

Big question: What is Geography all about?

Lesson	Essential Knowledge
1: Treasures beneath our feet – formation of gems, rocks and crystals	<ul style="list-style-type: none"> • Rocks and the study of rocks (geology) is important as it influences how people live, how plants uptake nutrients and how people use rocks as gems, crystals and building materials. • Rock is a mixture of minerals such as silicone. There are over 5000 known minerals. • There are 3 main rock groups; igneous, sedimentary and metamorphic. • Igneous rock forms when rock melts, cools and hardens again, an example is basalt and granite. • Metamorphic rock is made of without melting, but includes heat and pressure underground, an example is mudstone and slate. • Sedimentary rock is formed when particles of minerals which are eroded and stuck together again in another place, to form new rock. • The UK is made up of a variety of rock types. England is mostly sedimentary. Wales is mostly sedimentary. Scotland is a mixture of igneous and metamorphic. Northern Ireland is a mixture of igneous and metamorphic. • Mountains (found in Scotland), are areas of land generally over 600 metres high. • Mountains form when tectonic plates push together forcing the ground upwards. An example of this is the Himalayas.
2: Top of the rocks – Characteristics and uses	<ul style="list-style-type: none"> • Different rocks have different characteristics. • Sedimentary rock is the least resistant to erosion. It contains layers and sometimes fossils are trapped inside the rock. Sedimentary rock is made of small grains weakly held together. • Sedimentary rock is porous, meaning it allows water to infiltrate the gaps in the grains. • Metamorphic rock is more resistant to erosion than sedimentary rock. It contains layers of sedimentary compacted by pressure and transformed by heat. Fossils are twisted within the rock. • Igneous rock is typically the most resistant to erosion. It is the hardest rock and the grains are randomly arranged in big crystals. No fossil is formed in igneous rock. • Igneous rock is non-porous, meaning it does not allow water to infiltrate. • Rock is used in everyday life. Roads are made of crushed rock, roofs made of slate, building blocks made of rock, precious objects are made of rocks.
3: British Isles on its travels – tectonics and landscapes	<ul style="list-style-type: none"> • Continents have always been moving and changing. 300 million years ago all the continents were stuck together. This landmass was named Pangaea. Over millions of years the landmasses have split creating new continents. • The continents have drifted due to the process called continental drift. The hot mantle (2900 km thick, 500-2800°C) pushes the landmasses away from each other or towards each other. • Alfred Wegener (1880 – 1930) tried to prove this by showing similar rock types were found on different continents. Charles Darwin also supported this as he found fossils of the same animals on different continents. Meaning at one point in time the continents were joined. • Millions of years ago, Britain was much closer to plate boundaries (where tectonic plates meet) than it is today. There were many active volcanoes and plate movement caused massive folds and faults in the rock. Upland areas such as Scotland, Wales and the Lake District 300 million years ago, tectonic processes caused molten magma to rise through the ground and reach the surface. This formed the rock we find in the UK.
4: Precious 'Dirt' – nutrient cycle and soil and my food	<ul style="list-style-type: none"> • Soil is a mixture of clay and sand and rotting vegetation. The clay and sand form when rock is broken down by weathering (the wearing away of rock in-situ (place)). • The soil profile has different layers. Humus, the top layer is nutrient rich due to being made of rotting vegetation such as grass and leaves. The nutrients return to the soil below.

	<ul style="list-style-type: none"> • Topsoil is a layer rich in humus and minerals from the rock deep below the ground. It is good for growing crops. Plants take in nutrients such as potassium, phosphorus, calcium and silicon. Which come from the rock. • Subsoil has little humus (it's further below the surface) but it's rich in minerals. Tree roots reach this layer. • Parent rock is rock underground that is being weather in-situ. • Bedrock is rock further underground which is not yet weathered and is solid rock. • Soil and soil quality can influence how much crops grow and these impacts of a food insecurity have far-reaching implications. Famine due to food shortages, undernutrition as children do not get a balanced diet, soil erosion as demand for food is high farmers may try to grow more food from the soil, damaging it. Rising prices as the scarcity of food increases the price.
<p>5 – How desertification can influence me and those around me</p>	<ul style="list-style-type: none"> • Soil is very important and humans mistreat soil. We cover it in concrete, contaminate it with dust, factories and rubbish, we cut down trees and other vegetation that helped protect it, we let animals graze on the vegetation for too long and they compact the soil, we plant crops too frequently which removes the nutrients from the soil. • Desertification is the process of soil becoming desert like, by removing nutrients and moisture. • large parts of Africa, southern Asia, Eastern Europe and the West of North America is suffering from desertification. • Soil erosion is a large problem facing many countries and governments are trying to reduce the impact of desertification. • In the Sahel (Western Africa) human overgraze on the soil due to rapid population growth. In Northern China, bordering the Gobi Desert desertification is also taking place. • Fighting desertification can be done in a variety of ways. Such as; <ul style="list-style-type: none"> ○ Planting more trees and bushes which protect the soil from weathering and wind ○ Zai pits, small holes with dung and seeds to help growth ○ Microdose nutrients, if you don't have fertilizer people can use human made fertilizer to give plants nutrients. ○ Storing rain water to use in Zai pits ○ Irrigation of crops. Piping water from rivers/lakes to crops to be used. • Countries have large scale projects to prevent desertification. China is planting the 'Green wall of China' hundreds of thousands of trees to stop the expansion of the Gobi-desert.

Key word	Definition
1. Rock cycle	The process of rocks breaking down and forming other rocks and going through a continuous cycle
2. Metamorphic	A type of rock formed by pressure and heat. E.g. mudstone
3. Sedimentary	A type of rock formed by grains of minerals compacting together e.g. sandstone
4. Igneous	A type of rock formed by melting and hardening rock e.g. granite
5. Erosion	The wearing away of rock/material
6. Humus	The top layer of soil made of dead vegetation e.g. leaves and grass
7. Continental drift	The process of continents moving away from each other by convection currents underneath the tectonic plate
8. Desertification	The process of soil becoming desert like (removal of nutrients)
9. Plate boundary	Where two tectonic plates meet
10. Pangaea	A large landmass made of several continents which formed 300 million years ago

