

Physics - Key stage 4 - Waves

# Lesson 15 - Black Body Radiation

Mr Benyohai



# Intensity and wavelength distribution



# Independent practice

1. What objects emit infrared radiation?
2. What factor determines the intensity and wavelength distribution of the emission?
3. What happens to the radiation distribution of an object if its temperature is decreased?

Remember to consider the intensity and peak wavelength.

4. If the peak wavelength emitted by an object increases, what has happened to its temperature?



# Independent practice - answers

1. What objects emit infrared radiation? - **all objects**
2. What factor determines the intensity and wavelength distribution of the emission? - **the temperature**
3. What happens to the radiation distribution of an object if its temperature is decreased?

Remember to consider the intensity and peak wavelength.

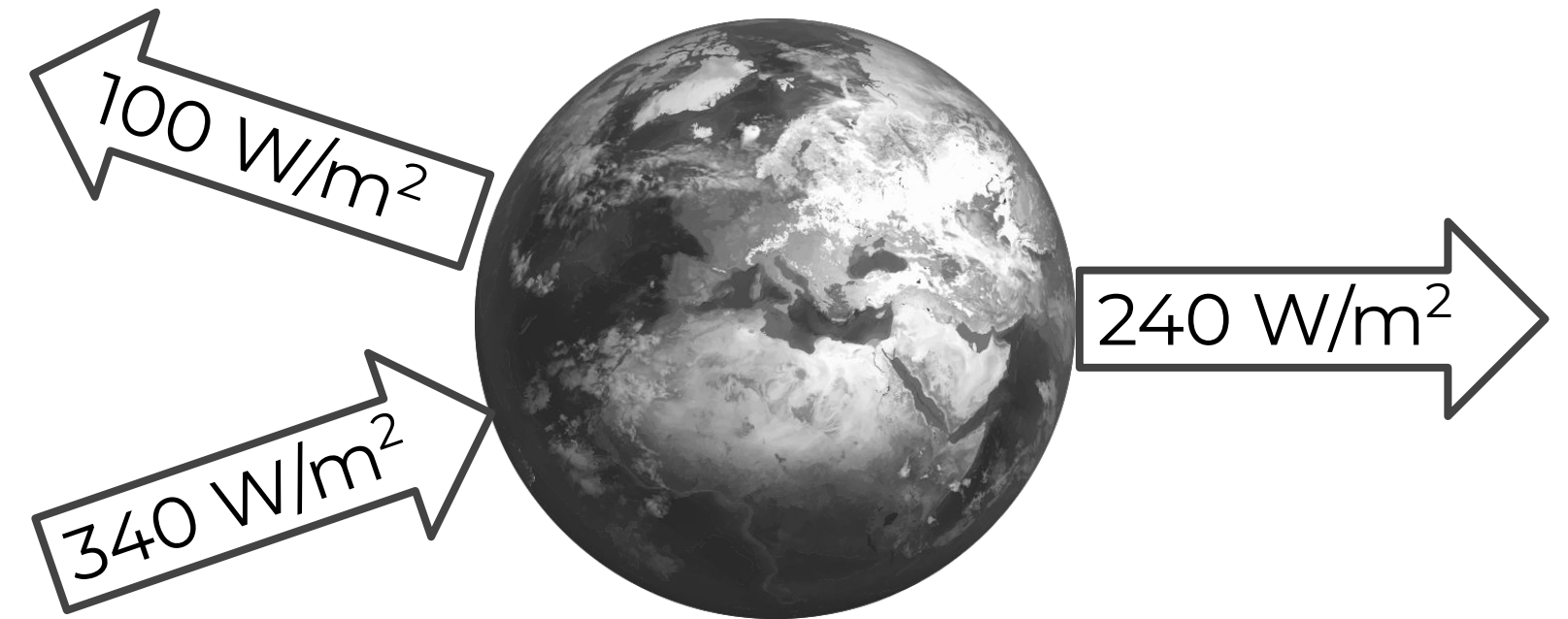
**Intensity of all wavelengths increases and peak wavelength decreases**

4. If the peak wavelength emitted by an object increases, what has happened to its temperature? - **it has decreased**



# Application practice

1. Explain why the temperature of the Earth remains constant.
2. At present, some solar radiation is reflected by the polar ice caps.
  - a. If the ice caps were to melt, how would this affect the amount of radiation reflected?
  - b. What would happen to the temperature of the Earth?

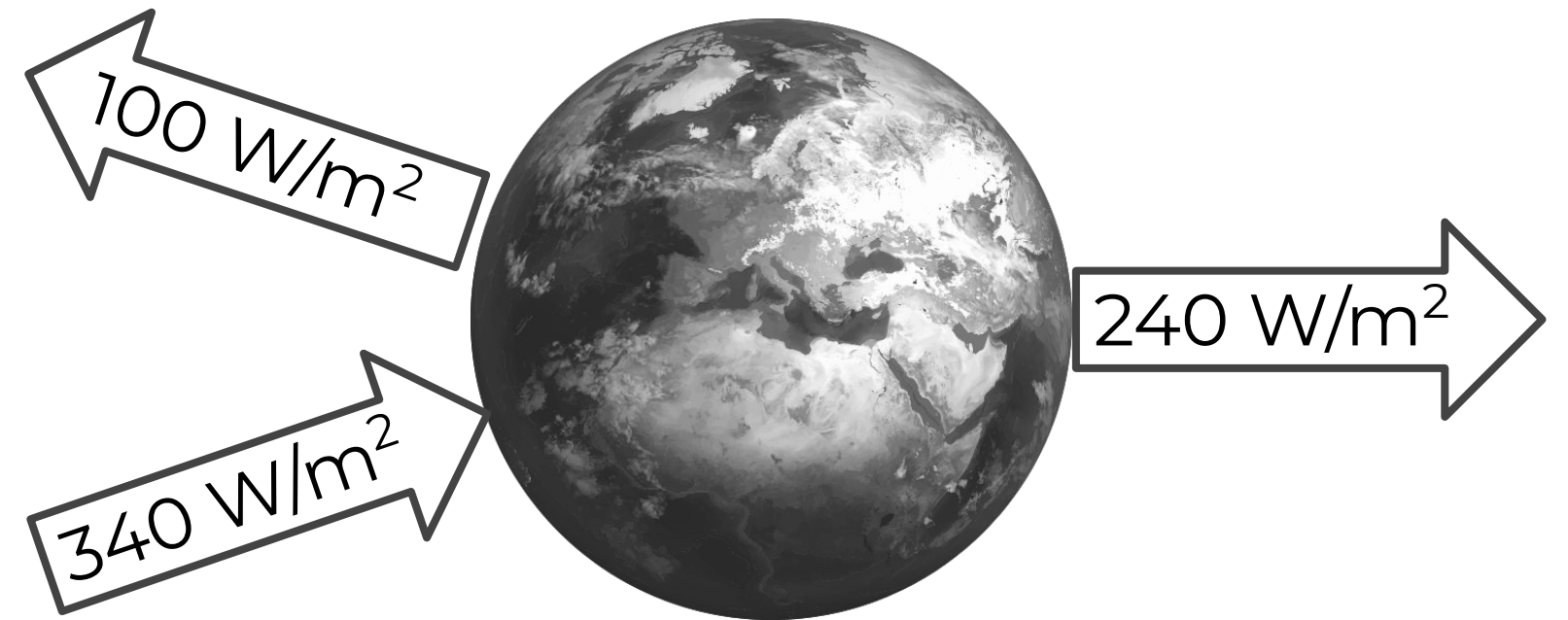


Credit: FreeSVG - OpenClipart - Blue planet Earth



# Application practice - answers

1. Explain why the temperature of the Earth remains constant. - **The rate of absorption is equal to the rate of emission**
2. At present, some solar radiation is reflected by the polar ice caps.
  - a. If the ice caps were to melt, state how would this the affect the amount of radiation reflected? - **It would increase**
  - b. Explain what would happen to the temperature of the Earth? - **It would increase because the rate of absorption would be greater than the rate of emission.**



Credit: FreeSVG - OpenClipart - Blue planet Earth

