



**Y7 Golden Thread:**  
How does Geography give us a sense of place?

## KS3 Geography – Y7: Resources and Energy Knowledge Organiser



Here are some key words from this topic. Can you add anymore?



### The Big Picture

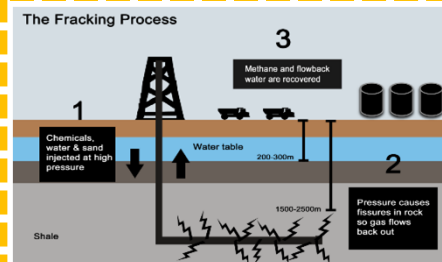
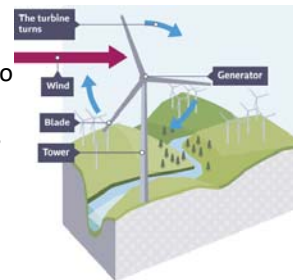
- What are resources and why do we need them?
- What are renewable and non-renewable resources?
- How has oil affected the Middle East?
- What's the fuss over fracking?
- Why is wind power used in the UK?



Type of fuel	Where it is from	Advantages	Disadvantages
Coal (fossil fuel)	Formed from fossilised plants and consists of carbon with organic and inorganic compounds. It is mined from seams of coal found between layers of rock in the earth.	Coal is a ready-made fuel which is cheap to mine and convert to electricity – it lasts longer than oil or gas.	When burned, coal gives off atmospheric pollutants, including greenhouse gases.
Oil (fossil fuel)	Carbon-based liquid formed from fossilised animals. Lakes of oil are found between seams of rock in the earth.	Oil is a ready-made fuel which is cheap to extract and convert into energy. It is used in industry and transport.	When burned, oil gives off atmospheric pollutants, including greenhouse gases. There is a limited supply of oil.
Natural gas (fossil fuel)	Methane and other gases trapped between seams of rock under the earth are released through pipes sunk into the ground.	Gas is a ready-made fuel and relatively cheap. It is used in houses for heating and cooking and is a slightly cleaner fuel than coal and oil.	When burned, it gives off atmospheric pollutants, including greenhouse gases. There is a limited supply of gas.

Type of energy	Where it is from	Advantages	Disadvantages
Solar	Energy from sunlight is captured in solar panels and converted into electricity.	Potentially infinite energy supply. Single dwellings can have own electricity supply.	Manufacture and implementation of solar panels can be costly.
Wind	Wind turbines (modern windmills) turn wind energy into electricity.	Can be found singularly, but usually many together in wind farms. Wind is a potentially infinite energy supply.	Manufacture and implementation of wind farms can be costly. Some local people object to on-shore wind farms, arguing that it spoils the countryside.
Hydroelectric Power (HEP)	Energy harnessed from the movement of water through rivers, lakes and dams.	Creates water reserves as well as energy supplies.	Costly to build. Can cause the flooding of surrounding communities and landscapes. Dams have major ecological impacts on local hydrology.

Wind power is harnessed by a machine called a wind turbine. Wind turbines are tall towers topped with blades. The blades are connected to a vertical shaft, or rod. When wind causes the blades to spin, they turn the shaft, this provides power to a machine called a generator. As the wind blows, it transfers some of its kinetic energy to the blades, which turn and drive the generator, producing electricity.



**Hydraulic fracturing or fracking** for short, is way of drilling into the ground to extract gas, which can be used to heat water, cook with and produce electricity. 'Hydraulic' refers to the use of water, fracturing mean 'breaking', or 'cracking'.

**Advantages:** Provides energy that people can use. Produces half the carbon dioxide than burning coal.

**Disadvantages:** It reduces the amount of money that could be invested into clean energy, e.g. wind power, that does not produce any carbon dioxide. Earthquakes are caused by the fracking process.

**CEIAG Link: For this topic we can make links to a variety of professions:**

Grid Engineer - Solar & Storage  
Wind turbine technician  
Town planner  
Miner  
Environmentalist  
Oil Rigger  
Politician  
Domestic energy assessor



**If you are interested in the above careers, don't forget you can do some research and speak to Mrs Ackroyd.**