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SUSTAINABLE ENERGY

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Photo Cards To Build Environmental Awareness

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ECO PHOTO cards contain images, information and activities to increase awareness of global and environmental issues for students working in a cross-curricular context. The focus is on discussion in groups as well as at whole class level, using the CD-ROM supplied in this pack to facilitate projection onto a whiteboard.

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Where Does Energy Come From?



Background Information

- To understand that energy comes from using power stored in fossil fuels such as wood, coal, oil and natural gas, or comes from renewable sources such as water, wind, sea and the sun.
- To understand that some sources of energy are finite, but others such as water, wind, sea and the sun are renewable and will last for ever.

Look At The Photographs

1. One photo shows a coal mine. Which sources of energy do the other photos show?
2. Which two photos show energy from fossil fuels? Why are these not sustainable?
3. Which two photos show renewable sources of energy? What are these two energy sources? Explain what you think are some of the advantages and disadvantages of them.
4. Which two energy sources will be the least polluting?

Linked Activities

- Paint a sun ray picture representing how the sun's rays are the source of life and energy.
- The Egyptians and Aztecs worshipped the sun and this is represented in their art. Find out more about how they used the sun in their art.
- Investigate the energy we receive from the sun. Measure the temperature simultaneously in the shade and in direct sunlight. Do the same for a jar of water and plot the temperature for each jar.

More Information

Almost all energy, ultimately, comes from the sun. Solar energy comes direct from the sun. Fossil fuels such as oil, gas and coal come from decayed plant matter which grew originally because of sunlight. Hydro power depends on the sun's energy to drive the water cycle. In most cases we are using energy from the sun which has become stored in another form. So by burning oil we are using up solar energy which shone on the earth over 250 million years ago.



What Is Sustainable Energy?



Background Information

- To understand that sustainable energy will never run out.
- 'Sustainable' (sometimes called 'renewable') is not a simple term when applied to energy.
- Some people think that petrol or gas is renewable because every time they want more they just turn on a tap or go to the petrol pump. However, oil and gas could effectively run out by 2100.

Look At The Photograph

The photograph shows a windmill which was used to grind wheat into flour.

1. Why is the wind a cheap source of energy and power?
2. Does wind energy produce any pollution? Why is this an advantage over fossil fuels?
3. What makes wind power unreliable?
4. What is wind power used for now? How do modern wind turbines differ from these windmills?

Linked Activities

- How much energy does the sun give out in a year?
- How much energy does the Earth use in a year?
- This will show how the sun has the capacity to provide all of the Earth's energy needs for almost ever, as long as we can find efficient ways of capturing, storing and converting its energy.
- How can we convert the sun's energy to electrical power?

More Information

The sun is the ultimate source of all our energy, although the process of converting and storing and releasing that energy into a fuel we recognise and can use is a very complex topic. Solar panels are the easiest and most immediate to demonstrate. Of the fossil fuels, the conversion of sunlight into plant cells, and hence wood for burning or plants for biofuels is the most straightforward to understand.