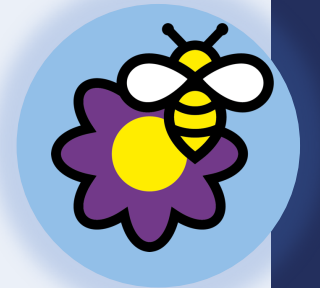


Global Warming

Answer the following questions:

1. Explain the term pollution.
Pollution is caused when human waste isn't properly handled or disposed of
2. Explain what is meant by the term 'waste'.
Substances or materials that are no longer useful (unwanted or unusable materials)
3. Give one source of water pollution.
Sewage, fertilisers and toxic chemicals
4. Identify two resources that animals compete for
Territory, mates, food
5. Convert the number 3.4×10^{-3} from standard form.
0.0034



Global Warming

B3.2.6

Science
Mastery



B3.2.1 Prior Knowledge Review

B3.2.2 Biodiversity

B3.2.3 How Humans Affect Biodiversity

B3.2.4 How Humans can Preserve Biodiversity

B3.2.5 The Effect of Pollution on Biodiversity

➤ **B3.2.6 Global Warming**

B3.2.7 Taking It Further: Pyramids of Biomass

B3.2.8 Taking It Further: Farming and Biotechnology

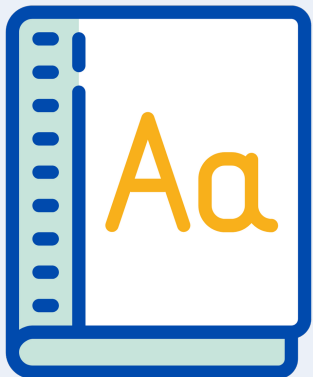
B3.2.9 Taking It Further: Food Security



Following this lesson, students will be able to:

- Describe what is happening to carbon dioxide and methane levels in the atmosphere
- Describe some causes of these greenhouse gases
- Describe the biological consequences of global warming

Key Words:



global warming

climate change

emissions

greenhouse gas

This is the fix-it portion of the lesson

The **fix-it** is an opportunity to respond to gaps in knowledge, especially those identified by the previous lesson's exit ticket.

- The teacher should customise this slide as needed, to facilitate
 - **reteach, explanation, demonstration** or **modelling** of ideas and concepts that students have not yet grasped or have misunderstood.
 - **practise** answering specific questions or of key skills.
 - **redrafting** or **improving** previous work.

Answer the questions below.

1. Which correctly explains why humans are now producing more waste?
 - ☐ A. Humans now have a worse quality of life, fewer resources are used
 - ☒ B. The human population has increased hugely over the last century
 - ☐ C. Many resources can now be recycled so we can throw away non-recyclable items
2. Which is a consequence of not treating waste water?
 - ☒ A. Contamination of water sources, leading to severe illnesses
 - ☐ B. Factories illegally leaking toxic chemicals into streams and rivers
 - ☐ C. Run off of fertilisers from farms after heavy rain
3. Why is pollution bad for many plants and animals?
 - ☐ A. Pollution kills all plants and animals
 - ☒ B. Pollution is harmful for many habitats and can spread toxic substances through food chains
 - ☐ C. Pollution increases biodiversity

Exit ticket

Key Definitions

Global warming is the rise in global temperatures due to greenhouse gases.

Climate change is the overall change in weather (global or regional) over a long period of time.

Global Warming

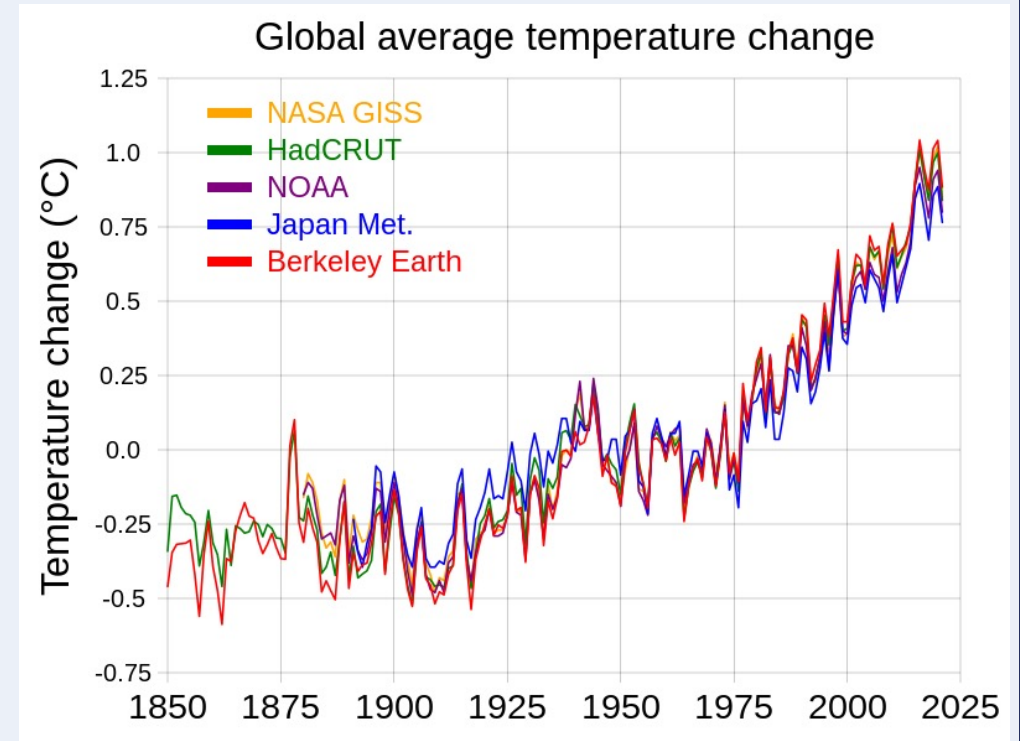
Levels of **carbon dioxide** and **methane** in the atmosphere are increasing

This is mainly due to the burning of **fossil fuels**

Deforestation also means that there are fewer trees to absorb carbon dioxide for photosynthesis

These **greenhouse gases** contribute to global warming

There are severe **biological consequences** to global warming



Consequences of Global Warming

The consequences of global warming are:

- Melting polar **ice caps**
- Rising **sea** levels
- **Flooding**
- **Extreme weather** patterns



Consequences of Global Warming

The **biological** consequences of global warming are:

- Loss of **habitats**
- changing **breeding patterns**
- changing **migratory** patterns

These biological consequences cause changes to the **biodiversity** of an area.



Quick Quiz

Determine if the following statements are true or false:



True



False

- a. Global warming and climate change are the same **False**
- b. Global warming is caused by increased levels of greenhouse gases **True**
- c. Carbon dioxide and methane are greenhouse gases **True**
- d. Deforestation prevents global warming because it means there are fewer trees to emit carbon dioxide **False**
- e. Consequences of global warming include flooding and extreme weather events **True**

Drill

1. Define global warming.
2. Define climate change.
3. Name two greenhouse gases.
4. State two consequences of global warming.
5. State two biological consequences of global warming that can affect biodiversity of an area.

Drill answers

1. Global warming is the rise in global temperatures due to greenhouse gases.
2. Climate change is the overall change in weather (global or regional) over a long period of time.
3. Carbon dioxide, methane, water vapour
4. Melting polar ice caps, rising sea levels, flooding, extreme weather patterns
5. Loss of habitats, changing breeding patterns, changing migratory patterns

Out of this world!

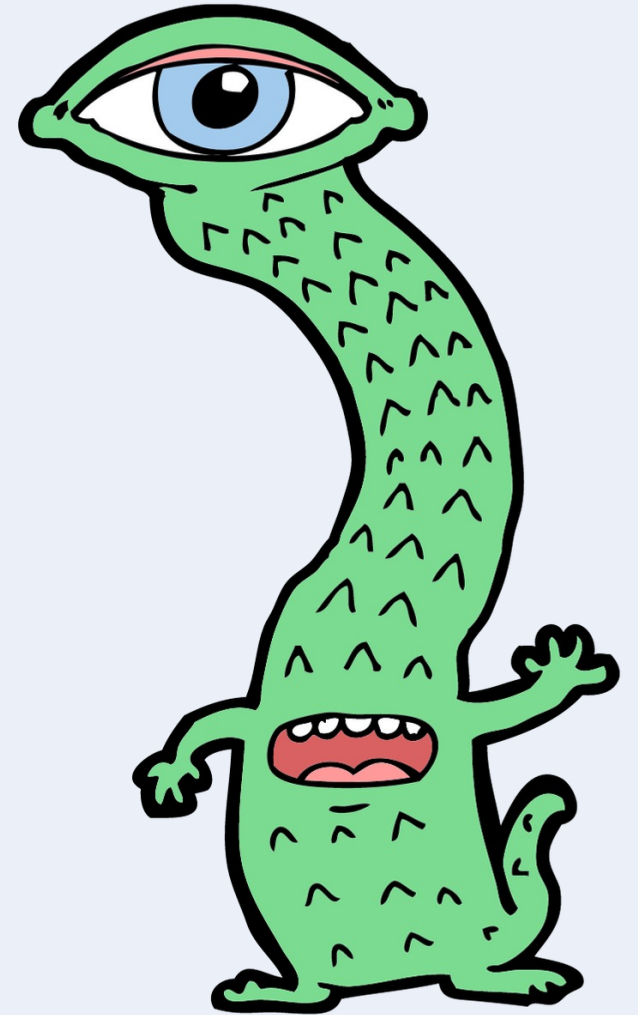
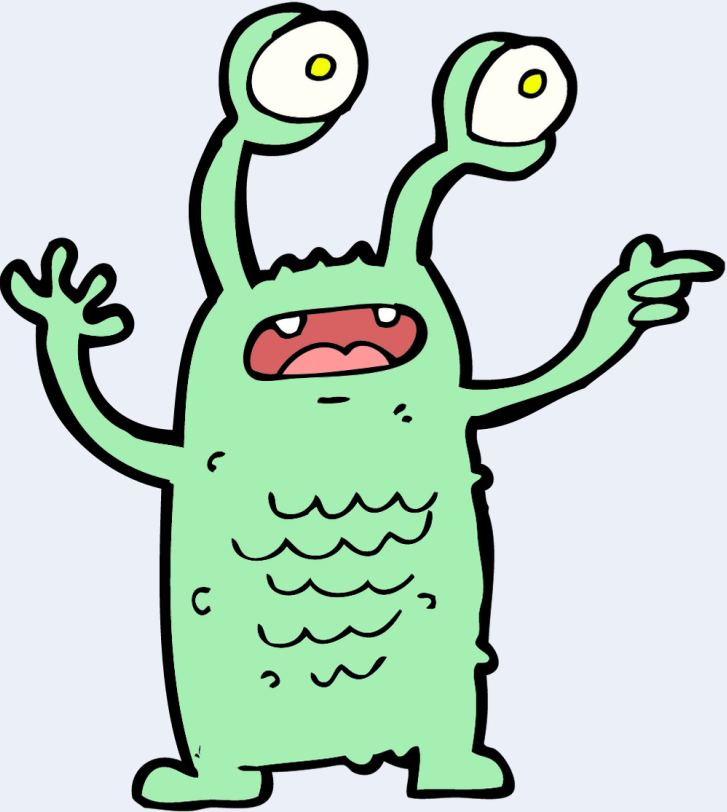
How would you describe global warming to an alien from space?

Global warming

What does it mean?

What causes it?

What are the consequences?



I: Explain using *scientific understanding* to make something clear or *state the reason* for something happening

Example question:

A recent study has shown that birds are staying in their summer destinations for longer instead of migrating to Africa for a warmer climate.

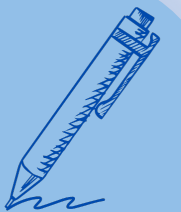
Explain why an increase in the levels of greenhouse gases has caused this change

Model answer:

- Greenhouse gases prevent heat escaping
- Contribute to global warming
- A consequence of global warming is changing migratory patterns

To 'explain' your answer should:

- Begin with a **scientific statement**.
- Use 'this means that', 'because' or 'so' **to link your statement to the question**.



We: Explain using scientific understanding to make something clear or state the reason for something happening

Example question:

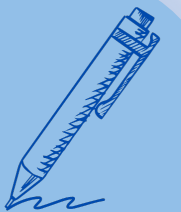
Explain how the global use of petrol cars has decreased the population of polar bears.

Model answer:

- Burning petrol/petrol cars released greenhouse gases
- Greenhouse gases prevent heat escaping/contribute to global warming
- Global warming is causing ice caps to melt
- Loss of habitat, decreasing polar bear population

To 'explain' your answer should:

- Begin with a **scientific statement**.
- Use 'this means that', 'because' or 'so' **to link your statement to the question**.



You: Explain using *scientific understanding* to make something clear or state the reason for something happening

Example question:

Carbon dioxide can contribute to the greenhouse effect.

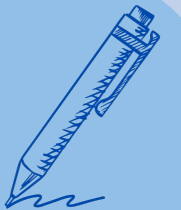
Explain how deforestation over a wide area can contribute to the greenhouse effect.

Model answer:

- Less carbon dioxide removed through photosynthesis
- More carbon dioxide added by burning
- Carbon dioxide is a greenhouse gas and prevents heat escaping

To 'explain' your answer should:

- Begin with a **scientific statement**.
- Use 'this means that', 'because' or 'so' **to link your statement to the question**.



Answer the questions below.

1. Which is the best definition of global warming?
 - ☐ A. Changing weather patterns
 - ☐ B. The Earth getting hotter
 - ☒ C. The increase in the overall temperature of the Earth's atmosphere

2. Which is not a consequence of global warming?
 - ☐ A. Rising sea levels and flooding
 - ☒ B. Fossil fuels being burned
 - ☐ C. Extreme weather patterns

3. Which would be an action to reduce greenhouse gas emissions?
 - ☐ A. Cutting down trees
 - ☒ B. Using renewable energy sources
 - ☐ C. Burning waste instead of sending it to landfill

Lesson B3.2.6

What was good about this lesson?

What can we do to improve this lesson?

[Send us your feedback by clicking this link](#)
or by emailing sciencemastery@arkonline.org
Thank you!