



**Identifying natural resources
 used to power the planet**

YEAR 4 AUT 2
BIG QUESTION:
'What are we going to use when fossil fuels run out?'

Fossil Fuels

What are fossil fuels?

They are natural substances made deep within the Earth from the remains of ancient plants and animals. Over quite some time the heat turned these into fuels and when it's burned it releases energy.

What are the three main types of fossil fuels?

Coal, Oil and Natural Gas. They all come from under the ground in similar ways. The fossil fuels supply about 90% of the world's energy. Fossil fuels are non-renewable which means one day they will run out.

Key Vocabulary

Burning	Process for extracting energy from fossil fuels
Carbon Dioxide	A chemical compound composed of Carbon and Oxygen
Climate Change	World issue concerning the Earth's average temperature heating up at risk to the environment
Electricity	Power created from energies used to activate electronic devices, lights and heating across the world
Energy	What is produced when fossil fuels are burnt or from renewable turbine processes
Environment	Various habitats and areas found across the world
Fossil Fuels	Energy created from coal, oil or natural gases
Non-Renewable	A source that will one day run out
Renewable	A source that will naturally replace itself
Turbine	A motion blade used in renewable energy processes to create power.




Renewable energies

What are renewable energies?

Renewable energy is made from resources that nature will replace, like wind, water and sunshine.

Why don't we use renewable energies all the time?

Unlike natural gas and coal, we can't store up wind and sunshine to use when we need to make more electricity. If the wind doesn't blow or the sun hides behind clouds, there sometimes isn't enough power for everyone. It also costs more money to make electricity from wind or sun.

	HOW IT IS FORMED	WHAT IT IS USED FOR
COAL 	Coal started out as a large fern and tree-like plants that grew in swamps. Plants died and then piled up at the bottom of the water. The plants decayed into peat. The peat was covered with mud and sand which was smashed together to heat it up. It squeezed out water and carbon.	- 40% of the world's electricity. - Electricity is made from power plants when coal is burned to change water into steam. Steam turns into turbine. - Coal produces Carbon Dioxide.
OIL 	Oil was formed by tiny plants and animals that were called plankton. The plankton then died and sank to the bottom of the waters. They were also buried under layers of sand and mud. They were then squeezed together to turn into a hard rock. The bacteria then digested the plankton which changed into dark ooze.	- Crayons - Bubble Gum - Dishwashing liquids - Eye Glasses - Tyres - Lots of other plastics - Petrol & Diesel for vehicles
NATURAL GAS 	Natural Gas is formed just like oil. The plankton dies in the waters. To retrieve the gas, it is drilled out of the ground. It is made up of methane, butane, propane and ethane.	- Electricity - Steel - Gas - Cooking

Climate Change





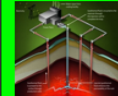
When we talk about climate change, we are talking about global changes in the Earth's average temperature. The Earth's average temperature moves up and down naturally, but it has been increasing more rapidly than it usually does.

This change is impacting on the planet's environment. Many of the changes to the Earth's climate are caused by human activity. As well as harmful amounts of chemicals being released into the atmosphere, climate change is also causing icecaps to melt, increased forest fires, flooding and drought.

Recommended websites

- <https://kids.britannica.com/kids/article/fossil-fuel/399465>
- <https://www.alliantenergykids.com/RenewableEnergy/RenewableEnergyHome>

KEY FACTS

WIND 	You've probably seen windmills on farms. When the wind turns the blades of a windmill, it spins a turbine inside a small generator to produce electricity. A windmill on a farm can make only a small amount of electricity, enough to power a few farm machines. To make enough electricity to serve lots of people, utility companies build wind farms with a large number of wind turbines.
SOLAR 	Today, we can use solar collectors for heating water and air in our homes. If you've seen a house with big shiny panels on the roof, that family is using solar power. We can also use solar energy to make electricity. The process is called photovoltaics. In 1954, scientists discovered that silicon created an electric charge when it was exposed to lots of sunlight.
HYDRO 	A typical hydroelectric plant is a system with three parts: a power plant where the electricity is produced, a dam that can be opened or closed to control water flow, and a reservoir where water is stored. The water behind the dam flows through an intake and pushes against blades in a turbine, causing them to turn. The turbine spins a generator to produce electricity.
BIOMASS 	Biomass means "natural material." When biomass is burned, it releases heat, just like the wood logs in your campfire. Biomass energy uses natural materials like trees and plants to make electricity. It can also mean waste products like trash. It is the second-most common form of renewable energy in the United States, providing enough electricity to power more than two million homes.
GEOHERMAL 	A geothermal heating system uses pipes buried more than four feet deep in the earth. The system pumps a liquid through the pipes to absorb the heat and brings it back indoors. A device called a "heat exchanger" takes the heat from the liquid and uses it to heat the air inside the home. Almost none of the energy used is wasted, so it helps keep heating bills very low during the winter.