KS3 – Year 9

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

Grain
Mineral
Porous
Igneous
Magma
Lava
Extrusive
Intrusive
Transport
Deposit
Sediment
Sedimentation
Compaction

Resources
Population
Deforestation
Sustainable
Pollution
Industrial
Climate change
Greenhouse effect
Radiation
Fossil fuels
Combustion
recycling

methane	Cementation Sedimentary Fossil Metamorphic pressure

Working scientifically skills:

WS1	Scientific methods
WS2	Draw/Interpret diagrams
WS4	Ethical arguments

Assessments:

End of unit test (summative)
Exit tickets x 2/3 (formative)

- **to be produced**

Lesson No. and Title	Learning objectives	National Curriculum	Practical equipment
1. What's the Earth made of?	ARE - Describe properties of the different layers of the Earth's structure AGD - Compare the different layers of the Earth in terms of their properties	• the composition of the Earth • the structure of the Earth	
2. The Rock Cycle	ARE - Explain how, sedimentary, igneous and metamorphic rocks formed AGD - Explain two properties of rocks by linking them to the rock structure and formation	• the rock cycle and the formation of igneous, sedimentary and metamorphic rocks	Salol, hot water bath, cold glass slides, pipettes

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3. Modelling the rock cycle	ARE - Use the rock cycle to explain how the material in rocks is recycled AGD - Discuss examples of rocks that illustrate the different methods of formation of igneous and metamorphic rocks	• 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
4. Recycling	ARE - Analyse the advantages and disadvantages of recycling AGD - Use data to discuss the relative benefits and drawbacks of recycling materials	• Earth as a source of limited resources and the efficacy of recycling	
5. The atmosphere	ARE - Explain why the concentration of carbon dioxide in the atmosphere did not change for many years AGD - Use equations to explain processes that exchange carbon dioxide to and from the atmosphere	• the composition of the atmosphere	Borosilicate glass tube, copper turnings, 2x gas syringes

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6. Global warming	ARE - Explain why global warming happens AGD - Discuss in detail the impacts of global warming, identifying primary and secondary problems	• the production of carbon dioxide by human activity and the impact on climate	ipads