

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L005

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

REACH FOR THE STAR | GCSE MATHEMATICS

01 Factors multiples and primes 1 min Recall

Find and justify factors, prime factorisations, HCFs and LCMs; choose the right structure for a problem.

02 The goal and the evidence 1 min Recall

L001–L004 integer arithmetic; multiplication facts; divisibility and squares.

03 Starting-point diagnostic 5 min Recall

If 1 is called prime, count its positive factors. If factors and multiples are swapped, use $3 \times 6 = 18$ in both directions. If HCF and LCM are confused, ask whether the answer must divide or be divisible by each number. Recheck $\text{HCF}(8,12)=4$ and $\text{LCM}(8,12)=24$.

04 Factor pairs 1 min Discover

1, 2, 4, 5, 10, 20. Pair 1×20 , 2×10 and 4×5 .

05 Prime factorisation 4 min Discover

$2^3 \times 3$. All final factors must be prime.

Delivery continued

06 Highest common factor 4 min Discover

6. Both contain one 2 and one 3.

07 Lowest common multiple 4 min Discover

24. $2^3 \times 3$ contains every required prime factor.

08 FACTORS DIVIDE; MULTIPLES CONTAIN 2 min Discover

List factors in pairs. For HCF select prime factors shared by both numbers, with the smaller powers. For LCM include every prime needed, with the larger powers. Check that HCF divides both and LCM is divisible by both.

09 Diagnostic pause 3 min Apply

HCF of 12 and 18: A 6, B 36, C 3. A; B is LCM and C is common but not highest. Ask for a factor list before moving on.

10 Careful variation 4 min Apply

3 and 18; 6 and 12. When one number divides the other, it is the HCF and the larger is the LCM.

Delivery continued

11 Independent application 5 min Apply

$30=2\times3\times5$; $45=3^2\times5$; HCF 15; LCM 90. Use smaller powers for HCF and larger for LCM.

12 Use the method in context 4 min Apply

36 seconds. A shared time must be a multiple of both periods.

13 Intentional practice feedback 2 min Apply

Optional check after A2: $90 \div 30 = 3$ and $90 \div 45 = 2$. A calculator checks divisibility but does not establish that a multiple is the lowest.

14 A claim to test 4 min Challenge

Yes. Their only shared positive factor is 1. A common factor greater than 1 would have to equal both primes.

15 Deepen the reasoning 4 min Challenge

$6\times36=216=12\times18$. For each prime, the smaller and larger exponents together preserve both original exponents.

Delivery continued

16 Retrieval without notes 4 min Prove

Answers: 4, 24, 2, 5, -5, 46. Completion is not mastery.

17 Independent exit evidence 2 min Prove

Shared factors 1,2,5,10 B1; HCF 10 B1. Teacher checks completeness.

18 Independent exit evidence 3 min Prove

20 B1; $20 \div 4 = 5$ and $20 \div 10 = 2$ B1. Both checks required for the second mark.

19 Feedback and next steps 2 min Prove

If 1 is called prime, count its positive factors. If factors and multiples are swapped, use $3 \times 6 = 18$ in both directions. If HCF and LCM are confused, ask whether the answer must divide or be divisible by each number. Recheck $\text{HCF}(8,12)=4$ and $\text{LCM}(8,12)=24$.

20 Before the next lesson 1 min Recall

Multiplying or dividing the top and bottom of a fraction by the same non-zero number preserves its value. The whole stays fixed. We will use common factors to simplify.

Recall & Review: feedback and extension integration

Lesson L005: Factors multiples and primes

Objective: Find and justify factors, prime factorisations, HCFs and LCMs; choose the right structure for a 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 one check, correct one error and record the next practice step.

What Went Well (WWW)

I selected an efficient numerical method, showed the key steps clearly and checked the sign, size or accuracy of my answer.

Even Better If (EBI)

I will make the place-value, sign or operation decision explicit and use estimation or an inverse calculation to check a fresh question.

Integrated stretch and deep challenge

Stretch: Find the HCF and LCM of 84 and 126 using prime factors.

Deep challenge: Two numbers have HCF 6, LCM 180 and one number 30. Find the other.

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: 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.