

Meden School Curriculum Planning							
Subject	Chemistry	Year Group	8	Sequence No.	9	Topic	The Earth

Retrieval	Core Knowledge	Student Thinking
What do teachers need <b>retrieve</b> from students before they start teaching <b>new content</b> ?	What <b>specific ambitious knowledge</b> do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to <b>development of our students thinking, encouraging them to see the inequalities around them</b> and 'do something about them!'
<p><b>KS2:</b> Not all rocks are the same. Some rocks are hard, such as granite, flint and marble. Some rocks are soft, such as chalk and limestone.</p> <p>Some rocks contain fossils. Fossils are the remains of living things from millions of years ago. When they died, these plants and animals got covered in mud and sand. Over time the mud and sand got squashed and turned into rock.</p> <p><b>KS3 (Y7 Chemical and Physical change):</b> When a gas changes to a liquid it is called condensation.</p>	<p><b>L1:</b> The Earth is shaped like a <b>sphere</b>. It consists of multiple layers: the <b>crust</b> is the thin, outer, rocky layer; the <b>mantle</b> is beneath the crust and consists of a solid that can flow; the <b>core</b> is at the centre and is made from <b>iron and nickel</b>. The core can be divided into the outer core and inner core. The <b>outer core is liquid</b>, the <b>inner core is solid</b>. The Earth's crust is split into fragments called <b>tectonic plates</b>. These plates move in a process known as <b>continental drift</b>, driven by <b>convection currents</b> found in the mantle. When plates are moving apart, new crust is forming, this is a <b>constructive plate margin</b>. When plates are moving together, old crust is being destroyed, this is a <b>destructive plate margin</b>.</p> <p><b>L2:</b> The Earth's crust is made up of <b>igneous rocks, sedimentary rocks and metamorphic rocks</b>. <b>Magma</b> is molten rock found below the Earth's surface. When magma reaches the surface it is called <b>lava</b>. The point where magma reaches the surface is called a <b>volcano</b>. Most volcanoes are located at plate boundaries. Igneous rocks form from lava or magma as it <b>cools and solidifies</b>. They consist of <b>randomly arranged interlocking crystals</b>. Magma/lava that cools slowly form igneous rocks with large crystals. Magma/lava that cools quickly form igneous rocks with small crystals. Igneous rocks formed underground are known as <b>intrusive</b>, igneous rocks formed above ground are known as <b>extrusive</b>.</p> <p><b>L3:</b> Rocks can be broken up by either <b>chemical, physical or biological weathering</b>. Rock fragments are transported by <b>erosion</b>. These fragments become sedimentary rocks through a process of <b>deposition, compaction and cementation</b>. The presence of different types of sedimentary rocks in the UK means that the UK has experienced different climates and locations. <b>Fossils</b> are the remains of organisms, found in sedimentary rocks, that get buried during deposition.</p> <p><b>L4:</b> <b>Temperature and pressure</b> increases the deeper into the crust you go. When existing rocks are subject to high temperatures or pressures they change into metamorphic rocks. Examples of metamorphic rocks are <b>Gneiss, marble and quartzite</b>. Metamorphic rocks can also be formed when they are close to magma.</p> <p><b>L5:</b> The process of rocks changing from one type to another is known as the <b>rock cycle</b>.</p>	<p>L1: Why do you think the theory of continental drift, put forward by Alfred Wegener, was not initially accepted? Suggests that Earth much older than the age given in the Bible, so difficult to accept.</p> <p>L2: What does it mean that igneous rocks are found in the UK? The fact that igneous rocks are found in the UK, means that volcanoes once existed in the UK.</p> <p>L3 What does it mean that chl is found in the UK? The presence of chalk in the UK means that the UK was once under the sea.</p> <p>L4 Where are the oldest rocks in the UK found? The oldest rocks in the UK are metamorphic rocks and these are mainly found in Scotland.</p>

	<p><b>L6:</b> When the <b>Earth formed, 4.6 billion years ago</b>, there was initially <b>no atmosphere</b>. <b>Intense volcanism</b> released <b>carbon dioxide, nitrogen, methane, ammonia and water vapour</b>. The water vapour <b>condensed</b> to form the <b>oceans</b>. Carbon dioxide was removed from the atmosphere through <b>photosynthesis</b> and <b>dissolving in the oceans</b>. Photosynthesis increased the amount of oxygen in the atmosphere. Today the atmosphere is <b>78% nitrogen and 21% oxygen</b>, with 1% other gases.</p> <p><b>L7:</b> Fossil fuels are <b>coal, oil and natural gas</b>. They are <b>finite</b> meaning they will run out. Fossil fuels can be burned to provide us with <b>energy</b>. This is called <b>complete combustion; fuel + oxygen -&gt; carbon dioxide + water</b>. If there is a <b>lack of oxygen incomplete combustion</b> occurs, the products now are <b>carbon monoxide and water</b>. <b>Carbon monoxide, sulfur dioxide and nitrogen oxides</b> are <b>atmospheric pollutants</b>. These can lead to serious health issues.</p> <p><b>L8:</b> The atmosphere supports life by: <b>providing oxygen; keeping us warm; protecting against dangerous radiation from the sun; causing space rocks to burn up on entry</b>. The <b>greenhouse effect</b> keeps us warm. Carbon dioxide, methane and water are <b>greenhouse gases</b>. Sun emits <b>ultraviolet radiation</b> which can cause <b>skin cancer</b>.</p> <p><b>L9:</b> A warmer Earth means higher sea levels. The Earth warming beyond its natural limits is called <b>global warming</b>. <b>Climate change</b> is significant long term changes to the expected weather in a region or the whole Earth. Global warming can lead to: <b>extreme weather, melting ice caps, sea level change, loss of habitat</b>.</p> <p><b>L10:</b> Global warming can be reduced by: <b>using less motor vehicles, saving electricity, recycling, reusing and planting more trees</b>.</p> <p><b>L11:</b> Revision lesson.</p>	<p>L6: How does the fact that there was initially no oxygen in the atmosphere challenge the biblical view of how life was created on Earth?</p> <p>L9: Paris climate accords in 2016, limited governments to a maximum increase in global temperature of 2°C.</p> <p>L10: How is Greta Thunberg helping in the fight against climate change? What was decided in the Glasgow climate conference (COP26) in 2021?</p>
--	---	--