

# OCR (B) Physics GCSE

## 1.2 - What is Climate Change and what is the Evidence for it?

### Flashcards

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# What objects emit electromagnetic radiation?



What objects emit electromagnetic radiation?

**All** objects emit electromagnetic radiation of a **principle frequency**; the principle frequency of emitted radiation increases with temperature.



How does the temperature of an object affect the EM radiation emitted?



# How does temperature of an object affect the radiation emitted by an object?

- The amount (intensity/power) of radiation emitted **per second** increases as temperature increases.
- The type of radiation changes; the hotter the body the shorter the wavelength of radiation released (eg. X rays and gamma rays).



A body with constant temperature...  
(Higher)



A body with constant temperature... (Higher)

Emits radiation at the same rate as it absorbs it.



How do objects increase or decrease in temperature? (Higher)





How do objects increase or decrease in temperature? (**Higher**)

- If an object emits energy at a higher rate than it absorbs, it will decrease in temperature.
- If an object absorbs energy at a higher rate than it emits, it will increase in temperature.



How does the Earth's atmosphere affect radiation? (Higher)



How does the Earth's atmosphere affect radiation?  
(Higher)

The atmosphere largely absorbs or reflects radiation from the sun, preventing it from reaching Earth. Some radiation, however, is allowed to pass through and warms the earth.



How is radiation emitted from the Earth different to radiation emitted by the sun?



How does the radiation emitted from the Earth differ from the radiation emitted by the sun?

It has a lower principle frequency.



What happens to the radiation emitted  
from the Earth? (Higher)



What happens to the radiation emitted from the Earth? (**Higher**)

It is absorbed and re-emitted in all directions by **greenhouse gases**, resulting in the **greenhouse effect** which warms the earth.



Give 3 examples of greenhouse gases in  
Earth's atmosphere (**Higher**)





Give 3 examples of greenhouse gases in Earth's atmosphere (**Higher**)

- carbon dioxide
- methane
- water vapour



Explain why carbon dioxide levels have  
increased over the past 200 years  
(Higher)



Explain why carbon dioxide levels have increased over the past 200 years (**Higher**)

- Burning fossil fuels (increases  $\text{CO}_2$  output).
- Deforestation (decreases  $\text{CO}_2$  absorbed by trees).

