

Edexcel GCSE Physics

Topic 5.15P-5.19P - Radiation

Flashcards

What do all bodies (objects) emit and absorb?

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Infrared radiation.

What happens to the quantity of infrared radiation emitted by an object as temperature increases?

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The hotter the object, the more infrared radiation it will emit.

What happens to the type of radiation emitted by an object as temperature increases?

What happens to the type of radiation emitted by an object as temperature increases?

The hotter the body the shorter the wavelength of radiation released (eg. X rays and gamma rays).

What is required for a body to be at a
constant temperature? (Higher)

What is required for a body to be at a constant temperature? (Higher)

The body would need to emit radiation at the same rate it absorbs it - it needs to radiate at the same average power that it absorbs.

Fill the gaps.

_____ and _____ distribution of any
emission depends on temperature.

Intensity and **wavelength** distribution of any emission depends on temperature.

What is meant by intensity? (Higher)

What is meant by intensity? (Higher)

The power transferred per unit area; it is a measure of the energy transferred by a wave.

What will happen if the average power that a object radiates is less than it absorbs? (Higher)

What will happen if the average power that a object radiates is less than it absorbs? (Higher)

The temperature of the object will decrease.

What can be said about the rates of emission and absorption for a body increasing in temperature? **(Higher)**

What can be said about the rates of emission and absorption for a body increasing in temperature?

(Higher)

The body is absorbing radiation faster than it is emitting it.

Give two factors that affect the temperature of the Earth. (Higher)

Give two factors that affect the temperature of the Earth. (Higher)

1. The Earth's rate of absorption and emission of radiation
2. The amount of reflection of radiation into space

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

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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.

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.