



Spring Learning Journey for Maths

Year 10H Unit 5 – Similarity and Congruence



How does this unit link to prior learning?

- Angles in a triangle
- Angle facts
- 2D shapes
- Area and volume
- Square numbers

Prior Knowledge Check

1. What is the missing angle in a triangle if the other two angles are 65° and 85° ?
2. What do angles around a point add up to?
3. What do you know about opposite angles in a parallelogram?
4. What is the volume of a cuboid of lengths 4cm, 5cm and 8cm?
5. What is the scale factor of a side that has increased from 4cm to 12cm?
6. What is the cube root of 125?

What will you be learning about?

- Be able to spot and prove if shapes are congruent.
- To use the ratios to find missing lengths, areas and volumes in similar shapes.

We will develop our learning each week by focusing on:

	RAG		RAG
1. Congruence <ul style="list-style-type: none"> • Show that two triangles are congruent. • Know the conditions of congruence. 	<input type="checkbox"/> <input type="checkbox"/>	2. Geometric proof and congruence <ul style="list-style-type: none"> • Prove shapes are congruent. • Solve problems involving congruence. 	<input type="checkbox"/> <input type="checkbox"/>
3. Similarity <ul style="list-style-type: none"> • Use the ratio of corresponding sides to work out scale factors. • Find missing lengths on similar shapes. 	<input type="checkbox"/> <input type="checkbox"/>	4. More similarity <ul style="list-style-type: none"> • Use similar triangles to work out lengths in real life. • Use the link between linear scale factor and area scale factor to solve problems. 	<input type="checkbox"/> <input type="checkbox"/>
5. Similarity in 3D solids <ul style="list-style-type: none"> • Use the link between scale factors for length, area and volume to solve problems. 	<input type="checkbox"/> <input type="checkbox"/>	6. Revision Lesson <ul style="list-style-type: none"> • Select topics you feel the class need to revise. • Classroom based or Mathswatch. • problems involving direct proportion. 	<input type="checkbox"/> <input type="checkbox"/>
7. Assessment Lesson (non-calculator) <ul style="list-style-type: none"> • Do 10-minute top up and go through answers together, students self-assess. • Open book assessment done in silence. 	<input type="checkbox"/> <input type="checkbox"/>	8. Feedback Lesson <ul style="list-style-type: none"> • Student to highlight their traffic light sheet. • Teacher to go through test and students to self-assess in green. • Students to complete the NOW section of the WOW-HOW-NOW sheet. 	<input type="checkbox"/> <input type="checkbox"/>

Key Vocabulary

Congruency	Similar	Enlargement	Scale factor	perimeter	angle	Side
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How will this help you in the future?

Similarity and congruency are useful in adult life because they help people compare, classify, and evaluate objects, designs, and situations accurately. Recognizing similarity allows adults to identify patterns and relationships, which is important when matching products, learning new skills, or solving problems.

Congruency helps ensure things are the same in size and shape, which is essential for accuracy, fairness, and safety. Adults use these ideas in everyday situations like arranging furniture, following building plans, creating art or designs, and checking whether parts fit together correctly.

Many jobs rely on similarity and congruency. Architects, engineers, and construction workers use them to make sure structures are properly designed and built to scale. Graphic designers and artists use similarity to create balanced and visually appealing designs. Manufacturers and quality-control inspectors check congruency to ensure products meet exact specifications. Teachers and researchers use similarity to compare data or student work, while surveyors and mapmakers rely on congruency and similarity to create accurate maps and measurements. Overall, these concepts help professionals work precisely, recognize patterns, and maintain consistency in their work.