

Materials and the Earth

Lesson 15: Review 2

Science

Chemistry - Key Stage 3

Miss Willett



What have you learnt already?

1. How is limestone extracted from the Earth?
2. Which is the thinnest layer of the Earth?
3. What is a polymer?



The Early Atmosphere

Exam application:

Complete the sentences about how the Earth's atmosphere has evolved. Choose words from the list.

argon

condensed

melted

nitrogen

oxygen

sunlight

thunderstorms

volcanoes

The earliest atmosphere was made up of ammonia, carbon dioxide and water vapour.

These gases were released by The water vapour

to form the oceans. Ammonia was converted by bacteria in the soil to make

..... . The earliest plants photosynthesised. They absorbed carbon dioxide

and released gas.



The Carbon Cycle

Add or remove?!

Respiration by plants

Formation of sea-shells

Combustion of fossil fuels



The Carbon Cycle

Exam application:

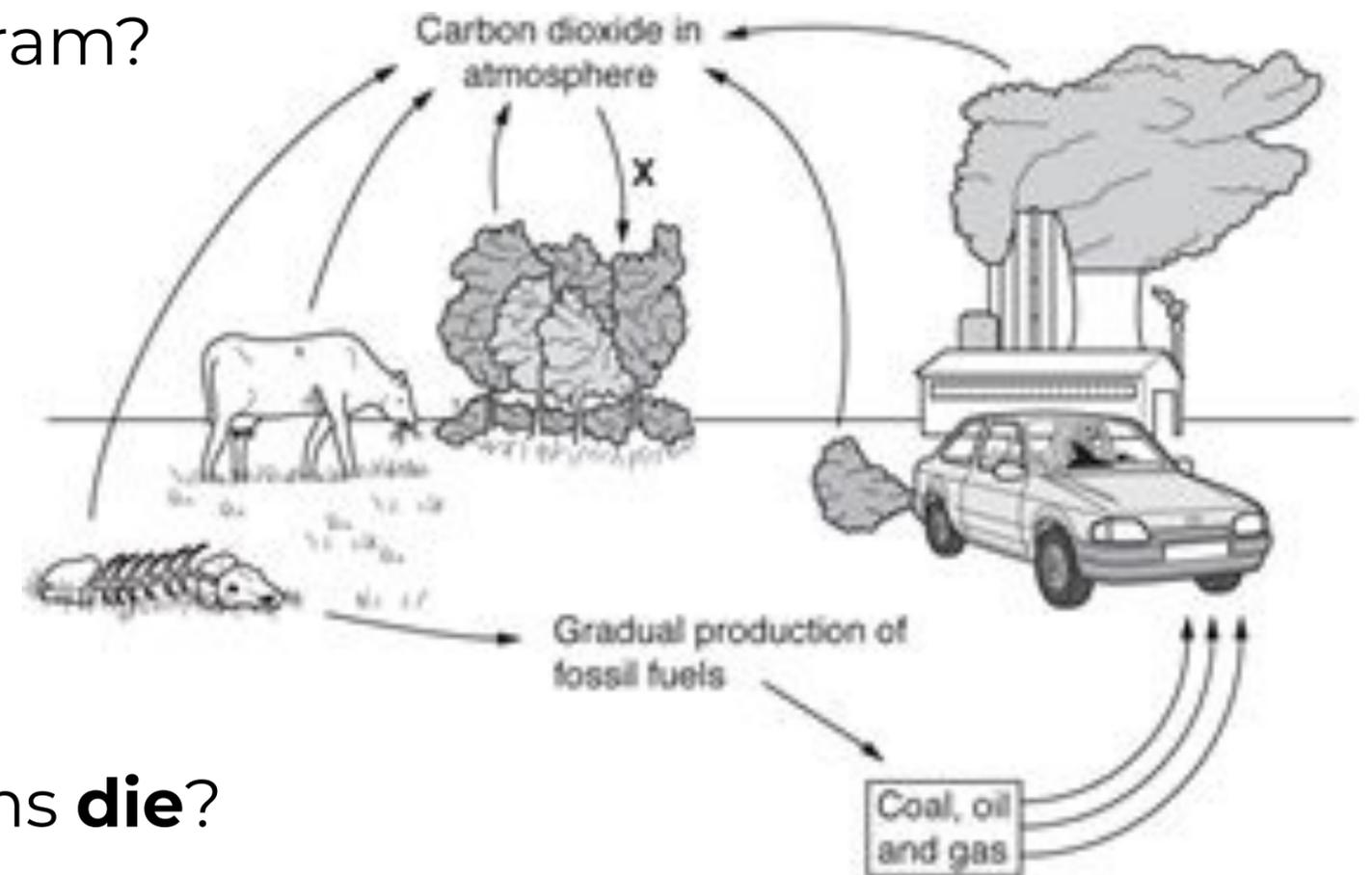
i. Which process is shown by arrow **X** in the diagram?

Combustion

Decomposition

Photosynthesis

Respiration



ii. Which process releases carbon when organisms **die**?

Combustion

Decomposition

Photosynthesis

Transpiration



The Greenhouse Effect + Human Impact

True or false?!

Radiation is emitted from the Earth as infer-red radiation

Farming increases levels of water vapour in the atmosphere

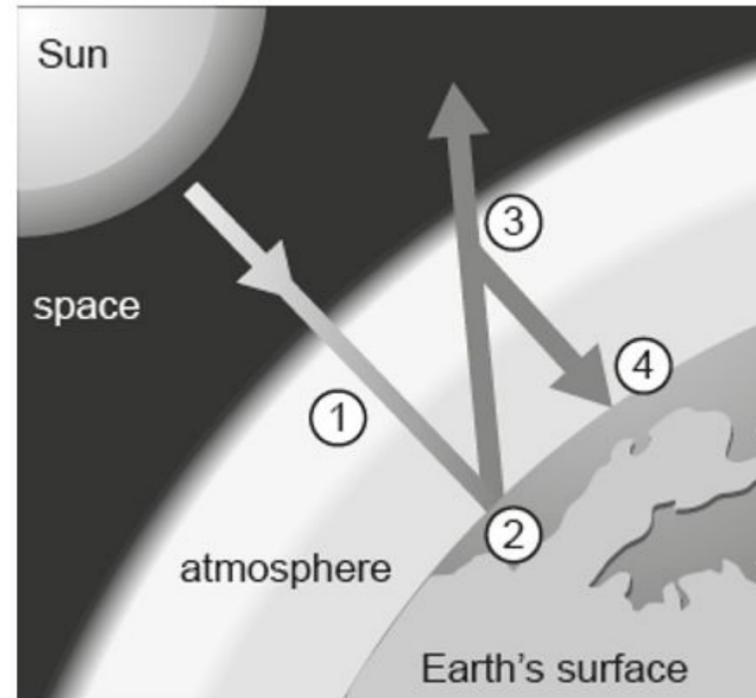
Accelerated climate change (due to increased greenhouse gases) is causing melting of ice caps



The Greenhouse Effect

Exam application:

Look at the diagram. It shows four processes (1 – 4) which happen in the Earth's atmosphere and on its surface.



Describe the four processes and how the greenhouse effect occurs.

Source: OCR June 2018; J250/10

The Greenhouse Effect

Answer space:



Human Impacts

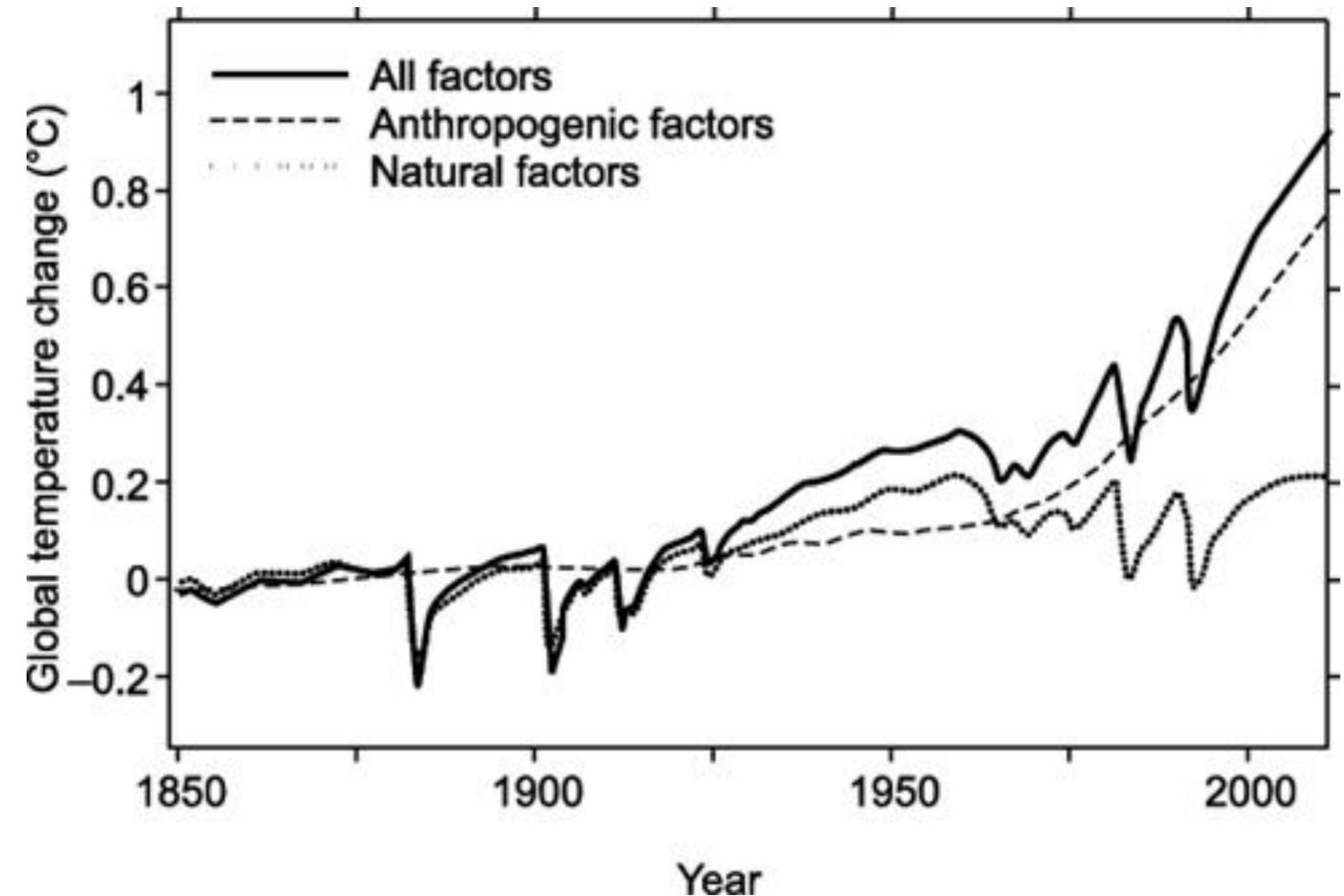
Exam application:

Gases such as methane and carbon dioxide absorb infrared radiation that is radiated by the Earth's surface. As a result, the Earth's surface is warmed. This is called the greenhouse effect.

Look at the graph. It shows how global temperatures have changed as a result of

- all factors
- [human] factors
- natural factors

Evaluate the evidence that [human] factors are contributing significantly to global temperature change



Human Impacts

Answer space:



Material types

Match up!

Ceramics are..

Composite materials have..

Polymers are usually..

..a mixture of properties

..plastics, and non-biodegradable

..strong but brittle



Materials

Exam application

i. Gore-Tex[®] material is made from a **non-biodegradable** polymer.

What is meant by non-biodegradable?

[1]

ii. Write about two ways that non-biodegradable polymers can be disposed of.

[2]



Materials

Answer space:



Materials

Exam application

Old railway carriages are recycled in the same way as cars.

Write about the advantages, other than cost, of recycling metals.

[2]



Materials

Exam application

State **one** disadvantage of recycling.

[1]



More exam practice:

The carbon cycle:

This question is about gases in the atmosphere.

Carbon dioxide is added to the atmosphere when fossil fuels are burnt.

i. Describe how else carbon dioxide is added to the atmosphere.

[2]

ii. How is carbon dioxide removed from the atmosphere?

Source: OCR January 2013; B712/01

More exam practice:

Answer space:



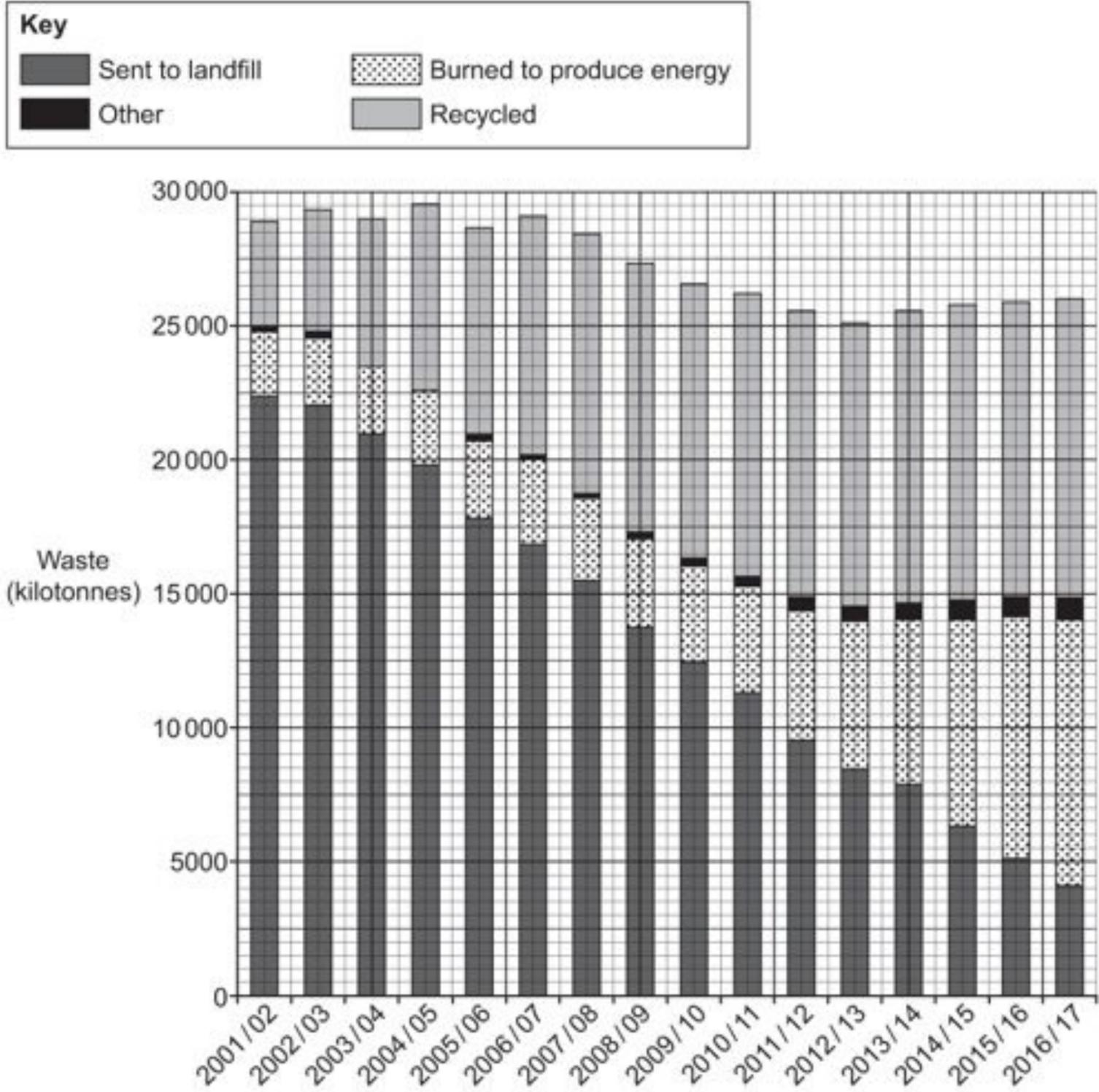
More exam practice:

Recycling:

Local councils collect waste from households. The graph shows what happened to the waste between 2001 and 2017.

Describe **and** explain **one** trend shown by the graph.

[2]



Source: OCR June 2019; J250/04



More exam practice:

Answer space:

