



Year groups



Designing



Graphics



Electronics



Materials



Manufacturing



Tools



Software

Manufacturing



Joining materials

Wood joints

Joining timber using components

Industrial production techniques

Scales of production

The environment

Environmental issues

Renewable energy

Renewable energy



What are Renewable energy sources?

Renewable energy sources are those energy sources which are not destroyed when their energy is harnessed. Fossil fuels are not renewable energy sources because they cannot be easily replaced. Renewable energy requires technologies that harness natural phenomena, such as sunlight, wind, waves, water flow and geothermal heat.

Solar Energy

Solar power is energy from the sun this comes in the form of sunlight. Solar energy (energy from the sun) can be captured by solar panels. There are two types of solar panels these use different technology to harness the energy from the sun.

- The first is Solar Water Heating collectors: These panels absorb energy from sunlight and transfer it to heat up water for showers, radiators, etc.
- The second is Photovoltaic or solar electric panels: These panels transform the sunlight directly into electricity.

Solar panels should be roof mounted and not obscured so they can collect the most amount of energy from the sun. Solar power cells are still relatively expensive to manufacture.



Solar panel energy station

Useful web links



Recycle more

View the recycle-more schools web site. See what you can do to help!

www.recycle-more.co.uk >>

Technology student

View the technology students environment pages.

[Environment pages](#) >>

Recycle city

Explore the recycle city and name products that can be recycled.

[View the recycle city](#) >>

Alpro site

Learn more about recycling aluminum cans in teh UK.

[View the alpro site](#) >>

Biomass Energy



A biomass power station

Biomass is a collective term for all plant and animal material. A number of different forms of biomass can be burned or digested to produce energy. Examples include wood, straw, poultry litter. Some tips burn waste plant material and use it to generate electricity. Biomass is a very versatile material and can be used to produce heat (for space and water heating), electricity and a combination of heat and power (electricity). The UK has some of the largest examples of the use of Biomass to generate electricity in Europe.

Hydropower

Moving tides of the sea can be harnessed to produce electrical power. This energy potential of moving water has been harnessed for thousands of years, originally using water wheels to drive mills and machinery. Hydropower currently produces 2% of the UK electricity needs. Whilst most of this comes from large dam projects installed many years ago, there is still an untapped small hydropower potential in certain parts of the UK.



A Dam



A wind turbine

Wind Power

People have used the power of the wind for many years to produce mechanical power for milling grain, pumping water and travel e.g. - sailing boats. In recent times wind turbine technology has enabled us to harness wind to generate electricity. The electricity is then sent to peoples homes or is used to power a stand alone device.

This renewable source of energy has great potential in both onshore and offshore. A collection of wind turbines is known as a wind farm. Wind power is one of the cleanest and safest of all the renewable commercial methods of generating electricity. The UK has the largest wind resource in the whole of Europe. There is the potential for wind to provide 10% or more of our power requirements over the next twenty years.

Geothermal

Geothermal energy is the heat of the Earth, which can be tapped into to produce electricity in power plants, and to use its warm water for industry, agriculture, bathing and cleansing. Although in use worldwide, its potential as an energy source is not fully utilised, thus geothermal offers a real option in future environmentally-friendly energy supply.



A geothermal hot spring



Quiz time!

Mr DT says 'Read the text above and then answer these questions below'. Write your answers on a sheet of paper, don't forget to write your name on the sheet!:-

Design issue questions!

- 1.) Name five renewable energy sources?
- 2.) What is solar power?
- 3.) Name the two types of solar panels?
- 4.) What is Biomass energy?
- 5.) Explain in your own words what hydropower is?
- 6.) People have used the power of the wind for many years to produce mechanical power, give three examples?
- 7.) What is a collection of wind turbines called?
- 8.) What is Geothermal energy?



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