

1.2.3 Metric Units

Name: _____ Class: _____ Date: _____

KEY WORDS conversion factor

<!-- Session 2 native-skill companion -->

Objective

Practise metric units within the labelled native lessons. Public original tasks; locally authored answer guidance.

1 Key knowledge and worked examples

■ Metric and compound-unit conversions · Foundation

Convert each dimension. Since $1\text{ m}=100\text{ cm}$, $1\text{ m}^2=10,000\text{ cm}^2$ and $1\text{ m}^3=1,000,000\text{ cm}^3$. Also $1\text{ litre}=1000\text{ cm}^3$, $1\text{ kg}=1000\text{ g}$ and $1\text{ hour}=3600\text{ seconds}$. For a compound unit convert numerator and denominator, keeping the physical quantity unchanged.

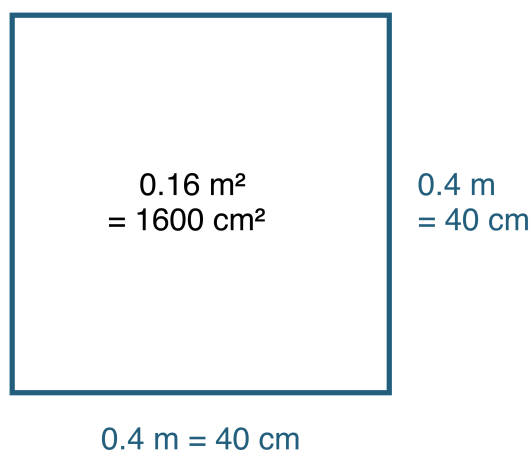
$$1\text{ m}^2 = 100^2\text{ cm}^2, \quad 72\frac{\text{km}}{\text{h}} = 20\frac{\text{m}}{\text{s}}$$

$0.4\text{ m}=40\text{ cm}$, so the tile area is $40\times 40=1600\text{ cm}^2$, agreeing with $0.16\times 10,000$. A 0.002 m^3 container holds $2000\text{ cm}^3=2\text{ litres}$. A speed of 72 km/h is $72,000/3600=20\text{ m/s}$. Write the units at each stage so the conversion can be checked.

The area multiplier is the square of the length multiplier; the volume multiplier is its cube. An hour is 60 minutes, not 100. Converting only the numerator of a speed gives an inconsistent unit.

AQA N13 and R1 include metric length, area, volume, capacity and compound measures. Use given conversion factors for unfamiliar imperial units; do not guess them.

Convert both dimensions before multiplying



Original native-lesson illustration; labels belong to its worked example.

2 Practice

2.1 (Foundation) Convert 0.16 m² to cm².

2.2 (Foundation) Convert 0.002 m³ to litres.

2.3 (Foundation) Convert 72 km/h to m/s.

3 Exam-style questions

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: To convert square metres to square centimetres, multiply by 100.
