

Scale and proportion

Pearson Edexcel GCSE Mathematics 1MA1 • L014
Foundation and Higher • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose

Use constant multiplicative relationships for recipes and length scales, with consistent units and checks.

Vocabulary

Direct proportion: corresponding quantities have a constant ratio. Scale factor: multiplier from one length to another. Scale 1:n: one unit on the drawing represents n of the same units in reality. Unit rate: amount for one unit.

Why the method works

If a recipe for 4 people needs 300 g, the same recipe for 6 needs $300 \times (6/4) = 450$ g. Both quantities scale together. On a 1:500 plan, 1 cm represents 500 cm = 5 m. A labelled scale is a relationship; printed diagram size can change when a page is resized.

Method and checking

State corresponding quantities and units. Use a unit rate or one scale factor across a direct-proportion table. For scale lengths, multiply drawing by n to get real length, or divide real length by n for drawing length, after converting to matching units.

Common errors and next attempt

If learners add the change in people to grams, test the constant ratio. If 1:500 is read as 1 cm to 500 m, convert units explicitly. If printing changes a diagram, use stated lengths rather than a ruler. Recheck 2 cm at 1:400 is 8 m.