

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L027

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

REACH FOR THE STAR | GCSE MATHEMATICS

01 Congruence and geometric reasoning 1 min Recall

Select a valid triangle congruence criterion and use corresponding parts to build a short proof.

02 The goal and the evidence 1 min Recall

L025 parallel-angle reasoning; L026 triangles and quadrilaterals.

03 Starting-point diagnostic 5 min Recall

If SAS is claimed with a non-included angle, mark the two sides and the angle between them. If AAA is used, compare 3,4,5 with 6,8,10 triangles. Recheck a proof with a shared side.

04 See the geometry 2 min Discover

SSS fixes all three sides; SAS fixes two sides and their included angle; ASA fixes two angles and the side between them. RHS fixes a right angle, hypotenuse and another side. A rigid movement can then match the triangles. AAA fixes shape but permits different sizes. SSA is not a general congruence test.

05 Worked example and your turn 3 min Discover

SSS. All three corresponding sides match.

Delivery continued

06 Worked example and your turn 3 min Discover

SAS. The angle lies between the equal sides.

07 Worked example and your turn 3 min Discover

ASA. Two corresponding angles and included side match.

08 Worked example and your turn 3 min Discover

RHS. Both right angles must be given.

09 A method you can explain 2 min Discover

Write vertices in corresponding order. List each equality with its given reason, name the criterion, then deduce equal matching parts. A shared side equals itself; a picture is not proof.

10 Diagnostic pause 3 min Apply

Two triangles have equal corresponding angles only. Congruent? A always, B not necessarily.

Answer B: their sizes may differ.

Delivery continued

11 Careful variation 4 min Apply

SSS; SAS; RHS. Each specifies enough corresponding information.

12 Independent application 4 min Apply

$AB=CD$ and $BC=DA$, opposite sides of a parallelogram; AC shared; SSS. Correspondence $A \leftrightarrow C$, $B \leftrightarrow D$, $C \leftrightarrow A$.

13 Use the method in context 4 min Apply

$AB=AD$, $BC=DC$, AC shared; ABC and ADC congruent by SSS, so matching angles BAC and CAD are equal. Conclude only after proving congruence.

14 Intentional practice feedback 2 min Apply

Conclude only after proving congruence. No calculator is needed. Length totals can be checked, but congruence requires reasons, not numerical output.

15 A claim to test 4 min Challenge

Both have 60° angles but different sizes; AAA does not prove congruence. Equality of angles gives similarity.

Delivery continued

16 Deepen the reasoning 4 min Challenge

Drawings may be inaccurate. Use the three stated/shared equal side pairs and SSS. Give evidence independent of appearance.

17 Retrieval without notes 2 min Prove

Answers: 3, 90, 65. Completion is not mastery.

18 Retrieval without notes 2 min Prove

Answers: 16, 14, 60. Completion is not mastery.

19 Independent exit evidence 2 min Prove

SSS B1; DEF B1. Middle letters identify vertices B and E.

20 Independent exit evidence 3 min Prove

Right angles plus hypotenuse and a corresponding side identified B1; RHS B1. The right-angle condition is essential.

Delivery continued

21 Feedback and next steps 2 min Prove

If SAS is claimed with a non-included angle, mark the two sides and the angle between them. If AAA is used, compare 3,4,5 with 6,8,10 triangles. Recheck a proof with a shared side.

22 Before the next lesson 1 min Recall

A perpendicular bisector is the set of points equally distant from two fixed points. Equal-radius compass arcs from the endpoints identify two such points; joining them creates the line.

Recall & Review: feedback and extension integration

Lesson L027: Congruence and geometric reasoning

Objective: Select a valid triangle congruence criterion and use corresponding parts to build a short proof.

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: State a valid congruence test for sides 5, 7, 8 cm in two triangles and explain.

Deep challenge: Two triangles have equal side lengths 5 and 7 cm and a non-included equal angle. Must they be congruent?

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. No calculator is needed. Length totals can be checked, but congruence requires reasons, not numerical output..