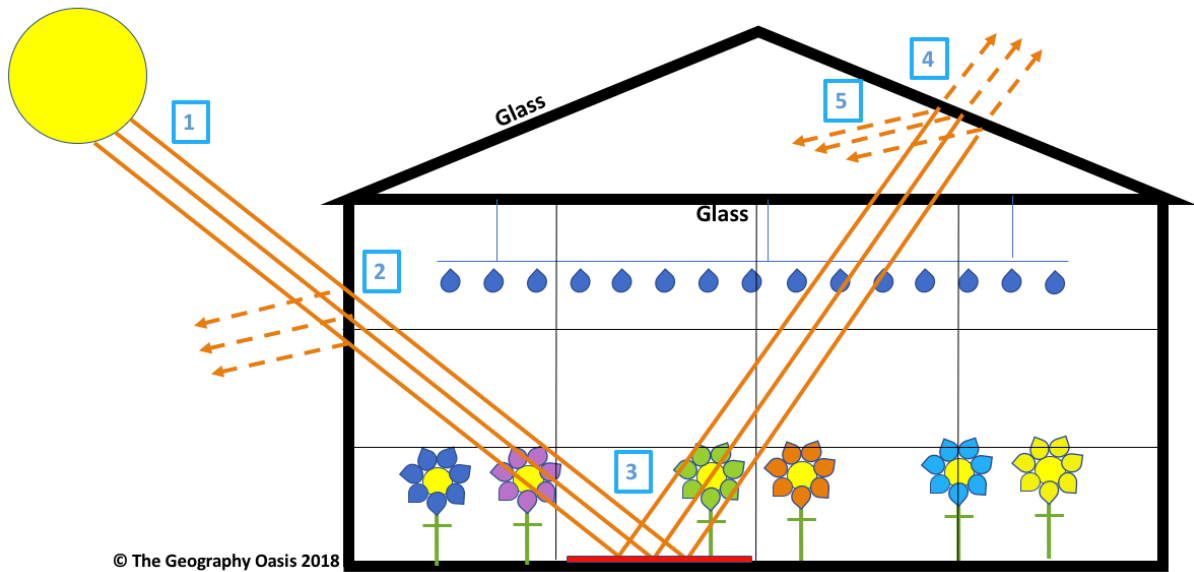


## Human Causes of Global Warming

### The Greenhouse Effect

The greenhouse effect helps to explain the relationship between the amount and types of gases in the atmosphere and the average global temperature. It is influenced by human activity through the consumption of fossil fuels.

### Local Scale- Greenhouse effect



**ACTIVITY :** Match the number from the diagram above to the correct statement in the table.

Statement	Number from diagram
The majority of the sun's radiation enters the greenhouse, some is reflected back off of the glass.	
Some of the radiation escapes out of the glass and back into the atmosphere outside.	
Some of the heat reflects back off the glass and remains in the greenhouse, making it warmer and warmer.	
Solar radiation from the sun.	
Some of the energy is absorbed by the ground of the greenhouse and heat is generated. The light and heat is reflected towards the roof.	

**ACTIVITY:** What would happen to the temperature in the greenhouse if we made the panes of glass thicker? Why?

YOUR ANSWER:

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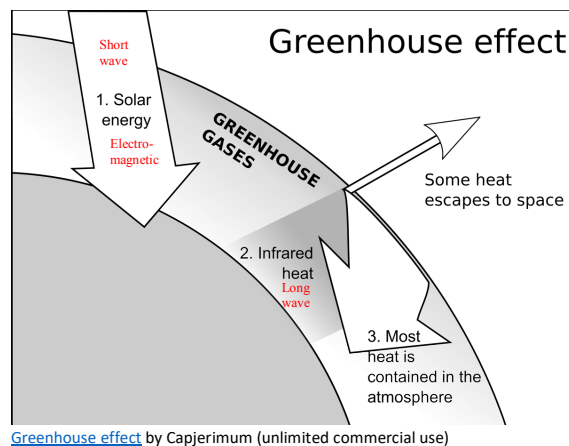
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## Global Scale- Greenhouse effect

ACTIVITY: Study the diagram of the global greenhouse effect. Read the passage and place the missing word into the correct gap.



Greenhouse effect by Capjerimum (unlimited commercial use)

### MISSING WORDS

-greenhouse      -atmosphere      -heat  
 -solar              -higher              -short  
 -long              -convert              -absorb

Incoming s\_\_\_\_\_ radiation enters the Earth's a\_\_\_\_\_. It passes through because it is \_\_\_\_\_ wave, electromagnetic radiation.

The Earth's atmosphere and surface \_\_\_\_\_ the electromagnetic radiation and \_\_\_\_\_ this into \_\_\_\_\_. This is then rereleased into the atmosphere as l\_\_\_\_\_ wavelength infrared heat.

Infrared heat is absorbed by \_\_\_\_\_ gases. The more greenhouse gases in the atmosphere, the more radiation is absorbed and the \_\_\_\_\_ the temperature will become.

ACTIVITY: Hinge question: which of the following is correct? Select one answer only.

- The greenhouse effect started with the industrial revolution and it states that there are more gases in the air. Some gases raise the temperature whilst others reduce it.
- The greenhouse effect is a natural process. However, it is being enhanced by human activity that creates gases such as water vapor, carbon dioxide, methane, nitrous oxide, and ozone.
- The greenhouse effect results in none of the incoming solar radiation being allowed to escape back into space. This is due to humans burning coal, oil and gas.
- The greenhouse effect destroyed the world's ozone layer. This let in more of the sun's energy and results in much higher surface and atmospheric temperatures.

## The Causes of Global Warming

ACTIVITY: Meet the smiling woman. Read what she has to say about her day. She lives in Kuala Lumpur, the capital city of Malaysia.



Smiling woman by stymshinji (unlimited commercial use)

The smiling woman gets up for work every day at 7am. She makes a cup of tea and watches the morning news on the television. She drives 20km to work each day, passing the new flats that have resulted in the clearance of the local rainforest. It's Monday morning, so she follows her usual routine of filling up the car at the petrol station. Just before she arrives at work, she passes the biggest palm oil plantation in the country. It seems to go on forever. Palm oil is used in 50% of supermarket products.

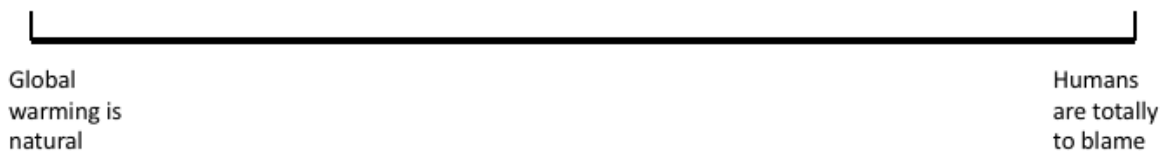
The Smiling Woman works in the public relations team at a commercial rice farm. She has been trying to deflect press attention away from the amount of methane released by the rotting organic matter found under the water of the flooded fields. After a long day at the office, she returns home. She cooks a meal of Argentinian steak and potatoes on the gas cooker. Before bed, she goes for a walk in the forest. One of the biggest trees has disappeared to be turned in to paper or furniture. She returns home, reads for a while before turning the light off and falling fast asleep.

ACTIVITY: Use the Smiling Woman’s story to give some of the causes of global warming.

- Firstly, unscramble the anagrams.
- Then pick out examples from the story and place them in the correct place (some may go in more than one place). You can also add your own examples!
- Finally explain how some of these factors result in global warming.

ANAGRAMS	ANSWER	EXAMPLES FROM THE STORY	EXPLANATION- how do they cause global warming?
G Y E E N R <i>CLUE: Turn on the light</i>			
R S T O R N A T P <i>CLUE: Get on the bus</i>			
F O D E R E T T N S A I O <i>CLUE: Be Tree-mendous</i>			
G A C U T U I R L E E <i>CLUE: A-Maize-ing</i>			
U A P L O N I P T R O W G H T <i>CLUE: People</i>			

ACTIVITY: Are humans to blame for climate change? Mark your place on the continuum below. Explain your viewpoint underneath.



Give reasons:

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