

Subject: Science

Level: Standard 4

Strand: Conservation and Sustainability

Topic: Differentiate between the Greenhouse Effect and the Enhanced Greenhouse Effect

Key Points:

- The greenhouse effect is a natural environmental occurrence.
- It is caused by greenhouse gases such as Carbon Dioxide
- These greenhouse gases create a barrier between the sun and earth
- The sun emits heat and light which enters the earth's atmosphere
- Some of that heat, is trapped by the layer of greenhouse gases in the atmosphere.
- The trapped heat keeps the earth warm
- Recently the greenhouse effect has been magnified/enhanced due to the unnatural increase of greenhouse gases
- The increase in greenhouse gases is mainly as a result of pollution by humans.
- This has led to an increase in Earth's temperature.
- This is called the Enhanced Greenhouse Effect or Global Warming.

Activity

The video below is an introduction to this activity to help you understand the key points listed above.

View the following videos, using the links (written in blue) below.

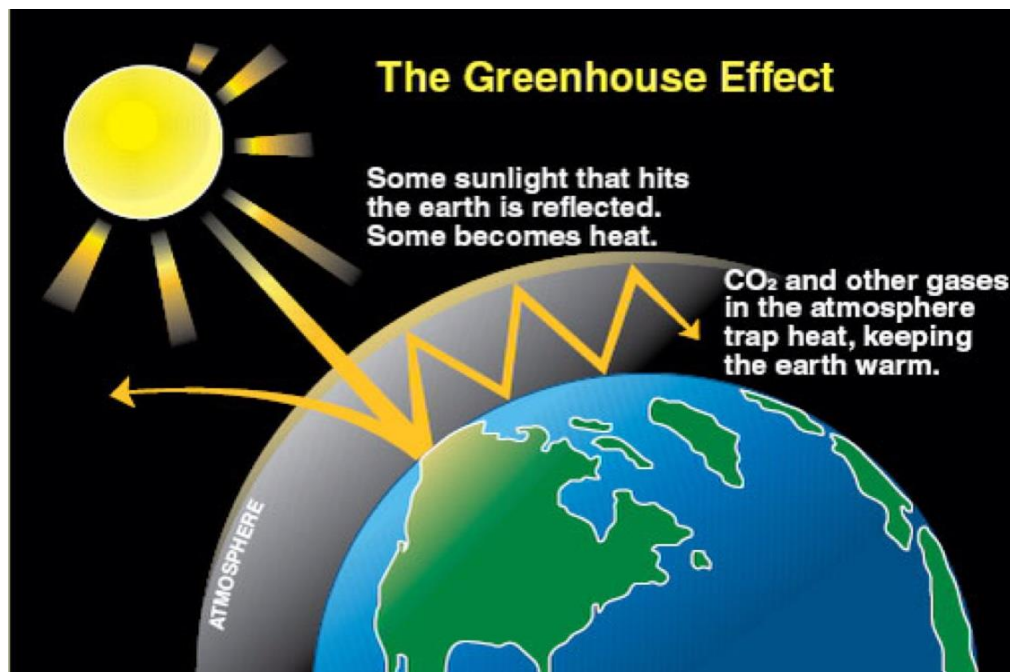
To play a video you will need to:

- keep your finger pressed on the Ctrl knob, at the bottom left of your key board.
- place the cursor (pointer) on the link until the "hand" comes up.
- click (left) on the link and the video will play.

Link for Video Paxi – The Greenhouse effect

<https://www.youtube.com/watch?v=Ke140nuy15E>

PICTURE 1: The Greenhouse Effect



Examine Picture 1 above and explain the following:

1. What happens to sunlight reaching the earth? Answer by filling in the blanks.

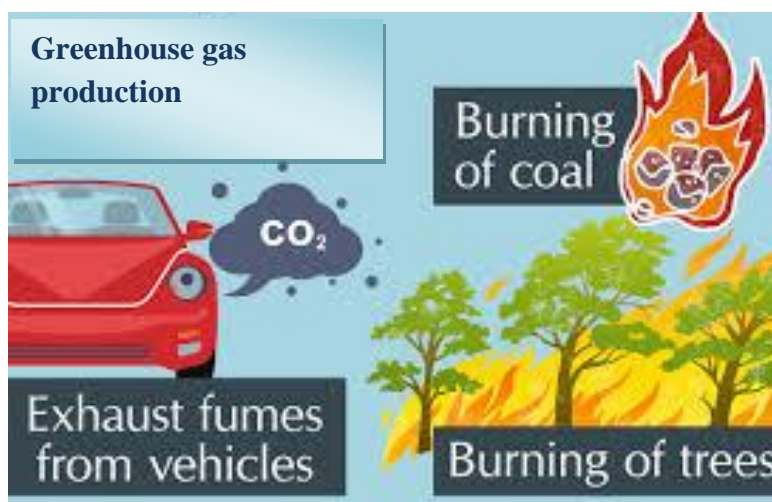
(i) Some of the sunlight is _____

(ii) Some of the sunlight becomes _____

2. Around the earth is a layer coloured grey. What is this layer called?

3. What traps heat to keep the earth naturally warm?

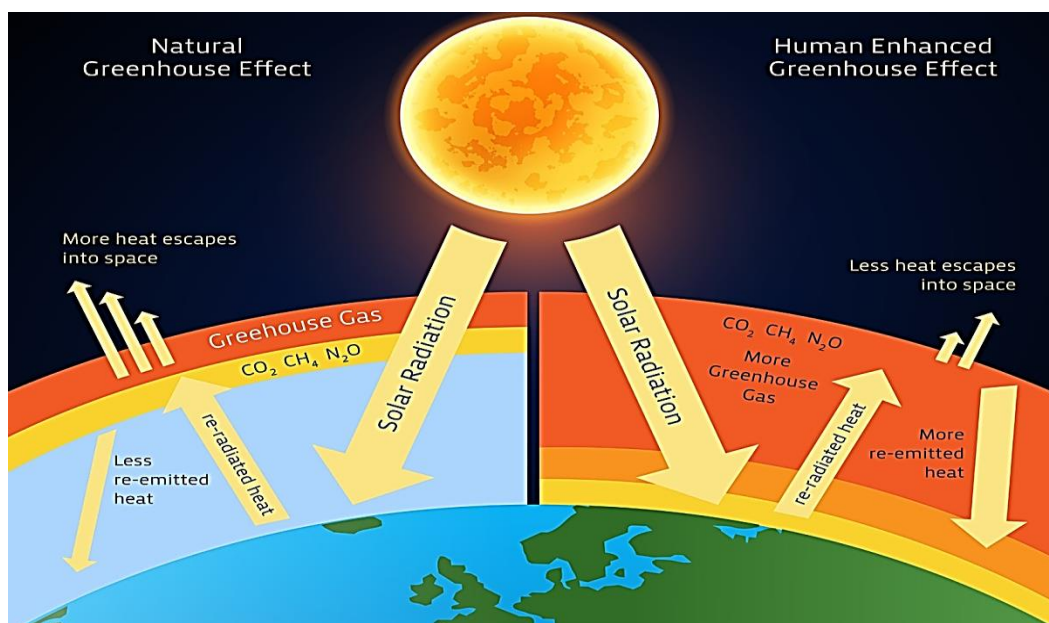
4. **PICTURE 2: Causes of an increase in Greenhouse gases**



List 2 activities around the home which lead to a production of Greenhouse gases.

Assessment

5. Use the picture below to compare the Greenhouse effect with the Enhanced Greenhouse Effect.



Greenhouse Effect	Enhanced Greenhouse Effect
This is a natural occurrence	_____
The atmosphere has a small amount of Greenhouse gas	_____
More heat from the sun can escape into space	_____
Keeps the Earth its natural temperature	_____

Answer Key

1. What happens to sunlight reaching the earth? Answer by filling in the blanks.

- (i) Some of the sunlight is **reflected**.
- (ii) Some of the sunlight becomes **heat**.

2. Around the earth is a layer coloured grey. What is this layer called?

The atmosphere.

3. What traps heat to keep the earth naturally warm?

Greenhouse Gases in the atmosphere such as Carbon Dioxide.

4. Any two of the following or other appropriate responses:

- **Use of electricity produced from fossil fuels for**
 - **Television**
 - **Air-conditioning**
 - **Light bulbs**
 - **Washing machines**
 - **Dryer**
 - **Computers etc**
- **Driving a vehicle or other forms of transportation powered by diesel or gasoline**
- **Burning of rubbish, charcoal fueled BBQ and indiscriminate fires**

5. Comparison of the Greenhouse effect with the Enhanced Greenhouse Effect.

Greenhouse Effect	Enhanced Greenhouse Effect
This is a natural occurrence	This is caused by human activity
The atmosphere has a small amount of Greenhouse gases	The atmosphere has a large amount of Greenhouse gases
More heat from the sun can escape into space	Less heat from the sun can escape into space
Keeps the Earth its natural temperature	The temperature of Earth increases. This is also referred to as Global Warming

Acknowledgement for video

Link to video:	https://www.youtube.com/watch?v=Ke140nuy15E
Name of video:	Paxi – The Greenhouse effect
Reference:	European Space Agency, ESA

Acknowledgement for pictures

Activity with Picture	Reference
Picture 1: The Greenhouse Effect	https://enhancedgreenhousegasemissions.weebly.com/enhanced-greenhouse-gas-effect.html
Picture 2: Causes of an increase in Greenhouse gases	https://climatekids.nasa.gov/how-to-help/
Assessment	https://www.tecnoveritas.net/media/newsletters/marine-industry/co2-emissions-society-real-problem/