Climate Change

Write down the definition of climate change: _____

Colour coordinate the below statements into natural and human causes of climate change:

☐ Natural causes of climate change ☐ Human causes of climate change

Burning Fossil Fuels: Releases CO_2 and other greenhouse gases, trapping heat in the atmosphere.	**Volcanic Eruptions:** Release large amounts of CO_2 and other gases.
Deforestation: Reduces the Earth's capacity to absorb CO_2.	**Earth's Orbit:** Changes in the Earth's position relative to the Sun affect climate over thousands of years.
Solar Energy Variations: Fluctuations in the Sun's energy output can influence temperatures.	**Agriculture:** Livestock and fertilisers emit methane and nitrous oxide, potent greenhouse gases.

The _____, which began in the late 18th century (around _____) and continued through the 19th century, marked the starting point for a significant spike in global warming.

The Problem: Human activities have increased greenhouse gas levels, trapping too much heat and causing global warming.

Write down a list of activities you do day to day which produce greenhouse gasses:

Riding in the car, eating meat....

Greenhouse Gasses:

Match the name of the greenhouse gas to its chemical symbol and its description:

Carbon Dioxide	H_2O	Produced by livestock (e.g. sheep and cows), waste in landfills and fossil fuel extraction.
Water Vapour	CH_4	Synthetic greenhouse gases used in industrial processes, refrigeration and air conditioning.
Methane	**HFCs, PFCs**	The most abundant greenhouse gas, intensifies the greenhouse effect as temperatures rise.
Nitrous Oxide	CO_2	Emitted by fertilisers, industrial processes, and burning fossil fuels.
Fluorinated Gases	N_2O	Released by burning fossil fuels (coal, oil, gas), deforestation and industrial processes.

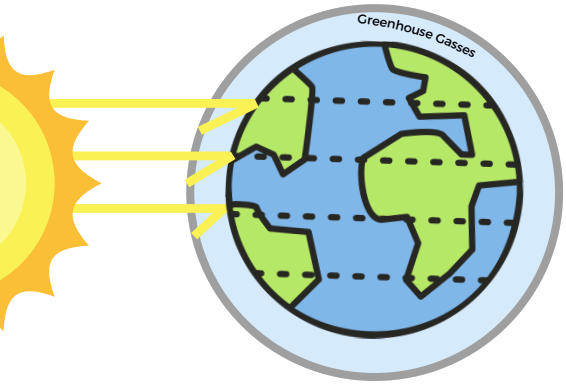
Climate Change

Greenhouse Effect:

Explain why the greenhouse effect is necessary to support life on earth:

Fill the blanks on the process of the greenhouse effect:

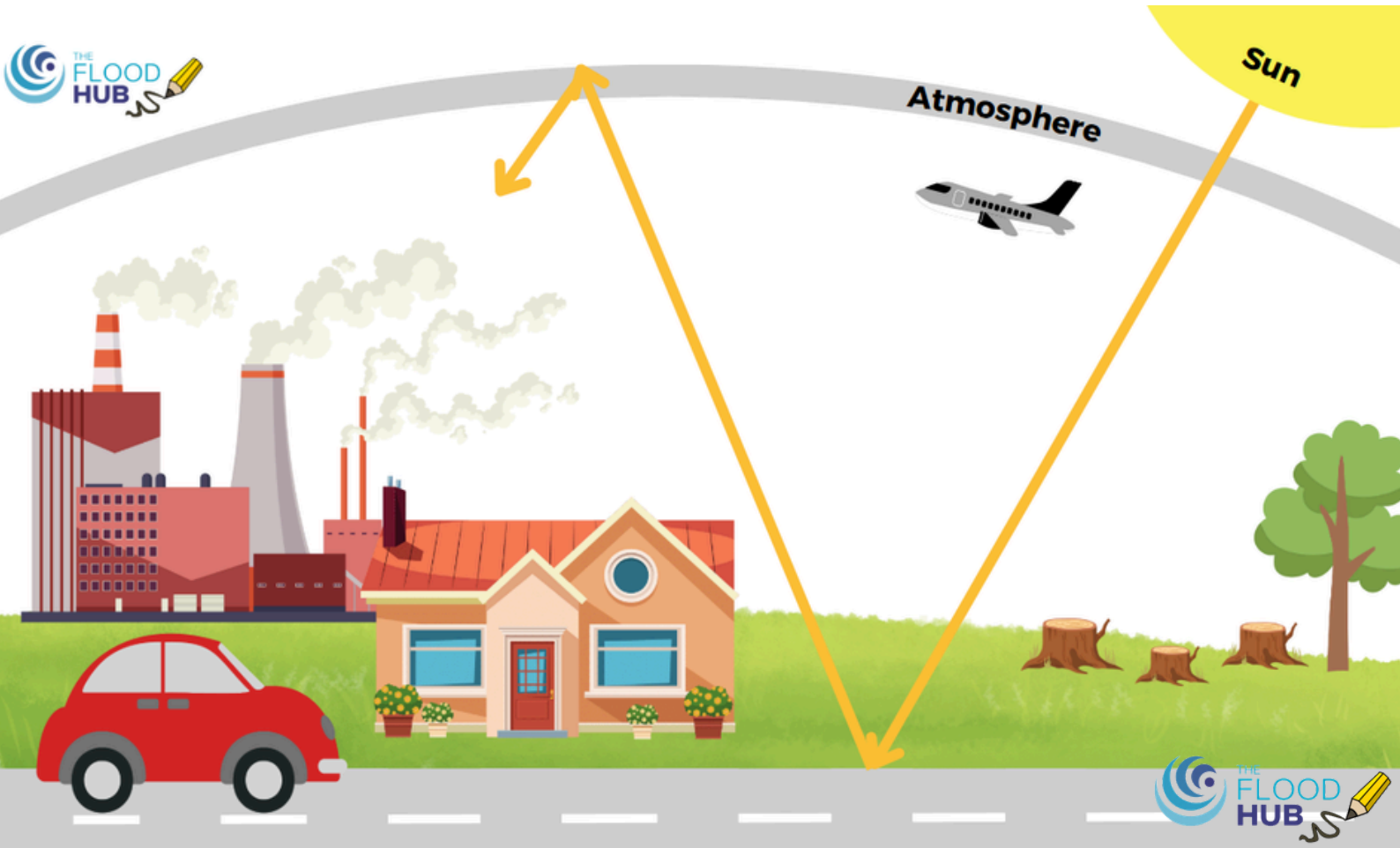
Infrared, Energy, Atmosphere, Absorbed, Light, Trap, Heat, Releases,



- Step 1: The Sun's _____ reaches Earth as _____ and _____.
- Step 2: Some of this energy is _____ by the Earth's surface, warming it.
- Step 3: The Earth _____ heat back toward space as _____ radiation.
- Step 4: Greenhouse gases like carbon dioxide (CO_2), methane (CH_4) and water vapour _____ some of this heat, keeping it in the _____ and causing the Earth's surface to heat up further, a process known as global warming.

Write the label on the correct place on the diagram:

Heat enters the atmosphere from the sun.	Heat leaves earth back out to space	The atmosphere absorbs some heat to keep the Earth warm.	Some heat becomes trapped in the atmosphere by greenhouse gases and causes global warming.



Climate Change

Evidence for Climate Change:

Temperature Records

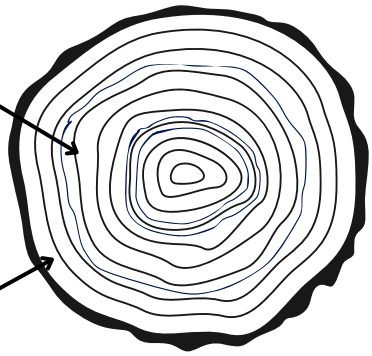
What do temperature records show?

Why are they important?

Tree Rings

Thinner tree rings:

Thicker tree rings:



What can tree rings tell us & why are they useful?

Ice Cores

What do ice cores show?

Why are they important?

Pollen Analysis

Fill in the gaps with the key words form the board:

Plant pollen can be preserved in _____ for _____ of years. By examining pollen in these layers, scientists can identify the types of plants that grew in the area during different time periods.

How does it show Climate Change?

- Different plants thrive in different climates.
- Comparing _____ pollen with _____ pollen reveals how plant life — and by extension, climate—has changed over time.
  - _____ periods may show pollen from _____ plants.
  - _____ periods may show pollen from _____ or _____ species.

Ice Cover

Fill in the gaps with the key words form the board:

Examples of icy areas: _____

Icy areas _____ during colder periods and _____ as the temperatures _____. _____ ice means less sunlight is _____ back into space, which _____ global warming (known as the _____ effect).