

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L005

60 minutes • Foundation and Higher • Teacher use only • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

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

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

Selected specification content: N4 N5. These lessons revisit shared content; they do not complete every aspect of those statements.

Preparation and support

Prepare mini-whiteboards, printed fallbacks and a teacher calculator. Use fraction strips, equal-part bars or a ratio table as appropriate. Confirm save/export/restore in the intended environment; browser QA remains pending. Distribute only the learner package.

Access: pre-teach vocabulary and read symbols aloud. Scaffold: model the first decision, offer a worked-example or inverse-check frame. Core: remove prompts for A2 and P1–P2. Stretch: C1–C2 deepen reasoning for either tier. Record the support used, not a fixed ability label.

Evidence and pacing

The delivery map totals 60 minutes. Use the recall and hinge to select a repair; the suggested one-third error trigger is a planning judgement, not a validated threshold. If errors are widespread, use two minutes from independent practice and defer C2. P1–P2 need teacher marking. The mini-test and exam practice are delayed/additional activities, not extra tasks squeezed into the hour.

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.

Recall and guided-practice answers

R1

42; 7. Division reverses multiplication.

R2

$3 \times 3 = 9$. The index counts equal factors.

R3

2 and 11. 9 also has factor 3.

D1

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

D2

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

D3

6. Both contain one 2 and one 3.

D4

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

Application and challenge answers

A1

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

A2

$30=2 \times 3 \times 5$; $45=3^2 \times 5$; HCF 15; LCM 90. Use smaller powers for HCF and larger for LCM.

A3

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

C1

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

C2

$6 \times 36 = 216 = 12 \times 18$. For each prime, the smaller and larger exponents together preserve both original exponents.

Calculator guidance: 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.

Independent evidence and next steps

P1

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

P2

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

P3

Individual reflection. Record support and delayed evidence; completion is not mastery.

F1

$2^2 \times 7$; 7. Retrieve without the factor tree.

F2

Each third split into two gives sixths; two thirds become four sixths. The unit whole must stay the same.

Retrieval answers: 4, 24, 2, 5, -5, 46. Exact signed decimals/fractions/mixed numbers are accepted; unsupported notation goes to review. No automatic method marks. For rounding, equivalent numerical values may pass retrieval; the teacher checks stated accuracy and required trailing zeros in written work.

Reteaching and release

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 $\text{LCM}(8,12)=24$.

Practice feedback is intentionally visible. Full assessment answers, this guide and delivery notes are teacher-only. Local saving is browser dependent; no account service is included. Completed resources enter Review; human approval and outstanding browser checks remain required.

Optional extension answers

Stretch

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

Answer and reasoning: $84=2^2 \times 3 \times 7$; $126=2 \times 3^2 \times 7$; HCF=42, LCM=252.

Deep challenge

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

Answer and reasoning: Product of numbers=HCF $\times$ LCM=1080; other=1080/30=36.

Activate Learning lesson cycle

Connect & Check: state the objective and diagnose prior knowledge. Share: pairs predict and compare methods. Present: explain or uncover the model. Apply: fade support for independent practice and optional stretch. Recall & Review: use a fresh question and feedback to decide the next step.

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.