

GCSE Physics A (Gateway)

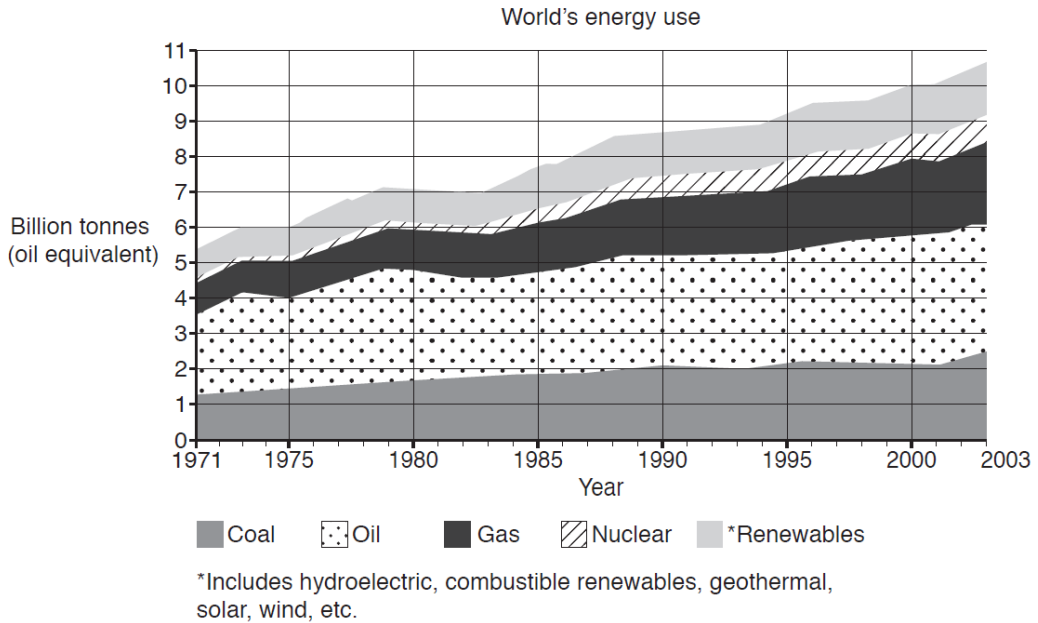
J249/02 Physics A P5-P8 and P9 (Foundation Tier)

Question Set 8

1

The graph shows how the World's energy use has changed from the year 1971 to the year 2003.

It also shows the amount of different energy sources used.



- (a) (i) Approximately how much did the total World's energy use increase from the year 1971 to the year 2003?

$$10.5 - 5.5 = 5$$

Answer =⁵..... billion tonnes (oil equivalent)

[1]

- (ii) Which energy source had the **greatest** use in the year 2003?

Oil

[1]

- (iii) The total energy use in the year 2003 was 10.6 billion tonnes (oil equivalent).

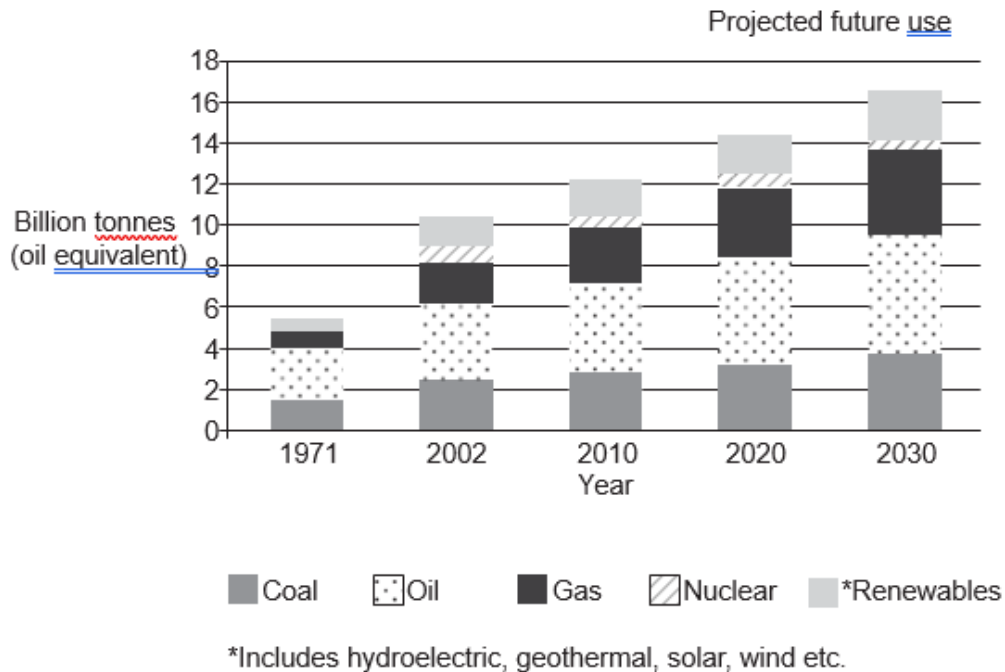
Approximately what percentage of this amount was due to fossil fuel use?

[2]

$$\frac{8.5}{10.6} \times 100 = 80.2\%$$

(b) Scientists are researching the World's energy use for the future.

The graph shows some of their research.



(i) The future demand for fossil fuels is expected to increase.

Give two reasons why scientists are worried about this increase in demand.

[2]

- Because fossil fuels are non-renewable source, increased demand means the fossil fuels would run out faster
- Increase use of fossil fuel means increase in production of greenhouse gases and increased global warming effect.

(ii) In the UK the government is closing coal fired power stations and planning for new nuclear power stations to be built.

Suggest why the government wants more nuclear power stations.

[2]

- Because it can produce much higher energy than fossil fuels and renewable sources
- Because it doesn't have a global warming effect.

(c) Power stations in the UK generate electricity at 25 kV a.c.

The voltage is then increased to 400 kV a.c. and distributed by power lines.

(i) Write down the full name of the device used to **increase** the voltage.

[1]

step-up transformer

(ii) Why is it important to increase the voltage in these power lines?

[1]

To reduce the current and therefore energy loss as heat.

