <p>I look forward to seeing photographs of your designs.</p>
PSHE	<p>Make a poster that shows how you are staying safe while you are online. Include strategies for while you are learning as well as communicating with your friends and playing games.</p>
ART	<p>Create a picture (this is called a collage) using different textiles that you can find at home and the ways you learnt about for altering cloth. Remember any type of paper is also a textile. Examples for inspiration:</p> 
ICT	<p>Log into Scratch and complete two of the tutorials. Can you now do the task without the tutorial?</p>