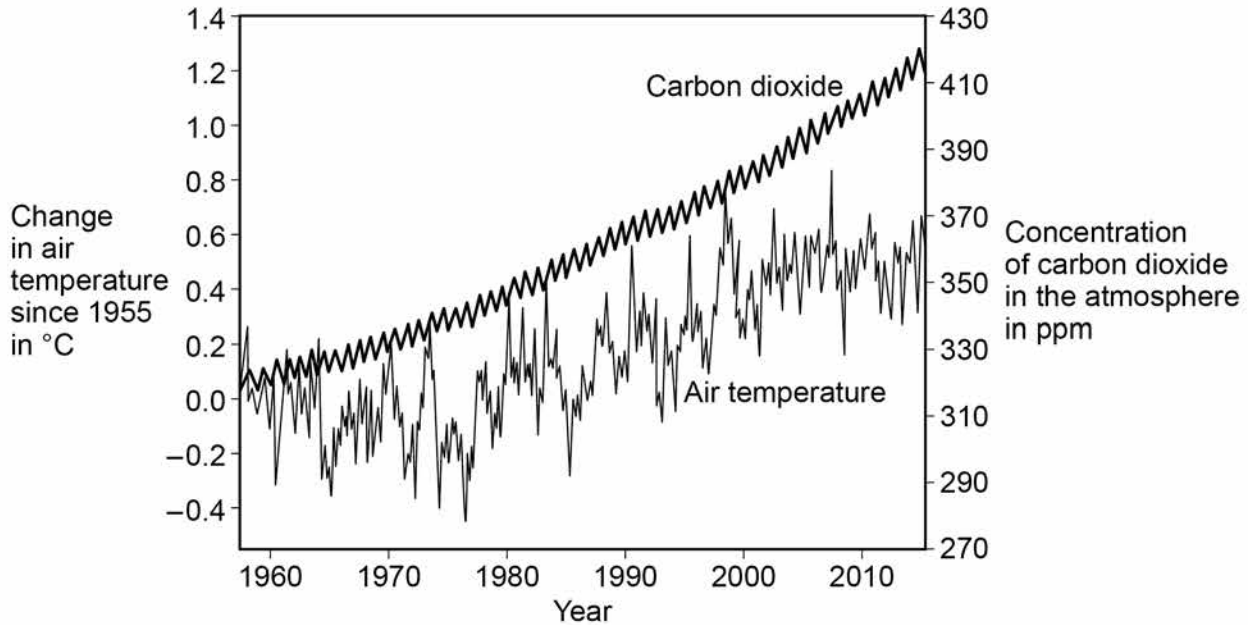


1 0

Many scientists think that global air temperature is related to the concentration of carbon dioxide in the atmosphere.

Figure 14 shows changes in global air temperature and changes in the concentration of carbon dioxide in the atmosphere.

Figure 14



1 0 . 1

Complete **Table 4**.

Use information from **Figure 14**.

[2 marks]

Choose answers from the box.

You may use each answer once, more than once or not at all.

constant	decreasing	increasing
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Table 4

	1960 – 1977	1977 – 2003	2003 – 2015
Trend in carbon dioxide concentration	Increasing		
Trend in air temperature			



In each year, the concentration of carbon dioxide in the atmosphere is higher in the winter than in the summer.

1 0 . 4

Give **one** human activity that could cause the higher concentration of carbon dioxide in the winter.

[1 mark]

1 0 . 5

Give **one** biological process that could cause the lower concentration of carbon dioxide in the summer.

[1 mark]

1 0 . 6

Give **two** possible effects of an increase in global air temperature on living organisms.

[2 marks]

1 _____

2 _____



Question	Answers	Extra information			Mark	AO / Spec. Ref.
10.1		1960–1977	1977–2003	2003–2015	1	AO3 4.7.3.5
	trend in carbon dioxide concentration		increasing	increasing		
	trend in air temperature	decreasing	increasing	constant / decreasing	1	
allow synonyms eg level / goes up / goes down						
10.2	traps heat / energy or (long-wavelength / IR) radiation or less loss of heat or insulates	do not accept light / UV allow stops (some) heat escaping do not accept stops all heat escaping ignore greenhouse effect ignore reference to ozone layer			1	AO1 4.7.3.5

Question	Answers	Mark	AO / Spec. Ref.	
10.3	Level 2: Some logically linked reasons are given. There may also be a simple judgement.	3–4	AO3 4.7.3.5	
	Level 1: Relevant points are made. They are not logically linked.	1–2		
	No relevant content	0		
	Indicative content for the theory: <ul style="list-style-type: none"> • (overall increased CO₂ parallels) overall increased temperature (eg by 0.4 (°C)) • CO₂ traps (long-wave) radiation / IR / heat against the theory: <ul style="list-style-type: none"> • in some years (eg 1960–1977) temperature falls (while CO₂ is rising) • many (large and small) erratic rises and falls in temperature • overall correlation does not necessarily mean a causal link • other (unknown) factors may be involved in temperature change <p>to access level 2 there must be evidence both for and against the theory and use of data from the graph</p>			
10.4	burning of (fossil) fuels	allow eg coal / oil / gas allow driving cars allow any activity which leads to burning fuels – eg using central heating ignore power stations unqualified ignore burning / fires unqualified ignore deforestation	1	AO2 4.7 4.7.2.2 4.7.3.5
10.5	photosynthesis	allow full description or full equation allow a symbol equation which is not balanced	1	AO2 4.4.1.2 4.7 4.7.2.2 4.7.3.5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
10.6	any two from: <ul style="list-style-type: none"> • (some) plants grow faster / higher yield • loss of habitat • migration or change in distribution • extinction 	allow points made using examples } if neither is given allow alters biodiversity for 1 mark allow (in terms of extinction) death due to eg lack of water / food or increased disease ignore death unqualified	2	AO1 4.7.3.1 4.7.3.5
Total			11	