

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L014

21 slides • 60 minutes • Teacher use only • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

01 Scale and proportion 1 min Recall

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

02 The goal and the evidence 1 min Recall

L013 ratio and equal parts; L010 fraction operators; centimetres/metres and grams/kilograms.

03 Starting-point diagnostic 5 min Recall

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.

04 Recipes in proportion paired with slide 5 Discover

750 g. Scale 8 to 10 by $\frac{5}{4}$, or use 75 g per person.

05 Read the labelled scale 2 min Discover

Schematic plan, not for measuring: labelled lengths 6 cm and 4 cm at 1:500 represent 30 m and 20 m. Printed size does not override labelled dimensions.

Delivery continued

06 A constant ratio 3 min Discover

25. Multiply the first value by 2.5.

07 Drawing to real length 4 min Discover

35 m. $7 \times 500 = 3500$ cm.

08 Real length to drawing 4 min Discover

3 cm. $1500 \div 500 = 3$.

09 MATCH UNITS; KEEP THE RATIO CONSTANT 2 min Discover

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.

10 Diagnostic pause 3 min Apply

On a 1:500 plan, 3 cm represents A 15 m, B 1500 m, C 1.5 m. A: $3 \times 500 = 1500$ cm = 15 m.

Delivery continued

11 Careful variation 4 min Apply

5 m; 15 m; 30 m. All lengths scale by the same factor.

12 Independent application 5 min Apply

360 g; 4 cm. 40 g per person; $800 \text{ cm} \div 200$.

13 Use the method in context 4 min Apply

30 m; 20 m; perimeter 100 m. $2 \times (30 + 20) = 100$; lengths scale before perimeter.

14 Intentional practice feedback 2 min Apply

Optional check after A3: $6 \times 500 \div 100 = 30 \text{ m}$; $4 \times 500 \div 100 = 20 \text{ m}$; $2 \times (30 + 20) = 100 \text{ m}$. Drawings are schematic and not for measuring. Print resizing does not change the labelled lengths.

15 A claim to test 4 min Challenge

Only A. A costs £0 at 0 km and doubles when distance doubles; B has a fixed £4 charge. A constant rate plus a fixed charge is not direct proportion.

Delivery continued

16 Deepen the reasoning 4 min Challenge

1:250. Each printed centimetre now represents half the previous real distance. The original written scale is no longer correct for ruler measurements.

17 Retrieval without notes 4 min Prove

Answers: 10, 3, 300, 60, 250, 12. Completion is not mastery.

18 Independent exit evidence 2 min Prove

$200 \div 4 \times 7$ M1; 350 g A1. Keep the recipe ratio constant.

19 Independent exit evidence 3 min Prove

$5 \times 400 = 2000$ cm M1; 20 m A1. Do not interpret 400 as metres.

20 Feedback and next steps 2 min Prove

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.

Delivery continued

21 Before the next lesson 1 min Recall

A unit rate is an amount for one unit. Compare like units, such as price per notebook or per kilogram. In L015, the lower unit price will help identify the better buy when the product and conditions are comparable.

Recall & Review: feedback and extension integration

Source-integrated WWW/EBI and extension page

Lesson L014: Scale and proportion

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

Timing for a 60-minute lesson

0-7 Connect & Check; 7-14 Share; 14-25 Present/model; 25-44 Apply route choice/practice; 44-52 independent exam-style check; 52-60 Recall & Review, WWW/EBI and next step.

Recall & Review evidence

At the end of the lesson, solve a fresh question without prompts, explain a check, correct one error and record the next practice step.

What Went Well (WWW)

I selected a suitable representation or multiplier and kept the reference amount clear.

Even Better If (EBI)

I will state the whole/part, show each operation and check that the size of my answer is reasonable.

Integrated stretch and deep challenge

Stretch: A scale drawing is 1:25,000. What actual distance does 8 cm represent?

Deep challenge: Similar shapes have length factor 1.5. Compare their area factor and explain.

Teacher use

Use the WWW/EBI prompts to write mathematics-specific feedback linked to the objective. Do not accept generic praise; feedback should identify the method, representation, reasoning or checking step that improved, then set a fresh next-step question.

Assessment evidence to inspect: Check the formative mini-test and independent workbook response against the objective. Use the teacher answers or mark guidance; group errors for reteaching. Non-calculator core; optional calculator check.