

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L008

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

REACH FOR THE STAR | GCSE MATHEMATICS

01 Fraction reasoning 1 min Recall

Select, explain and check fraction methods; diagnose misconceptions and transfer a repaired method to a fresh problem.

02 The goal and the evidence 1 min Recall

L005–L007 factors, equivalence and four fraction operations; signed arithmetic from week 1.

03 Starting-point diagnostic 5 min Recall

R1 errors: rebuild equivalent fractions before operations. R2 errors: compare common units. R3 errors: restore order of operations. Choose one repair rather than reteaching everything. Reassess $\frac{1}{4} + \frac{1}{6} = \frac{5}{12}$ and $(\frac{2}{5}) \div (\frac{1}{5}) = 2$ after a delay.

04 Repair equal units 1 min Discover

$\frac{7}{12}$. $\frac{4}{12} + \frac{3}{12}$ uses equal-sized parts.

05 Repair division 4 min Discover

6. Each tenth fits six times in six tenths.

Delivery continued

06 Check by reversing 4 min Discover

$5/8$; $5/8 + 1/4 = 7/8$. Reverse subtraction with addition.

07 A fraction of an amount 4 min Discover

$1/2$ litre. $(2/3) \times (3/4) = 1/2$; the operator scales the quantity.

08 REPAIR, THEN TRY A FRESH QUESTION 2 min Discover

Attempt without prompts, identify the first incorrect decision, explain the repair, then solve a fresh matched problem. Use common units for $+/ -$ and a reciprocal for $\div$. List possibilities systematically when the problem asks for combinations.

09 Diagnostic pause 3 min Apply

Which is a useful check for $2/3 + 1/6 = 5/6$? A $5/6 - 1/6 = 2/3$, B repeat the addition, C $5/6 + 1/6 = 2/3$. A reverses the operation; B may repeat an error.

10 Careful variation 4 min Apply

$5/12$; $7/12$. Reverse with subtraction or addition.

Delivery continued

11 Independent application 5 min Apply

3/10; 8/15. Multiplication scales by 3/4; division asks how many 3/4-sized groups fit.

12 Use the method in context 4 min Apply

6 litres. Initially 9 litres; 3 used; 6 remain.

13 Intentional practice feedback 2 min Apply

Optional check after A3: $12 \times (3 \div 4) \times (2 \div 3) = 6$. Use brackets around each fraction and identify what each factor represents before entering it.

14 A claim to test 4 min Challenge

Both equal 1/6. Both partition one whole into 2×3 equal parts.

15 Deepen the reasoning 4 min Challenge

R-black, R-grey, R-white, B-black, B-grey, B-white: 6. Use one shirt at a time; three choices for each. Higher extension H1 generalises this counting pattern.

Delivery continued

16 Retrieval without notes 4 min Prove

Answers: $5/12$, 2, $1/2$, 6, $1/2$, 0. Completion is not mastery.

17 Independent exit evidence 2 min Prove

$8/12 + 3/12$ M1; $11/12$ A1. Do not add denominators.

18 Independent exit evidence 3 min Prove

2 B1; $2 \times 3/8 = 3/4$ B1. Teacher checks the inverse.

19 Feedback and next steps 2 min Prove

R1 errors: rebuild equivalent fractions before operations. R2 errors: compare common units. R3 errors: restore order of operations. Choose one repair rather than reteaching everything. Reassess $1/4 + 1/6 = 5/12$ and $(2/5) \div (1/5) = 2$ after a delay.

20 Before the next lesson 1 min Recall

Percent means per hundred. Fractions, decimals and percentages can name the same proportion. We will preserve the value while changing the representation.

Delivery continued

21 Product rule for counting alternative Higher alternative

Higher route: replace the 2-minute A3 feedback and the two 4-minute Challenge discussions with this 10-minute taught extension. Retain core P1–P2. Set HX1–HX2 as the final four minutes of that alternative, and use the shared challenges later if needed. The core route remains 60 minutes; the extension is not an additional compulsory ten minutes. Route choice reflects tier curriculum, not temporary support needs. If every one of 3 shirts can pair with every one of 4 trousers, there are 4 choices for each shirt: $4+4+4=3\times4=12$ outfits. With 2 shoe choices for every outfit, there are $3\times4\times2=24$ combinations. The product rule applies when the stated number of next choices is available for each earlier choice.

22 Choices change after selection alternative Higher alternative

Higher route: replace the 2-minute A3 feedback and the two 4-minute Challenge discussions with this 10-minute taught extension. Retain core P1–P2. Set HX1–HX2 as the final four minutes of that alternative, and use the shared challenges later if needed. The core route remains 60 minutes; the extension is not an additional compulsory ten minutes. Route choice reflects tier curriculum, not temporary support needs. Adding choice counts only counts individual items. Multiplying by the full count again when repetition is forbidden overcounts. If combinations are restricted unequally, use separate cases or a systematic list; do not blindly multiply.

23 Independent Higher evidence alternative Higher alternative

Higher route: replace the 2-minute A3 feedback and the two 4-minute Challenge discussions with this 10-minute taught extension. Retain core P1–P2. Set HX1–HX2 as the final four minutes of that alternative, and use the shared challenges later if needed. The core route remains 60 minutes; the extension is not an additional compulsory ten minutes. Route choice reflects tier curriculum, not temporary support needs. $4\times3\times2$ M1; 24 A1.

24 Independent Higher evidence alternative Higher alternative

Higher route: replace the 2-minute A3 feedback and the two 4-minute Challenge discussions with this 10-minute taught extension. Retain core P1–P2. Set HX1–HX2 as the final four minutes of that alternative, and use the shared challenges later if needed. The core route remains 60 minutes; the extension is not an additional compulsory ten minutes. Route choice reflects tier curriculum, not temporary support needs. 20 B1; after 5 first choices there are 4 unused choices for the second B1.

Recall & Review: feedback and extension integration

Source-integrated WWW/EBI and extension page

Lesson L008: Fraction reasoning and retrieval

Objective: Select, explain and check fraction methods; diagnose misconceptions and transfer a repaired method to a fresh problem.

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: Without notes, calculate $7/12 + 5/18$ and explain the common denominator.

Deep challenge: Is $2/3 + 3/4$ greater than 1? Show a method without decimals.

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.