

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L007

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

REACH FOR THE STAR | GCSE MATHEMATICS

01 Fraction operations 1 min Recall

Calculate exactly with fractions using all four operations and explain why each method works.

02 The goal and the evidence 1 min Recall

L006 equivalence, mixed/improper conversion and common denominators; L005 factors.

03 Starting-point diagnostic 5 min Recall

If denominators are added, return to equal-sized parts. If division is reversed, ask how many quarters fit in three quarters. If mixed numbers are multiplied as separate parts, convert first. Recheck $1/3 + 1/6 = 1/2$ and $2/3 \div 1/3 = 2$.

04 Adding equal units paired with slide 5 Discover

$3/12 + 4/12 = 7/12$. Count twelfths.

05 Half of three quarters 2 min Discover

A 2 by 4 grid splits one whole into eighths. Three of four columns represent $3/4$; half of those columns is three cells out of eight, or $3/8$.

Delivery continued

06 Subtracting equal units 3 min Discover

7/12. $10/12 - 3/12$.

07 A fraction of a fraction 4 min Discover

2/5. Two thirds of three fifths is six fifteenths.

08 Dividing by a fraction 4 min Discover

5/6. $(2/3) \times (5/4) = 10/12$.

09 CHOOSE THE METHOD FROM THE OPERATION 2 min Discover

For + or −, rename with a common denominator. For ×, multiply numerators and denominators; cancel common factors if useful. For ÷ by a non-zero fraction, multiply by its reciprocal because that makes the divisor 1. Convert mixed numbers first; simplify and check size.

10 Diagnostic pause 3 min Apply

$1/2 + 1/3$: A 2/5, B 5/6, C 2/6. B; denominators name units, so they cannot simply be added.

Delivery continued

11 Careful variation 4 min Apply

$\frac{5}{6}$; $\frac{1}{6}$; $\frac{1}{6}$; $\frac{3}{2}$. The operation changes the meaning.

12 Independent application 5 min Apply

$\frac{7}{10}$; $\frac{13}{24}$; $\frac{1}{6}$; 2. Simplify exact results; check division by multiplication.

13 Use the method in context 4 min Apply

3 complete pieces; $\frac{1}{4}$ m remains. $(\frac{5}{2}) \div (\frac{3}{4}) = \frac{10}{3} = 3 \frac{1}{3}$; three pieces use $\frac{9}{4}$ m.

14 Intentional practice feedback 2 min Apply

Optional check after A2: use brackets around each fraction, for example $(5 \div 6) \div (5 \div 12) = 2$. Check the result by multiplying by $\frac{5}{12}$. Retain exact fractions when requested.

15 A claim to test 4 min Challenge

No: $(\frac{1}{2}) \times (\frac{1}{3}) = \frac{1}{6}$, smaller than both. Multiplying by a number between 0 and 1 scales down.

Delivery continued

16 Deepen the reasoning 4 min Challenge

$\frac{3}{4}$ contains $1\frac{1}{2}$ halves; $(\frac{3}{4}) \div (\frac{1}{2}) = \frac{3}{2}$; $(\frac{3}{2}) \times (\frac{1}{2}) = \frac{3}{4}$. Half-sized units fit twice as often.

17 Retrieval without notes 4 min Prove

Answers: $\frac{1}{2}$, $\frac{5}{8}$, $\frac{1}{2}$, 2, $\frac{5}{3}$, 12. Completion is not mastery.

18 Independent exit evidence 2 min Prove

$\frac{8}{12} + \frac{3}{12}$ M1; $\frac{11}{12}$ A1. Exact equivalent answers accepted.

19 Independent exit evidence 3 min Prove

$(\frac{3}{5}) \times (\frac{10}{9})$ M1; $\frac{2}{3}$ A1. Invert the divisor, not the first fraction.

20 Feedback and next steps 2 min Prove

If denominators are added, return to equal-sized parts. If division is reversed, ask how many quarters fit in three quarters. If mixed numbers are multiplied as separate parts, convert first. Recheck $\frac{1}{3} + \frac{1}{6} = \frac{1}{2}$ and $\frac{2}{3} \div \frac{1}{3} = 2$.

Delivery continued

21 Before the next lesson 1 min Recall

An independent check uses the meaning of the original problem. Estimate the size, reverse an operation, or represent equal parts. Repeating the same mistaken procedure is not a check.

Recall & Review: feedback and extension integration

Source-integrated WWW/EBI and extension page

Lesson L007: Fraction operations

Objective: Calculate exactly with fractions using all four operations and explain why each method works.

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: Calculate $5/6 - 3/8$ and $2/3 \times 9/10$, simplifying each.

Deep challenge: A learner says $3/4 \div 2/5 = 6/20$. Explain and correct.

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.