

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L004

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

REACH FOR THE STAR | GCSE MATHEMATICS

01 NUMBER DIAGNOSTIC AND REPAIR 1 min Recall

Diagnose a number error, repair the method, and choose an independent check that tests the original calculation.

02 The goal and the evidence 1 min Recall

L001–L003 signed operations, operation order, place value, rounding and estimation. Wider prerequisite screening is ungraded.

03 Starting-point diagnostic 4 min Recall

Use R1–R3 to select one priority: R1 signed operations → inverse frame; R2 order → annotate first operation; R3 scale → place-value chart. D1–D3 teach the repairs, then A1–A3 remove prompts. M1–M5 after a delay diagnose retention. Do not set entry tier from this short check. Wider screen findings lead to prerequisite support before the relevant later unit.

04 Wider prerequisite screen 4 min Recall

B1 7; B2 15 cm²; B3 5. Not taught-content assessment or a grade. Record prerequisite needs.

05 Repair the first wrong decision 4 min Discover

–5; inverse check $-5 + (-3) = -8$. The original error treats subtraction as adding the same signed number.

Delivery continued

06 Repair operation order 3 min Discover

–8; 1. The first error was adding 6 and 2 before multiplying.

07 Repair a scale error 4 min Discover

The number was made ten times smaller instead of one hundred times larger. Correct original: 36. Fresh answer: 72. Track each digit's place value.

08 Choose an independent check 3 min Discover

No. It supports the scale; an exact calculation or inverse check is still needed. Different nearby values can all be reasonable.

09 REPAIR, THEN TEST AGAIN 3 min Discover

Keep the original calculation visible. Repeating the same incorrect method is not an independent check. A useful repair names the decision that went wrong and succeeds on a fresh question with the support removed.

10 Diagnostic pause 3 min Apply

Which best checks $-6 - (-4) = -2$? A $-2 + (-4) = -6$; B $-6 - (-4)$ again; C $-2 + 4 = 2$. A restores the starting value. B may repeat an error; C adds the wrong signed number.

Delivery continued

11 Careful variation 3 min Apply

-3 , checked by $-3 + (-6) = -9$; 4 , checked by $(-8) \times 4 = -32$. Use the original signed number in the inverse check.

12 Independent application 3 min Apply

18 ; -7 . First steps $24 \div 4 = 6$ and $2 \times (-6) = -12$. Remove the operation-order prompt once the first step is secure.

13 Use the method in context 3 min Apply

84 ; 7.39 ; 80 . Track value, mark the decision digit, then estimate separately.

14 Intentional practice feedback 3 min Apply

Core work is non-calculator. After A3, a calculator may confirm $19.7 \times 4.2 = 82.74$. Estimate first: $20 \times 4 = 80$. A display can confirm arithmetic, but does not explain an error or prove understanding.

15 A claim to test 3 min Challenge

No. Repeating $2 + 3 \times 4$ as $(2 + 3) \times 4$ gives 20 twice; the correct value is 14 . A repeated misconception can reproduce the same error.

Delivery continued

16 Deepen the reasoning 3 min Challenge

Use exact calculation: $19.7 \times 4 = 78.8$ and $19.7 \times 0.2 = 3.94$; sum 82.74. Estimation cannot distinguish every pair of nearby answers.

17 Retrieval without notes 4 min Prove

Answers: -3, 21, 8, -2, 73, 4.69. Score is retrieval evidence, not mastery.

18 Independent exit evidence 5 min Prove

B1 first error: adding 8 and 2 before multiplying; B1 correct answer 2. $57 \div 100 = 0.57$ B1.

19 Feedback and next steps 2 min Prove

Use R1–R3 to select one priority: R1 signed operations → inverse frame; R2 order → annotate first operation; R3 scale → place-value chart. D1–D3 teach the repairs, then A1–A3 remove prompts. M1–M5 after a delay diagnose retention. Do not set entry tier from this short check. Wider screen findings lead to prerequisite support before the relevant later unit.

20 Before the next lesson 1 min Recall

A factor divides a whole number exactly. The positive factors of 12 are 1, 2, 3, 4, 6 and 12. A prime is an integer greater than 1 with exactly two positive factors. Pair factors systematically to avoid missing one.

Recall & Review: feedback and extension integration

Lesson L004: Number diagnostic and repair

Objective: Diagnose a number error, repair the method, and choose an independent check that tests the original calculation.

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 one check, correct one error and record the next practice step.

What Went Well (WWW)

I used my working and assessment evidence to identify the exact mathematical step that was secure and the specific misconception that needs attention.

Even Better If (EBI)

I will correct one precise step, explain why the correction works and complete a fresh delayed question without the original scaffold.

Integrated stretch and deep challenge

Stretch: A learner calculates $-7 - (-12) = -19$. Locate the first error and repair it.

Deep challenge: Create an independent check for $35 \times 0.8 = 28$ that does not simply repeat the multiplication.

Teacher use

Use the What Went Well (WWW) and Even Better If (EBI) prompts to write mathematics-specific feedback linked to the objective. Do not accept generic praise: identify the method, representation, reasoning or checking step that improved, then set a fresh next-step question.

Assessment evidence to inspect: Compare corrected responses with the original diagnostic and a fresh unprompted question. Record the misconception repaired and a delayed check. Non-calculator core; optional calculator check.