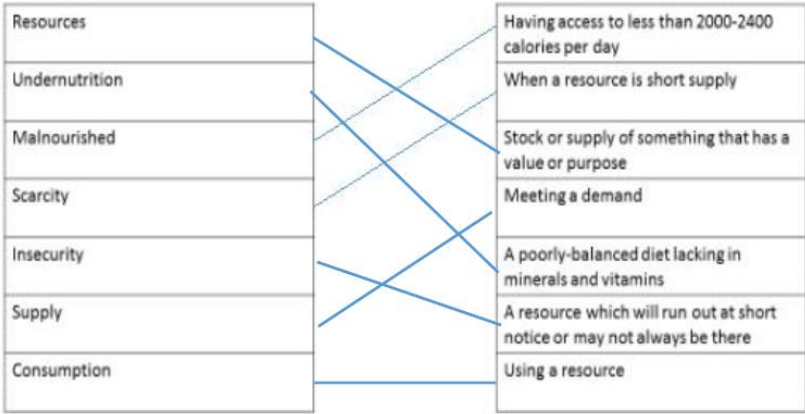


Subject	Geography	Year Group	10	Sequence No.	1	Topic	The challenge of resource management.
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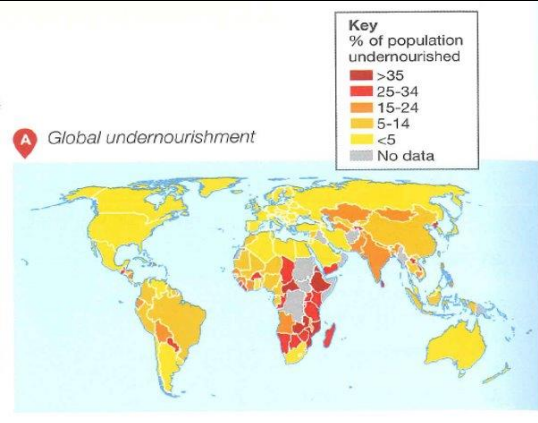
Retrieval	Core Knowledge	Student Thinking
What do teachers need retrieve from students before they start teaching new content ?	What specific ambitious knowledge do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to development of our students thinking, encouraging them to see the inequalities around them and 'do something about them!'
L1 students will recap knowledge of interpreting maps and graphs, a skill they have developed over KS3. L2 – Carbon footprint – links to the previous y7 climate change topic L3 – Water links to the water cycle that the students looked at in y7 rivers. It also links to the our world topic of y7 when they students looked at areas like Las Vegas which suffers from a lack of water. Links to the Africa topic where parts of the Horn of Africa suffer from drought due to the lack of water. L4 – Contaminating the water as a result of fracking links to L3 where the booklet mentions the importance of maintaining water quality. L6 – Recap task - 75% of our gas and oil reserves have run out! UK's energy security is affected as we have to rely on other countries. Students should use their previous knowledge to say why is this a problem.	In this section, students are required to study Resource management (page 22) and one from: Food (page 23) or Water (page 24) or Energy (page 25) We will be doing energy. L1 Global distribution. The significance of food, water and energy to economic and social well-being. Food, water and energy have a huge significance in determining people's economic and social well-being across the globe. This is recognised by both the World Bank and the United Nations. However, access to these resources is unequal across the globe. Without access to these fundamental items, countries and people get trapped in poverty. An overview of global inequalities in the supply and consumption of resources. Work through the booklet for this. 	From the knowledge in this topic students will gain a better understanding of misconceptions linked to the three major resources. As well as exploring current global issues linked to them and learn about ways the world and themselves can do to solve the problems. They will also get the chance to look into a possible career linked to the knowledge they have acquired. They will do this through the following activities: - Students can see the benefit of a healthy lifestyle and understand what helps to make them have a better quality of life. - Students see the impact that producing food can have on the world, including their choices of where their food comes from. - Students can see how water is precious and we are lucky to have enough in our area, compared to people around the world and the south of England. - Students see how important it is to consider why some options may benefit us economically but it may lead to the detriment of our local environment. - The influence that China has had on the increased production of energy. This also helps students to see why it can be difficult to rely on others for energy; for various reasons.

L7 – Need to understand the definition of energy insecurity to know what the impacts of it are

L8 – LIC – a word which the students should be familiar with from previous topics studied.

Nepal – a place in Asia which is a topic focussed around the continent.

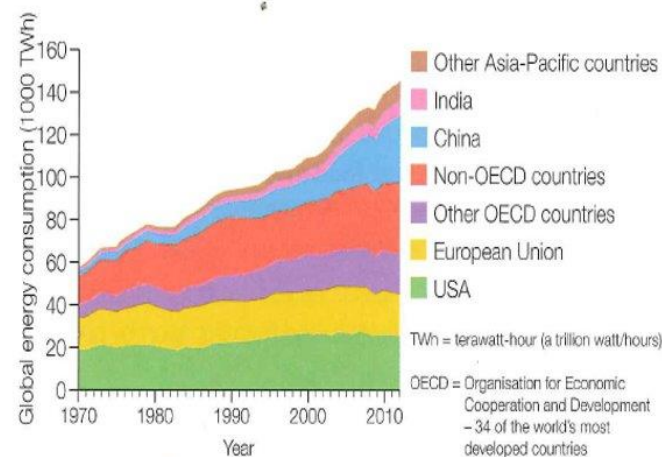
The word sustainable has also been mentioned in the y7 our world topic.



Which continent has the highest %? Africa.

Name two countries at >35 (greater than), 15-24, <5.

Stacked area charts



ight and  Global energy consumption

innov

The bigger the area, the larger the number.

L2 – Provision of UK's food. An overview of resources in relation to the UK.

Food:

- Larger carbon footprints (total amount of greenhouse gases, including carbon dioxide and methane, that are generated by our actions) due to the increasing number of 'food miles' (Food miles is the distance food is transported from the time of its making until it reaches the

- Students can see how the two examples (wind and nuclear) can have negatives or positives for themselves.
- The impact of energy security can be linked to the country of Russia who supply Europe with natural gas, this provides them with power and leverage over the continent.
- Looks at an example of an LIC (Nepal) and how even poor countries can have energy security without damaging the environment.

	consumer), and moves towards local sourcing of food through organic farming (farming system which avoids the use of man-made fertilisers, pesticides; growth regulators and livestock feed additives). • The trend towards agribusiness, which is intensive farming aimed at maximising the amount of food produced. Intensive farming aimed at maximising the amount of food produced. • The positive and negatives of organic farming: -Positives: No chemicals Mainly sell to local people -Negative: High costs as workers do more work than machines which makes it more expensive. • The positive and negatives of agribusiness: -Positives: Intensive farming aimed at maximising the amount of food produced. Farms are run as commercial businesses-the aim is for farmers to make lots of money. They have high levels of investment Use modern technology on the farms -Negatives: They use chemicals such as fertilisers and pesticides L3 Provision of water in the UK. • the changing demand for water • water quality and pollution management • matching supply and demand – areas of deficit and surplus • the need for transfer to maintain supplies. Water surplus – where supply exceeds demand Water deficit – where demand exceeds supply Water stress - when demand for safe, usable water in a given area, exceeds the supply Water demand is increasing because: -The growing population -More houses being built -An increase in the use of water-intensive domestic appliances (dishwasher/washing machine)	
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	Water transfer There are a number of smaller scale water transfer solutions in place in the UK. This includes water being transferred from reservoirs in North Wales and the Lake District to cities such as Manchester and Liverpool in the densely populated north-west of England. Also, water from the Kielder reservoir is pumped into the North Tyne river. Water can then be transferred to the River Derwent, the River Wear and the River Tees. This allows water to be supplied to large urban areas including Newcastle, Middlesbrough and Sunderland. Benefits: - Areas affected by water scarcity will no longer face restrictions in water use during dry periods. - Jobs will be created as part of the construction of dams, aqueducts and pipelines. Negatives: - The dams and aqueducts (bridges used to transport water) that are needed are expensive to build; - Building dams can have a negative environmental impact, this includes large-scale flooding of natural habitats; L4 – Fracking - a strategies to increase energy supply. An example to show how the extraction of a fossil fuel has both advantages and disadvantages. How can we ensure we are energy secure? 1) Get energy from other parts of the world 2) Find more energy reserves in our own country What is fracking? Fracking uses high-pressure water to shatter shale rocks and release natural gas lurking within. The gas is then piped to the surface. The positives and negatives of fracking can be found on the card sort:	
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Fracking uses huge amounts of water that must be transported to the fracking site, at significant environmental cost.	Fracking allows drilling firms to access difficult-to-reach resources of oil and gas.
Chemicals used may escape and contaminate groundwater around the fracking site.	Fracking provides jobs. Since 2008, Marcellus Shale has provided tens of thousands of jobs due to fracking.
The fracking process can cause small earth tremors.	The natural gasses collected from fracking burn easier, too. About half of US electricity comes from burning coal, which, on its best day, is a lot more environmentally problematic than natural gas.
Fracking is simply distracting energy firms and governments from investing in renewable sources of energy, and encouraging continued reliance on fossil fuels.	Natural gas will likely allow countries to reduce their carbon outputs considerably while maintaining their energy generation and avoiding the costs associated with solar power.
Fracking brings up a number of land rights issues.	Fracking has significantly boosted domestic oil production and driven down gas prices.

L5 – Global supply and demand for energy.

- The changing energy mix – reliance on fossil fuels, growing significance of renewables
- Reduced domestic supplies of coal, gas and oil
- Economic and environmental issues associated with exploitation of energy sources.

What is energy insecurity?

Energy insecurity is when a country has to rely on others to supply most of its energy.

Why is this a problem?

1. Have to get energy from other countries
2. Other countries can increase prices
3. Other countries can use it as a form of control over you

Why the world is using more energy?

- Energy use is increasing – growing demand for industry, transport, domestic use
- Some regions have energy resources such as coal, oil or gas
- Economic development – need energy to do this - particularly in China
- Rising population – needs more energy

	• Technology – researching, making, selling, running, charging, replacing Suggest reasons why certain countries are experiencing energy insecurity • Oil and other fossil fuel depletion (peak oil, etc) • Reliance on foreign sources of energy • Geopolitics (such as supporting dictatorships, rising terrorism, stability of nations that supply energy) • Energy needs of poorer countries, and demands from advancing developing countries such as China and India • Economic efficiency versus population growth debate • Environmental issues, in particular climate change • Renewables and other alternative energy sources L6 – Provision of energy in the UK The changing energy mix. How is the UK's energy demand changing? • It has gone down Why are we using less energy? • Decline of heavy industry • Improved energy conservation (saving energy – loft insulation, double glazing) • We are now using more renewable (source does not run out) and less non-renewable (fossil fuels – source runs out) Overview of strategies to increase energy supply: renewable (biomass, wind, hydro, tidal, geothermal, wave and solar) sources of energy Look into the issues with nuclear and wind farms and the positives and negatives using the worksheet. L7 - impacts of energy insecurity. Impacts of energy insecurity – exploration of difficult and environmentally sensitive areas, economic and environmental costs, food production, industrial output, potential for conflict where demand exceeds supply. Card sort to facilitate this:	
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When you import (buy) oil from other countries it makes energy expensive	It can cause conflict if you are mining or drilling in different area
The country that you are imported energy from can increase the price of energy when they feel like it	In the past when moving oil from one place to another it has led to oil spills in the ocean
It means homes have enough energy	It means that factories/industry are able to work properly because there is energy
Drilling and mining can damage the environment	Long distances and limited transportation increase transport costs
Flashpoints wherever oil is being transported - terrorism, hijack or collision	Energy is used to power farm machinery, store farm produce and manufacture fertilisers and chemicals

L8 – How do you think LICs could provide people with sustainable energy?

Moving towards a sustainable resource future.

An example of a local renewable energy scheme in an LIC or NEE to provide sustainable supplies of energy. We will be using the example of Nepal which is an NEE.

Look into detail about the Nepal microhydro dam:

Places like Nepal have been successful. They have invested in micro-hydro schemes, this involves using small rivers to create renewable and sustainable energy. The water in the river passes through a turbine and this creates kinetic energy that is then converted into electrical energy. This benefits the locals as it is a bottom up approach (led by the locals who can fix any issues) and is appropriate technology (technological choice and application that is small-scale, affordable by locals) for the people of Nepal. It allows them to have more economic opportunities as a result of the access to electricity.