

# Y6 Wind Farm Planning and Development Project

There are several clear outcomes for this project:

- Primarily the content is based on developing knowledge and understanding of how a wind farm is planned and developed in a a simplistic form
- Secondly the children will employ skills acquired across their years in school to demonstrate their digital literacy through film, presentation and data handling skills
- The children will also be given the opportunity to develop team project working skills which include communication, time management, budgetary and presentation skills

The children will be contextually embedding several learning objectives from across National Curriculum subject areas including literacy, Geography, Science, Maths and D&T.

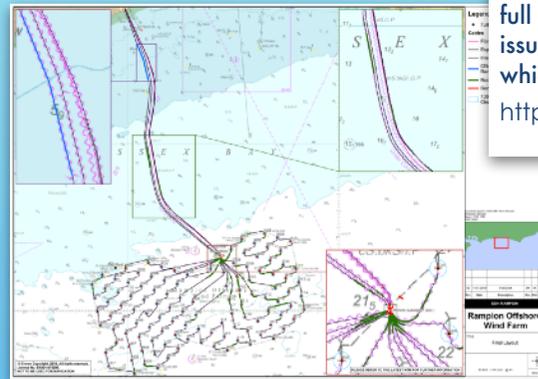
## PROJECT: Plan, cost and present your ideas for building a new offshore wind farm

Children will be organised into teams of 4 or 5. The elements of the project will be shown to them and they must devise their own timetable and roles within constraints given by the teacher to present their response by the deadline.



This Google Voyage will give pupils access to information about Sofia Wind Farm:

<https://earth.google.com/earth/d/1fzJ2Qw6iLZOJBQir-wmz322halmAURjB?usp=sharing>



Rampion is another RWE owned offshore wind farm. The website is full of maps and animations to help children understand some of the issues involved. This image is taken from a map of undersea hazards, which will be a feature of planning a cable route:

<https://www.rampionoffshore.com/>

One of the key aspects of the project is supporting children to work independently as much as possible. These resource links will give them plenty of information that may come in useful for their own work. Some teachers may prefer to use the resources as class discussion points at strategic times to ensure that all children are engaged with key information or children may be left to discover their own way thorough them. A short 'to do' list that the children can complete to give some evidence of coverage might be used (example supplied).



How to construct a wind farm videos:

<https://www.youtube.com/watch?v=hQwgXrb3XPp>

<https://www.youtube.com/watch?v=mDvS7tizetg&t=64s>

## RANGE OF ACTIVITIES

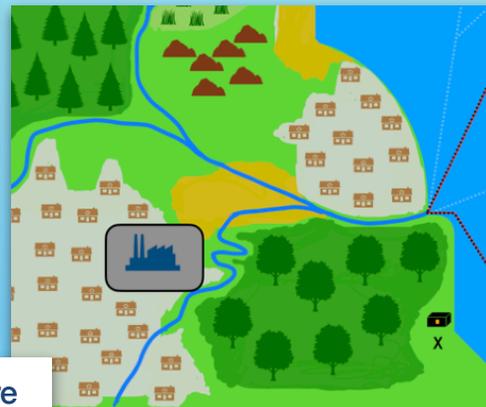


Planning the route - off shore

Each group will use a map as the basis for their work. They must work out a feasible route from three different offshore locations to a substation on the coast. Different zones have different cost implications and the costings guide must be used by the children when working out their likely required budget. It is essential that pupils record every possibility explored so that they can use their findings to justify their final decisions. The planning can be done with string, pipe cleaners or paper straws to make measuring easier and the route clear to see.

The onshore route also poses issues for planners to consider. There are three possible locations for the converter station that connects to the national grid. The children must work out a cost for each of these routes and record their findings. These will form the basis of their rationale for the preferred route in the final presentation. It is also intended that some groups may create a model of a house (or even a drawing of one on card) with at least one LED in it. This could be connected via the preferred route (crocodile clips inside straws?) so that the house 'lights up' when the turbine is working on the other side of the map.

Planning the route - on shore



The children must use recycled materials to construct a working wind turbine. There are a range of simple turbines available for less than £10 and there only needs to be one per class. Each group will be shown the turbine and asked to create and design the tallest turbine tower possible that won't simply fall over when the turbine is attached and the blades are turning. An additional task might ask the children to design blades that can be attached to the turbine provided. Any materials could be used and additional rules can be added as each teacher sees fit. For example, teams may be allowed to hold the base of their towers during the test or they might have to fit to an agreed base (could be a tin can, or a piece of wood with a hole in it). Each design must be planned out in advance with a clear design before being created. Test designs can be built to confirm or reject particular ideas and the presentation at the end will reflect how the design evolved, what improvements they made and what they could possibly do better in the future.

Design and Build a Turbine Tower



## OUTCOMES

The culmination of the project is for the team to present their findings and demonstrate their reasoning. This could be in the form of a 'stand in front of the class' presentation, a video or something else. Teachers may want to give children clear outputs from the start to gain evidence of them using existing skills in this context: a flyer summarising the key information and arguing why their solution is best, a short video to explain the process of coming to conclusions, some graphs to illustrate different cost models for different cable routes etc