



Year 10 Maths Learning Journey

Autumn Term 1

Similarity: Congruence, similarity and enlargement

Core knowledge	Reference
Enlarge a shape by a positive integer scale factor (R) “What are the size of the angles in each shape?”	Worksheet
Enlarge a shape by a fractional scale factor (R) “Does enlargement always make a shape bigger?”	Worksheet
Enlarge a shape by a negative scale factor (H) “What happens to the shape using a scale factor of -1 ?”	Worksheet
Identify similar shapes “How can you confirm that two shapes are similar?”	Worksheet
Work out missing sides and angles in a given pair of similar shapes “Which angles/lengths correspond to each other? How do you know?”	Worksheet
Use parallel line rules to work out missing angles (R) “Which angles would be corresponding/alternate/cointerior?”	Worksheet
Establish a pair of triangles are similar “Why do you only need two pairs of equal angles to show that two triangles are similar?”	Worksheet
Explore areas of similar shapes (1) (H) “If we know the length scale factor between two similar shapes, how can you find the area scale factor of the shapes? What about the other way round?”	Worksheet
Explore areas of similar shapes (2) (H) “If we know the length scale factor between two similar shapes, how can you find the area scale factor of the shapes?”	Worksheet
Explore volumes of similar shapes (H) “Are the cuboids similar? How do you know?”	Worksheet
Solve mixed problems involving similar shapes (H) “f you know two shapes are similar, what do you know about those shapes?”	Worksheet
Understand the difference between congruence and similarity “If you know two shapes are congruent, what else do you know about the shapes?”	Worksheet
Understand and use conditions for congruent triangles “What is the minimum information needed for triangles to be congruent?”	Worksheet
Prove a pair of triangles are congruent (H) “What angle facts do we know about a parallelogram?”	Worksheet

Learning Checkpoints

LC Title	Completed	Dirt
Constructions and Congruency		

Key Vocabulary:

Alternate angles: Where the two straight lines are parallel, alternate angles are equal.

Area scale factor: The scale factor for area is found by squaring the scale factor for length.

Centre of enlargement: a point which tells you where to draw an enlargement.

Co-interior: occur in between two parallel lines when they are intersected by a transversal. The two angles that occur on the same side of the transversal always add up to 180° .

Conditions of congruence: Two shapes are congruent if they have the same shape and size.

Correspond: the angles in matching corners are called corresponding angles.

Enlarge: To enlarge a shape, multiply all lengths of the shape by the scale factor.

Factor: When a number, or polynomial in algebra, can be expressed as the product of two numbers or polynomials, these are factors of the first.

Fractional scale factor: When the scale factor is fractional and the shape decreases in size, we still call it an enlargement.

Hypotenuse: the longest side of a right-angled triangle, opposite the right angle.

Image: the image of a function is the set of all output values it may produce

In proportion: If two sets of given numbers are increasing or decreasing in the same ratio, then the ratios are said to be directly proportional to each other.

Object: A mathematical object is an abstract concept arising in mathematics.

Origin: The origin is the point where they intersect. This point has the coordinates 0,0 and is usually labelled with the letter O.

Parallel: In Euclidean geometry, always equidistant.

Ratio: A part to part comparison.

Reflection: In 2-D, a transformation of the whole plane involving a mirror line or axis of symmetry in the plane.

Right angle: One quarter of a complete turn. An angle of 90 degrees.

Scale: For two similar geometric figures, the ratio of corresponding edge lengths

Similar: two figures are similar if their corresponding angles are congruent, and the ratios of the lengths of their corresponding sides are equal.

Volume scale factor: The volume of a scaled object will be equal to the scale factor cubed.