

Investigating

Communicating

Knowledge and understanding

Meeting Current and Future Energy Needs

Learning outcomes in focus

Students should be able to:

ES6 research different energy sources; **formulate** and **communicate** an informed view of ways that current and future energy needs on Earth can be met

NS6 conduct research relevant to a scientific issue, **evaluate different sources of information** including secondary data, understanding that a source may lack detail or show bias

Learning intentions

We are learning to:

- conduct independent research
- synthesise information from a variety of sources
- present findings in manner appropriate for the chosen audience
- evaluate different energy sources in terms of suitability, sustainability and reliability
- understand that a reliance on non-renewable resources is unsustainable into the future

Teaching and Learning Context

This task was undertaken by two mixed-ability classes of First Year students. Prior to the task, students had been introduced to energy types and energy conversion. They had also worked collaboratively in small groups to complete and present for peer review a STEM activity called Moja Island.

<http://practicalaction.org/moja-island-1>

Students all have Ipad and were given a single class and the weekend to complete the task.

Task

Project title - *How to meet current and future energy needs.*

Students were given the following instructions:

1. Research the topic using your Ipad and/or other sources. Present your findings either as a poster, pamphlet, keynote/powerpoint/Prezi, video, drama, song or any other means.
2. Discuss your choice(s) of energy source and explain how it meets the project title: *How to meet current and future energy needs.*

Success criteria:

I can:

- **SC1:** search for and find relevant information about the topic
- **SC2:** arrange and report my findings
- **SC3:** use data in an informed manner to argue my position
- **SC4:** acknowledge sources

SC3:

Identifies benefits and suggests future improvements resulting from climate change.

SC1:

All information is relevant and pictures have been sourced.

SC2:

Clearly arranged descriptions of findings

SC4:

No sources acknowledged

Solar Energy

The Sun has produced energy for billions of years so people decided to try and convert that energy into electricity. When converted into thermal energy solar energy can be used to heat water, your house and can generate electricity with solar panels. There are many benefits of solar energy for example solar energy systems do not produce air pollutants or carbon dioxide. This is a sustainable energy for hot countries and maybe many more in the future due to global warming.



RENEWABLE Energy!



Hydropower

Hydroelectric power or hydroelectricity is generated by falling water. (Hydro comes from the Greek word for water) It is one of the cleanest and its also the most reliable and cost the least. The water is held behind a dam forming an artificial lake or reservoir. The force of the water being released from the reservoir through the dam spins the blades of a giant turbine. The turbine is connected to the generator that makes electricity as it spins.

Wind Energy



Using the wind to create electricity has been around a long time. When the wind turns the blades of a windmill it spins a turbine inside a small generator to produce electricity. One windmill can only make a small amount of electricity but windmill farms can make enough electricity to power towns and cities. A wind turbine is the opposite of a fan. Instead of using electricity to make wind, a wind turbine uses wind to make electricity.

Overall judgement: In line with expectations