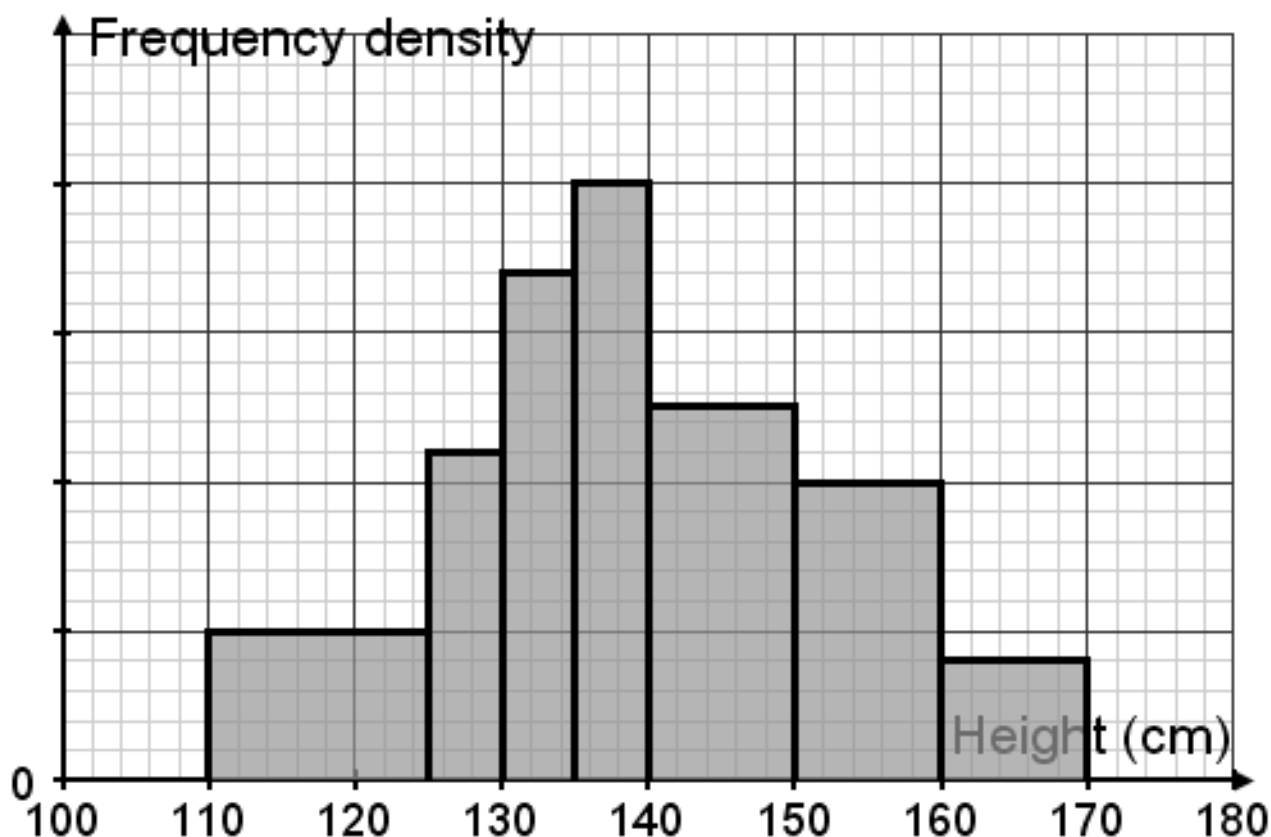


Calculating Frequency Density from a Histogram

E.g. 1 The histogram below shows children's heights. If there were 20 children between 135 cm and 140 cm, how many children were between 150 cm and 170 cm?



Working: Frequency density = $\frac{\text{Frequency}}{\text{Class width}}$

For 135–140 cm: Frequency density = $\frac{20}{5} = 4$

So vertical scale is 1 big square = 1 unit (or 5 small squares = 1 unit)

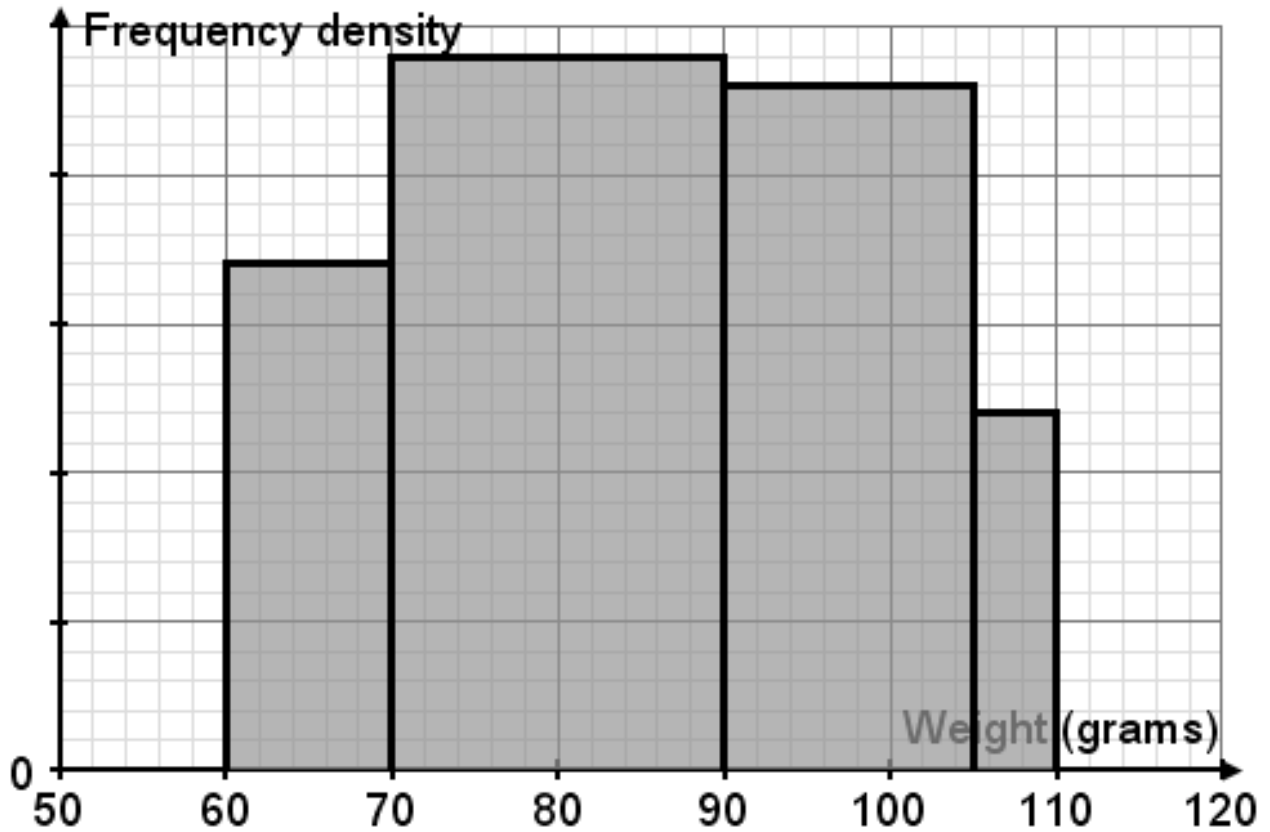
Frequency = Frequency density \times Class width

For 150–160 cm: Frequency = $2 \times 10 = 20$

For 160–170 cm: Frequency = $0.8 \times 10 = 8$

Total = $20 + 8 = 28$ children

E.g. 2 The histogram shows the weights of a group of eggs. 60 eggs were over 105g. Calculate the number of eggs that weighed less than 80g.



Working: $\text{Frequency density} = \frac{\text{Frequency}}{\text{Class width}}$

For ≥ 105 g: $\text{Frequency density} = \frac{60}{5} = 12$

So vertical scale is 1 big square \equiv 5 units (or 1 small square \equiv 1 unit)

$\text{Frequency} = \text{Frequency density} \times \text{Class width}$

For 60–70 cm: $\text{Frequency} = 17 \times 10 = 170$

For 70–80 cm: $\text{Frequency} = 24 \times 10 = 240$

Total = $170 + 240 = 410$ eggs

Video: [Finding frequencies from histograms](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook: p489 E14.5 Qu 4-7

A*-G class textbook: p445 E14.2 Qu 4-7

9-1 homework book: p168 E14.5 Qu 2-4

A*-G homework book: p126 E14.2 Qu 2-4

[Homework book answers \(only available during a lockdown\)](#)