

Earth

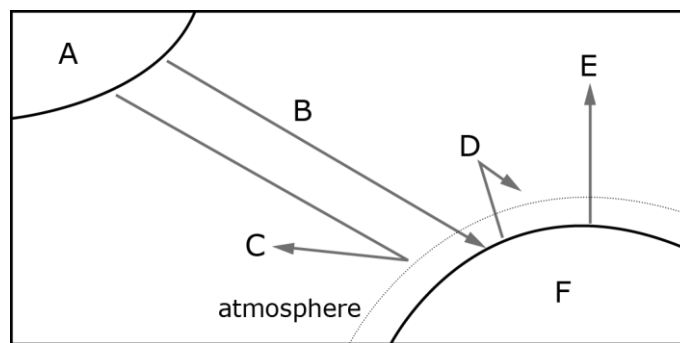
Task 1

Greenhouse effect and global warming

1 Add the terms *global warming* and *greenhouse effect* next to the correct definition.

Definition	Term
transfer of the Sun's energy to the thermal store of gases in the Earth's atmosphere	
gradual increase in the air temperature of the Earth	

2 Look at this diagram of the greenhouse effect.



Draw lines to match each letter with the correct label.

Letter
A
B
C
D
E
F

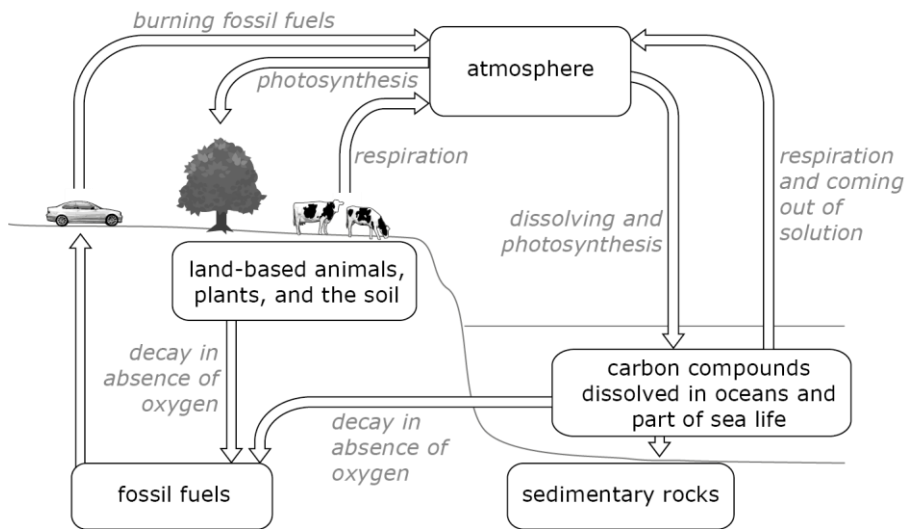
Label
Earth's surface emits radiation
Sun
atmosphere absorbs and radiates some of the radiation from the Earth's surface
Earth
atmosphere absorbs and reflects some radiation
Sun warms the Earth's surface

Task 2

Storing carbon

A carbon sink absorbs carbon and stores it.

Identify three carbon sinks on the diagram, draw arrows to them, and label the sinks.



Task 3

Carbon over time

1 Complete the sentence:

For the last 400 000 years, levels in the atmosphere have fluctuated. However, until 1950, they had not been above 300 parts per million (ppm).

The current level is about ppm.

2 Fill in the gaps in this list of human activities that add carbon dioxide to the atmosphere:

- burning to generate, heat homes, and fuel cars
- burning or forests to make space for crops or cattle
- of animals such as cows.

Task 4

Climate change and global warming

Describe how global warming contributes to climate change and affects living things. Use these words to help you.

rainfall	flooding	droughts	heatwaves	crop failures
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Task 5

Evidence that humans are causing global warming

Read the statements, and tick the ones that could be used as evidence that humans are causing global warming.

Statement	Evidence of human cause?
Carbon dioxide levels have risen hugely since 1950.	
Sea levels rose 17 cm in the last century.	
Greenhouse gases (such as carbon dioxide) are also released when volcanoes erupt.	
The 20 warmest years on record have occurred since 1981.	
There are natural changes, such as small changes in the Earth's orbit.	

Task 6

Extracting metals from their ores

1 Choose from this list of words to complete the statements below.

carbon	reactivity	ores	electrolysis
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- a Many metals are found as compounds in rocks called
 - b Extracting metals depends on their
 - c Metals *more* reactive than carbon are extracted by
 - d Metals *less* reactive than carbon are extracted by heating with
- 2 Use the reactivity series to name the metals that are extracted using carbon and the metals that are extracted using electrolysis.

Metals that are extracted using carbon:

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Metals that are extracted using electrolysis:

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3 a What makes extraction by electrolysis so expensive?

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b Why are electrolysis plants often situated by hydroelectric generators?

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Task 7

Recycling

1 State why recycling is needed.

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2 Look at the table. It shows an estimate of when the sources we get four elements from might run out.

Element	Uses of element	When the source of the element will run out (estimated year)
phosphorous	making fertilisers	between 2060 and 2110
gold	jewellery, electrical connections	2040
tin	food containers, solder	2030
aluminium	aeroplanes, overhead power cables, kitchen foil	2500

Suggest why it is particularly important to recycle tin, as compared with the other elements.

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