

Where does our energy come from? | Geography | Years 5 & 6 | Summer Term 2024-25

National Curriculum – Geography

Locational knowledge

- Locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities.
- Identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime / Greenwich Meridian and time zones (including day and night).

Human and physical geography

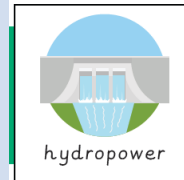
- Describe and understand key aspects of:
 - physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle.
 - human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.

Geographical skills and fieldwork

- Use maps, atlases, globes and digital / computer mapping to locate countries and describe features studied.

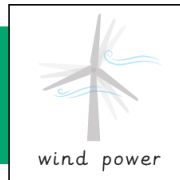
Lines of enquiry

What are some of the renewable sources of energy?



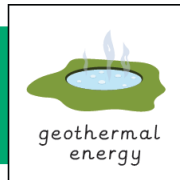
hydropower

Energy generated by the movement of water.



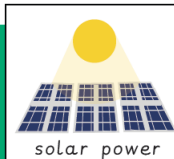
wind power

Energy generated by wind powering large turbines.



geothermal energy

Energy generated by the heat from the Earth's core.



solar power

Energy generated by the sun and solar panels.



biofuel

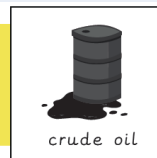
Energy generated from plant or animal waste.

What are some of the non-renewable sources of energy?



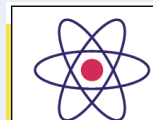
coal

A black rock found deep underground which is used as fuel.



crude oil

A naturally occurring liquid made millions of years ago, found underground.



nuclear power

Energy generated from radioactive materials that create heat.



natural gas

A highly-flammable mixture of gases found deep underground.

What are some uses of energy?



Vocabulary

Energy source: something that can be used to provide power for light, heat, or other forms of energy.

Renewable energy: energy that does not reduce in quantity when it is used.

Non-renewable energy: energy that cannot be replenished and will eventually run out.

Fossil fuel: a material formed from the remains of plants and animals over millions of years.

Trade: the action of buying and selling goods and services

Import: bring goods or services into a country from abroad for sale.

Export: send goods or services to another country for sale.

Producer: a person, company or country that makes or causes something.

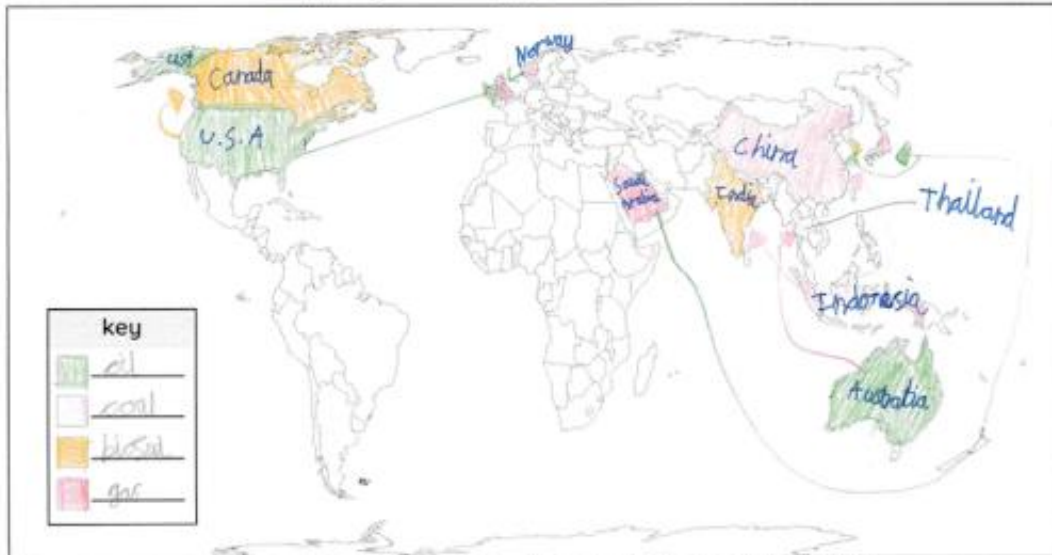
Generate: the process of producing or creating.

Consumption: the action of using up a resource.

Geographical skills and knowledge

What are the global energy trade routes?

Mapping energy trading routes



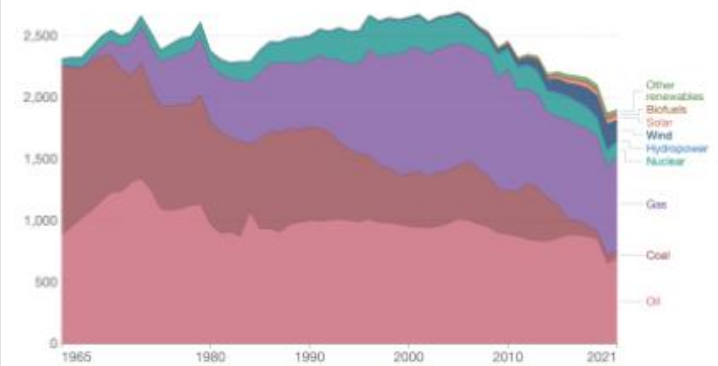
This map is for illustrative purposes and does not reflect exact trading routes taken.

- ✓ **Norway** and the **United States** export crude oil to the **United Kingdom**.
- ✓ The **United States** exports biofuel to **Canada**.
- ✓ **Indonesia** exports coal to **India** and **China**.
- ✓ **Australia** exports natural gas to **Singapore** and **Thailand**.
- ✓ **Saudi Arabia** exports crude oil to **Japan** and **South Korea**.

How does energy consumption in the UK and US compare?

Energy consumption by source, United Kingdom

Primary energy consumption is measured in terawatt-hours (TWh). Here an inefficiency factor (the 'substitution' method) has been applied for fossil fuels, meaning the shares by each energy source give a better approximation of final energy consumption.

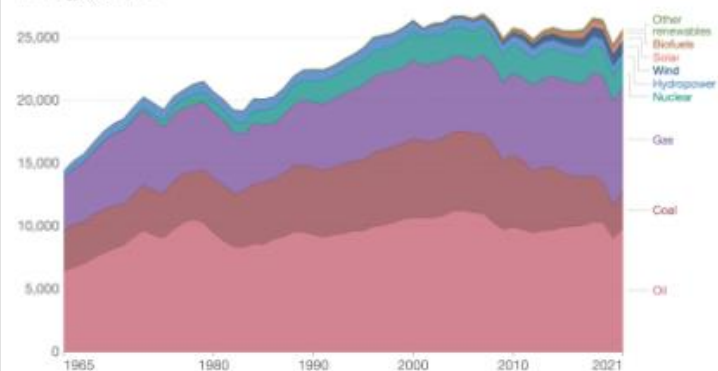


Source: BP Statistical Review of World Energy
Note: 'Other renewables' includes geothermal, biomass and waste energy.

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Energy consumption by source, United States

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Key Learning: To understand and explain where our energy comes from.

1 Why is energy important?

Recap what trade is. Develop an understanding of energy sources and differing uses of energy. Using graphs, discuss whether there is any relationship between when energy sources were developed and population growth. Introduce the idea that we have to trade energy and why this may be. Locate countries and map significant energy trading routes.

2 What is renewable energy?

Consider the benefits and drawbacks of different energy sources. State the difference between renewable and non-renewable energy sources and discuss what to consider when deciding which energy source to use.

3 How does the United States generate energy?

Explain the significance of the Prime Meridian and time zones. Understand and discuss how energy is generated in the United States. Use a digital map to identify energy production in an area of Texas. Display a concept cartoon showing different opinions on energy sources – who they most agree or disagree with and why?

4 How does the United Kingdom generate energy?

Agree or disagree: “Everyone should be using renewable energy sources now.” Use graphs to compare similarities in energy consumption between the USA and UK. Use 6-figure grid references to locate energy sites in the UK (Port of Blyth), considering what these features tell us about energy sources, and trade. Discuss the similarities and differences between where the energy comes from and land use in Midland, Texas (USA) and the Port of Blyth (UK).

5 What is the best way to generate energy?

Decide on an appropriate way to generate energy for a new development and justifying how and why. Discuss the benefits and drawbacks of an energy source. Justify the location of an energy source and make considerations when planning new energy source facilities.

6 Where is the best place for a solar panel on our school grounds?

Explore optional locations for a solar panel on the school grounds. Collect and present data on where to position the solar panel including interview questions to collect qualitative data. Draw a sketch map and use data collected to justify a proposed location for a solar panel.