

Y8 – Is the earth running out of natural resources?

KEY VOCABULARY	
Wellbeing – the state of being comfortable, healthy and happy.	Energy Supply – The amount of energy available to meet demand.
Water Stress – Not having access to enough clean water.	Food Insecurity – The state of being without reliable access to sufficient, affordable and nutritious food.
Energy – Derived from natural resources and used to produce power.	Climate Change – a change in the average state of the troposphere over a long period of time as a result of human and natural causes.
Generate – To produce or create something.	Global Warming – The gradual increase of the earth’s temperature due to the greenhouse effect as a result of human activity.
Energy Mix – The combination of different energy sources used to meet a country’s energy needs.	Sustainable – capable of being maintained without depleting resources or causing environmental harm.
Key Words from previous units: Resource/Renewable/Non-Renewable	

What is a natural resource?

A natural resource is a material from the Earth, like water, minerals, or forests, that humans use for survival and development. These resources come from all four spheres. They are vital for food, energy, and industry and human well-being. Over time, human consumption has increased, straining resource availability.

UK Example – Water Pollution

0% of UK rivers are considered to have good chemical composition, this is due to increased pollution from farming, sewage and plastics. This is damaging ecosystems, human health and putting our water systems under pressure.

Water Resources – where are they and why do some places have less water?

Water is held in stores on the planet and it can be moved between the stores. Water is not evenly distributed around the world but we use it for lots of things. Overall: **70% of water is used in farming, 19% is used in industry and 11% is used in homes.** Most of the water humans use is pumped out of underground aquifers, rivers or reservoirs

Why is finding safe water resources a challenge?

Around **700** million people globally face severe, long term water stress this could be because of:

Economic water scarcity which occurs when a region lacks the infrastructure or financial resources to access available water, often affecting developing nations.

- **Physical water scarcity (pollution/population and rainfall)** All three issues lead to inadequate water availability due to over abstraction, not enough clean water or a lack of rainfall.

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Do we all have enough food?

People around the world have different access to food. In HICs, there is plenty of access to food but it is not always nutritious or affordable for everyone. In LICs, some people struggle to find enough food, leading to hunger and unhealthy eating. This makes it harder for them to stay healthy and strong.

Why do we not all eat well?

The table below summarises the different factors for food insecurity in HICs and LICs.

Factor	Description
Population	The world's population is rising, leading to increased demand for food and higher levels of food imports.
Income Level	Wealthier individuals can afford healthier food options, while poverty can limit access to food and the means to grow it.
Conflict	Conflicts can force farmers to flee, disrupting food production and blocking the movement of food supplies.
Government Policies	Policies on agriculture and food distribution can enhance or restrict access to nutritious food; trade deals can ensure supplies.
Education	Higher levels of education correlate with better knowledge of nutrition and healthier food choices.
Location	Access to fresh produce varies by location, with rural areas often lacking grocery stores.
Water Stress	Insufficient water availability in some regions limits the capacity to grow necessary food.

Example LIC: Malawi		Example HIC: UK	
Reason	Explanation	Reason	Explanation
Poor Crop Yields	Drought reduces the amount of crops that can grow.	Poverty	Low income households struggle to afford nutritious food.
Worn Out Soil	Soil lacks nutrients so not as many crops grow.	Cost of Living	Rising costs of essentials make it difficult for families to buy food.
Insect Damage	Insects have damaged the little food remaining.	Unemployment	Job losses or unemployment may make it hard to buy food.
Poverty	Cannot afford materials to improve crop growth.	Health issues	Health problems may prevent individuals from working or increase living costs affecting their ability to buy food.

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Where do we find reliable energy sources?

Electricity and energy demand continues to rise globally due to factors like population growth, urbanization and increased reliance on technology. We can generate electricity from renewable and non-renewable energy sources. The table below summarises them:

Energy Source	Description	Renewable	Advantages	Disadvantages
Solar Power	Converts sunlight to electricity via solar panels or mirrors	Yes	Clean, abundant, low operating cost	Weather-dependent, high initial cost
Biomass	Organic materials (e.g., wood, crops) used as fuel	Yes	Reduces waste, can be carbon-neutral	Can lead to deforestation, lower energy efficiency
Wind Power	Uses wind turbines to generate electricity	Yes	Clean, cost-effective, scalable	Intermittent, visual and noise impact
Hydroelectric Power	Generates electricity from flowing water	Yes	Consistent, low emissions, reliable	Environmental impact, limited to specific sites
Tidal Energy	Harnesses energy from ocean tides	Yes	Predictable, low emissions	High cost, location-specific
Fossil Fuels	Coal, oil, and natural gas burned for energy	No	High energy density, well-established tech	High emissions, finite, contributes to climate change
Nuclear Energy	Energy from nuclear fission reactions	No	Low emissions, high energy output	Radioactive waste, high risk in accidents
Geothermal Energy	Uses Earth's internal heat for power and heating	Yes	Reliable, low emissions, consistent	Location-specific, potential for surface instability

Why is finding reliable energy resources such a challenge?

Global energy distribution varies widely: developed regions like North America and Europe consume significantly more energy per capita than developing areas. Fossil fuels (coal, oil, gas) dominate globally, though renewables (solar, wind, hydro) are rising, especially in Asia. Africa and parts of Asia face energy access challenges due to poverty and limited infrastructure (power lines/energy stations). So the world continues to use fossil fuels – **71% of global energy comes from non-renewable sources such as fossil fuels.**

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Why must we change our ways?

Growing populations and development increase demand for finite resources like food, water, and energy. Overuse strains ecosystems, depletes freshwater, degrades land, and accelerates climate change. Fossil fuel consumption raises greenhouse gas emissions, threatening biodiversity, food security, and sustainability worldwide as resources become scarcer.

What will happen to resources in the future?

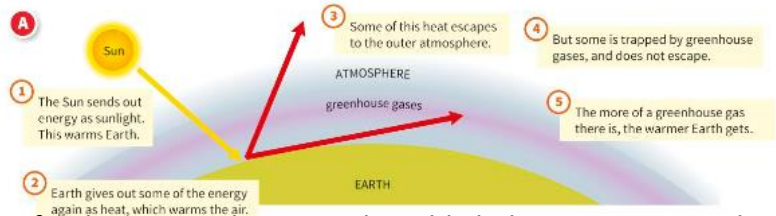
Climate change will directly impact our access to food, water and energy. The table below summarises this impact.

Why is our access to resources changing?

The simple answer is **climate change**. The world has used more fossil fuels. Fossil fuels (coal, oil, gas) release carbon dioxide when burnt. As a result since 1850 the Earth's temperature has increased on average by 1 degrees Celsius.

What are greenhouse gases?

Greenhouse gases are gases that act like a blanket in the atmosphere, trapping heat around Earth. To see how they work, follow the numbers in A.



Resource	Impact of Climate Change
Food	- Reduced crop yields due to rising temperatures
	- Extreme weather events (floods and droughts) destroy farms
	- Food scarcity leading to higher prices and hunger
Water	- Drying water sources like rivers and lakes
	- Pollution from heavy rains contaminating water supplies
	- Limited access to clean drinking water
Energy	- Reduced hydroelectric power from changing rainfall patterns
	- Increased demand for energy (e.g., air conditioning)
	- Damage to energy infrastructure from extreme weather

How can we stop the world from running out of natural resources?

The good news is that there is lots we can do to protect our planet and our resources all focused around sustainable usage of resources.

Water – harvest rainwater, reduce waste and leaks, drip irrigation, water recycling, water transfers and desalination.

Food – education on how to plant and grow crops, better infrastructure, using technology.

Energy – using renewable energy such as wind, electric cars or encouraging LICs to use solar without a grid.