<u>AQA - Carbon dioxide and methane as greenhouse gases – Combine Science GCSE</u> <u>Chemistry</u>

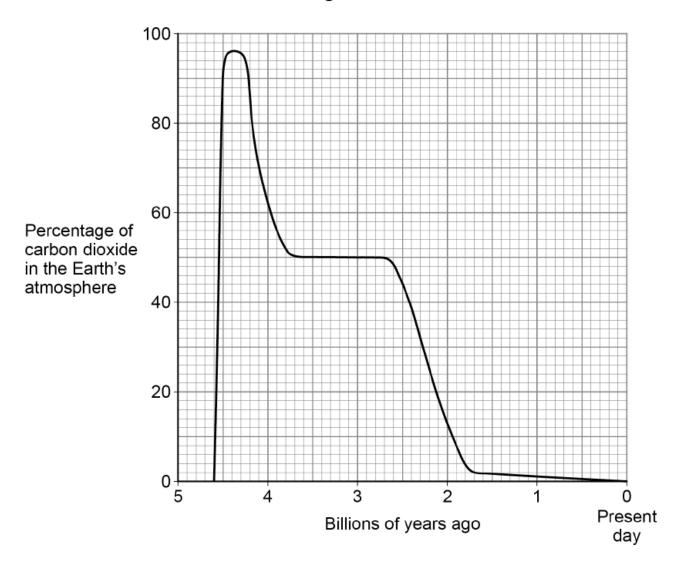
1.

D, C, B, A

	aper_8464/2H/No.6 tion is about the Earth's atmosphere.			
Carbon dioxide is a greenhouse gas.				
The green	house effect happens in four stages.			
The four s	tages are:			
Stage A	Carbon dioxide stops longer wavelength radiation escaping			
Stage B	Radiation is absorbed by the Earth			
Stage C	Longer wavelength radiation is emitted			
Stage D	Shorter wavelength radiation enters the atmosphere			
What is the correct order of stages A, B, C and D? [1 mark				
Tick (✓) one box.				
C, A, B,	D			
C, D, B,	A			
D, B, C,	A			

Figure 6 shows how the percentage of carbon dioxide in the Earth's atmosphere has changed over 4.6 billion years.

Figure 6



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The mass of gas in Earth's atmosphere remains constant at $5.15 \times 10^{18} \ kg$

Determine the maximum mass of carbon dioxide that was in the Earth's atmosphere.	
Use Figure 6. [3 n	narks]

Mass of carbon dioxide = _____

kg

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Describe the processes that have caused the main **changes** in the percentage of carbon dioxide in the Earth's atmosphere over the last 4.6 billion years.

Use Figure 6.	[6 marks]

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2.	Jun/2019/Paper_8464/2F/No.1.3 Give two reasons why the percentage of carbon dioxide in the air has decreased in the last 2.7 billion years.		
	Tick (✓) two boxes.		
	Combustion		
	Dissolved in oceans		
	Intense volcanic activity		
	Photosynthesis		
	Respiration		

3. Jun/2019/Paper_8464/2F/No.7.2

Table 3 shows the carbon footprint during the manufacture and use of three cars.

Table 3

Car	Mass of CO₂ produced during manufacture in kg	Mass of CO₂ produced when driving in kg per km	Total mass of CO ₂ produced from manufacture and 40 000 km driving in kg	Total mass of CO₂ produced from manufacture and 100 000 km driving in kg
Car A	14 000	0.123	18 920	26 300
Car B	20 000	0.085	23 400	28 500
Car C	23 000	0.044	24 760	27 400

Evaluate the carbon footprint of the cars.

Use information from Table 3.

[6 marks]

Copper is a catalyst in a reaction to produce ethanol from carbon dioxide.	
Ethanol (C ₂ H ₅ OH) is used as a fuel.	
Suggest why producing ethanol from carbon dioxide is sustainable.	[2 marks]
Chemistry plays an important role in sustainable development.	
What is sustainable development?	[2 marks]

5.

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Ca	rbon dioxide is a greenhouse gas.	
	escribe the greenhouse effect in terms of the interaction of short and long avelength radiation with matter.	[4 marks]