

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L026

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

REACH FOR THE STAR | GCSE MATHEMATICS

01 Triangles and polygons 1 min Recall

Derive angle sums and use triangle, quadrilateral and regular-polygon properties to solve problems.

02 The goal and the evidence 1 min Recall

L025 angle facts and parallel lines; L019 linear equations.

03 Starting-point diagnostic 5 min Recall

If 360° is used for every interior sum, split a pentagon into triangles. If every polygon angle is assumed equal, contrast an irregular quadrilateral. Recheck a regular octagon: exterior 45° , interior 135° .

04 See the geometry 2 min Discover

A triangle has angle sum 180° , proved using a parallel through a vertex. A convex n -gon splits from one vertex into $n-2$ triangles, giving $(n-2) \times 180^\circ$. Walking once round a convex polygon turns 360° . In a regular polygon each exterior angle is $360 \div n$ and the interior is 180 minus that turn.

05 Worked example and your turn 3 min Discover

$y = 65^\circ$. $180 - 38 - 77$.

Delivery continued

06 Worked example and your turn 3 min Discover

Base angles 62° each. $(180-56)\div 2$.

07 Worked example and your turn 3 min Discover

900° . $(7-2)\times 180$.

08 Worked example and your turn 3 min Discover

36° exterior; 144° interior. $360\div 10$; $180-36$.

09 A method you can explain 2 min Discover

Decide whether an angle sum or a single regular angle is needed. Use equal sides to identify equal opposite angles. Check regularity before dividing a sum by n .

10 Diagnostic pause 3 min Apply

A regular hexagon interior angle is A 60° , B 120° , C 720° . Answer B: 720° is the sum; 60° is the exterior.

Delivery continued

11 Careful variation 4 min Apply

360° , 540° , 720° ; add 180° for one extra triangle. Use $n-2$.

12 Independent application 4 min Apply

15 sides; 156° . $360 \div 24 = 15$; $180 - 24$.

13 Use the method in context 4 min Apply

112° , 68° , 112° . Opposite angles equal; adjacent angles supplementary.

14 Intentional practice feedback 2 min Apply

Opposite angles equal; adjacent angles supplementary. Optional check after A2: $15 \times 24 = 360$. Angle sums are exact; do not round the number of sides.

15 A claim to test 4 min Challenge

A rhombus with angles $60^\circ, 120^\circ, 60^\circ, 120^\circ$ has equal sides but is not a square. Square also requires right angles.

Delivery continued

16 Deepen the reasoning 4 min Challenge

No; $360 \div 50 = 7.2$ is not a whole number of sides. Regular exterior angles must complete a turn.

17 Retrieval without notes 2 min Prove

Answers: 80, 74, 540. Completion is not mastery.

18 Retrieval without notes 2 min Prove

Answers: 120, 18, 45. Completion is not mastery.

19 Independent exit evidence 2 min Prove

$(180 - 74) \div 2$ M1; 53° A1. Equal sides face equal angles.

20 Independent exit evidence 3 min Prove

Exterior 30° M1; 12 sides A1. $360 \div 30$.

Delivery continued

21 Feedback and next steps 2 min Prove

If 360° is used for every interior sum, split a pentagon into triangles. If every polygon angle is assumed equal, contrast an irregular quadrilateral. Recheck a regular octagon: exterior 45° , interior 135° .

22 Before the next lesson 1 min Recall

Congruent figures have the same shape and size. Corresponding sides and angles match even when one figure is rotated or reflected. Triangle congruence needs sufficient measurements.

Recall & Review: feedback and extension integration

Lesson L026: Triangles and polygons

Objective: Derive angle sums and use triangle, quadrilateral and regular-polygon properties to solve problems.

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 the correct geometric fact, theorem, formula or transformation and used a clear diagram with appropriate labels and units.

Even Better If (EBI)

I will name the fact or theorem, show the substitution or construction step and check whether the size, direction and units of the result are reasonable.

Integrated stretch and deep challenge

Stretch: Find each interior angle of a regular 15-sided polygon.

Deep challenge: A regular polygon has interior angle 165° . Find its number of sides.

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. Optional check after A2: $15 \times 24 = 360$. Angle sums are exact; do not round the number of sides..