

Earth, Atmosphere and Resources

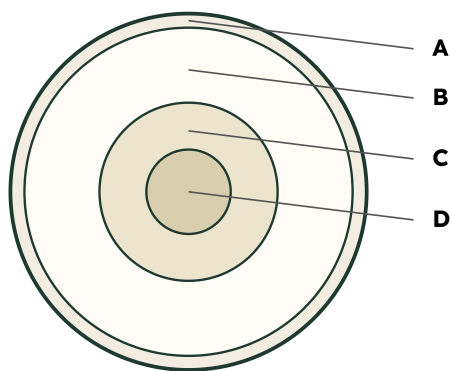
Earth's structure, rocks and the rock cycle, the atmosphere, climate and recycling.

Name _____ Date _____ Class _____

Learning objective: I can describe the Earth's structure and explain how human activity affects the atmosphere and resources.

✓ I can name Earth's layers ✓ I can explain the rock cycle ✓ I can explain the greenhouse effect

1 Structure of the Earth Name each layer A-D.



- A thin, solid outer layer _____
B hot rock that flows very slowly _____
C liquid iron and nickel _____
D solid iron and nickel _____

2 Rocks Match each rock type to how it forms and an example.

1 igneous

☐

A layers of sediment are compacted and cemented, e.g. sandstone, limestone

2 sedimentary

☐

B existing rock is changed by heat and pressure, e.g. marble, slate

3 metamorphic

☐

C molten rock (magma or lava) cools and solidifies, e.g. granite, basalt

3 The rock cycle Use the word bank.

Word bank:

slowly

expands

erosion

weathering

quickly

deposition

- 1 Wind, rain and ice break rocks into smaller pieces. This is called _____.
- 2 Rivers carry the pieces away (transport) and drop them in layers. This is called _____.
- 3 Igneous rocks with large crystals cooled _____ underground.
- 4 Freeze-thaw weathering happens because water _____ when it freezes.

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4 The atmosphere today Complete the table. Then work out the percentage of 'other gases'.

Gas	Approximate % of dry air
nitrogen	
oxygen	
argon	0.93%
carbon dioxide	0.04%
other gases (neon, helium and others)	

5 Climate and resources

- 1 Burning fossil fuels increases the amount of carbon dioxide in the atmosphere. Explain why this causes global warming. [3 marks]

- 2 Give **two** ways the carbon cycle removes carbon dioxide from the air. [2 marks]

- 3 Iron is extracted by heating iron oxide with carbon. Why can this method not be used for aluminium? [2 marks]

- 4 Give **two** reasons why recycling metals is better than mining new ore. [2 marks]

6 True or false?

	TRUE	FALSE
1 The Earth's early atmosphere had much more carbon dioxide than today.	☐	☐
2 Oxygen has always made up about 21% of the atmosphere.	☐	☐
3 Fossil fuels are a finite (non-renewable) resource.	☐	☐
4 Sedimentary rocks can contain fossils.	☐	☐

Answer Key

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Question	Answers
1 Structure of the Earth	A crust; B mantle; C outer core; D inner core
2 Rocks	1 C; 2 A; 3 B
3 The rock cycle	1 weathering; 2 deposition; 3 slowly; 4 expands
4 The atmosphere today	nitrogen – Approximate % of dry air: 78% oxygen – Approximate % of dry air: 21% other gases (neon, helium and others) – Approximate % of dry air: 0.03%
5 Climate and resources	1. Carbon dioxide is a greenhouse gas; it absorbs heat radiated from the Earth's surface and re-emits it, trapping more heat in the atmosphere, so average temperatures rise. 2. Photosynthesis by plants and algae; dissolving in the oceans (and forming shells/sediments). 3. Aluminium is more reactive than carbon, so carbon cannot displace it; electrolysis is used instead. 4. Any two: uses less energy; conserves finite resources; less waste in landfill; less damage to land from mining; less pollution.
6 True or false?	1 True ; 2 False – oxygen built up gradually as plants and algae photosynthesised; 3 True ; 4 True

Teaching note: percentages for dry air are approximate. The 'other gases' total is calculated from the values in the table ($100 - 78 - 21 - 0.93 - 0.04$).