

Topic 2: Earth

What's the science story?

In this module you will find out about what is beneath your feet and above your head. You will discover that the Earth has not always been the same and continues to change, some parts more quickly than others. Some of these changes have been caused by humans and will have a terrible impact on your children's lives unless drastic action is taken.



Previous knowledge:

- Year 3: compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter

Next steps...

KS4

- 5.9.1 composition and evolution of Earth's atmosphere
- 5.9.2 carbon dioxide and methane as greenhouse gases
- 5.10.1 using the Earth's resources
- 5.10.2.2 ways of reducing the use of resources



Keywords

Crust
Continental
Oceanic
Basalt
granite
Mantle
Core
Atmosphere

Nitrogen
Oxygen
Argon
Carbon dioxide
methane
Grain
Mineral
Porous
Igneous

Magma
Lava
Extrusive
Intrusive
Transport
Deposit
Sediment
Sedimentation
Compaction

Cementation
Sedimentary
Fossil
Metamorphic
pressure
Resources
Population
Deforestation
Sustainable

Pollution
Industrial
Climate change
Greenhouse effect
Radiation
Fossil fuels
Combustion
recycling



Lesson No. and Title	Learning objectives	National Curriculum	Working scientifically skills	Practical equipment
1. What's the Earth made of?	<p>ARE - Describe properties of the different layers of the Earth's structure</p> <p>AGD - Compare the different layers of the Earth in terms of their properties</p>	<ul style="list-style-type: none"> the composition of the Earth the structure of the Earth 		
2. The Rock Cycle	<p>ARE - Explain how, sedimentary, igneous and metamorphic rocks formed</p> <p>AGD - Explain two properties of rocks by linking them to the rock structure and formation</p>	<ul style="list-style-type: none"> the rock cycle and the formation of igneous, sedimentary and metamorphic rocks 		Salol, hot water bath, cold glass slides, pipettes
3. Modelling the rock cycle	<p>ARE - Use the rock cycle to explain how the material in rocks is recycled</p> <p>AGD - Discuss examples of rocks that illustrate the different methods of formation of igneous and metamorphic rocks</p>	<ul style="list-style-type: none"> the rock cycle and the formation of igneous, sedimentary and metamorphic rocks 		10 x 10cm Tin foil, dark, milk and white chocolate, stopwatch, butter knife (or grater), kettle, beaker
Assessment 1: Rocks				

KS3 – Year 9

4. Recycling	<p>ARE - Analyse the advantages and disadvantages of recycling</p> <p>AGD - Use data to discuss the relative benefits and drawbacks of recycling materials</p>	<ul style="list-style-type: none"> Earth as a source of limited resources and the efficacy of recycling 		
Assessment 2: Recycling				
5. The atmosphere	<p>ARE - Explain why the concentration of carbon dioxide in the atmosphere did not change for many years</p> <p>AGD - Use equations to explain processes that exchange carbon dioxide to and from the atmosphere</p>	<ul style="list-style-type: none"> the composition of the atmosphere 		Borosilicate glass tube, copper turnings, 2x gas syringes
6. Global warming	<p>ARE - Explain why global warming happens</p> <p>AGD - Discuss in detail the impacts of global warming, identifying primary and secondary problems</p>	<ul style="list-style-type: none"> the production of carbon dioxide by human activity and the impact on climate 		ipads



Assessment Criteria

Assessment No. & Title	Working Towards	Age Related Expectations	At Greater Depth
n/a	Name the layers of the Earth.	Describe properties of the different layers of the Earth's structure	Compare the different layers of the Earth in terms of their properties
n/a	Name the main components of the atmosphere	Explain why the concentration of carbon dioxide in the atmosphere did not change for many years	Explain changes in the levels of carbon dioxide using stages of the carbon cycle
1. Rock types	State a property of sedimentary rocks	Explain how sedimentary rocks are made	Explain two properties of sedimentary rocks by linking them to the rock structure and formation
	State one difference between igneous and metamorphic rocks	Explain how igneous and metamorphic rocks form	Discuss examples of rocks that illustrate the different methods of formation of igneous and metamorphic rocks
2. Recycling	Give one advantage and one disadvantage of recycling	Analyse the advantages and disadvantages of recycling	Use data to discuss the relative benefits and drawbacks of recycling materials
n/a	State a cause and one impact of global warming	Explain why global warming happens	Discuss in detail the impacts of global warming, identifying primary and secondary problems
	State the changes in levels of carbon dioxide over time.		