AQA
Questions matter

STRIDE Maths

STRIDE INTO THE FUTURE OF ASSESSMENT

Teacher Companion Guide

Shapes

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Overview

Stride is a new offering from AQA which is designed to empower students and quickly identify and close their knowledge gaps in mathematics. Designed to help students starting their GCSEs – either for the first time or as a resit – the tests are accessible for all and adapt to students' knowledge, delivering the right amount of challenge.

Our new maths tests will allow teachers to pinpoint gaps in their students' conceptual knowledge - saving them time and empowering students, who will understand how to improve. They're fully funded for schools and colleges, easy to use for teachers and engaging for students.

The five short tests, created with the Key Stage 1 and 2 and Key Stage 3 guidance in mind, focus on key areas of maths that experts have identified as the most impactful for GCSE success. They come with personalised learning and next steps to allow students to develop in both knowledge and confidence.

Rationale

We know that maths is a hierarchical subject, with knowledge being built upon foundational maths which underpins the new concept. We have analysed data from hundreds of thousands of exam questions and found that even though content is first encountered in the early stages of a learner's schooling, a significant proportion of learners answer questions on the foundations of maths incorrectly.

With this in mind, we want to empower teachers to take control of their classrooms and provide a nurturing environment in which gaps within key prerequisite understanding are identified and corrective instruction is deployed, filling the gaps and ensuring that more complex content can be taught, safe in the knowledge that learners have the underlying knowledge required to be successful in their lessons, and thrive in the GCSE examinations.

Key features

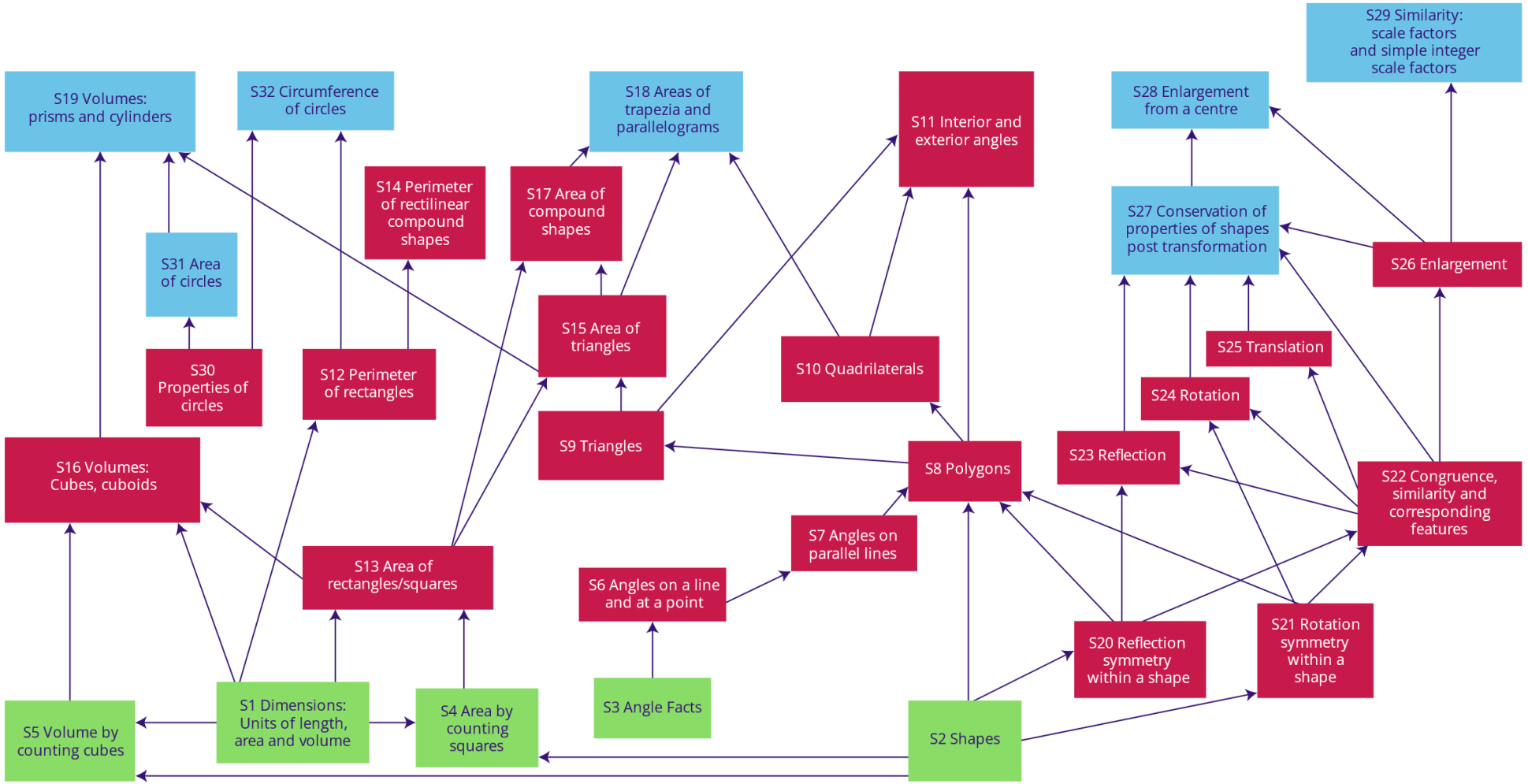
The Concept Map on the following page shows that N1 Place Value is a key prerequisite in developing expertise and knowledge within Numbers, fundamental to success with rounding and estimation, equivalence between fractions, decimals and percentages, and multiplication and division by powers of ten.

It's also clear that N10 Factors and N11 Multiples are key to understanding many other areas of the mathematics curriculum, including prime factors and prime factor decomposition, equivalence and simplification of fractions, and square and cube numbers and their associated roots. Factors and multiples are successors of N5 Multiplication Tables, which is a key foundation for success in Numbers.

It is key that learners have not only developed fluency with these ideas, but have developed significant expertise with these building blocks, upon which success in GCSE mathematics is founded.

Concept Map

5. Shapes



S1 Dimensions: units of length, volume and area

What is being tested	Learners are being tested on their understanding of measures in differing numbers of dimensions, recalling common units.
Learning Objectives	S1.1 Identify the units that represent length S1.2 Recall the definition of length S1.3 Identify the units that represent area S1.4 Identify the units that represent volume S1.5 Recall the definition of volume S1.6 Know that volume is the amount of space occupied by a 3D figure in cubic units
Predecessors	None
Successors	S4 Area by counting squares S5 Volume by counting cubes S12 Perimeter of rectangles S13 Area of rectangles/squares S16 Volumes: Cubes, cuboids
KS2 & KS3 Guidance	Learners encounter units for length in Year 2 (page 52, KS1 and KS2 guidance), area in Year 5 (page 269, KS1 and KS2 guidance) and volume in upper KS2, extending on this knowledge in Year 8 (page 183, KS3 guidance).
AQA GCSE Specification Reference	G14 use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money etc.)

S2 Shapes

What is being tested	Learners are being tested on their understanding of number bonds with addition and subtraction.
Learning Objectives	S2.1 Identify basic 3D shapes (cube and cuboid, cone, cylinder and pyramid) S2.2 Categorise objects according to their dimensionality S2.3 Identify basic 2D shapes (circle, triangle, square etc) S2.4 Match polygons to their number of sides
Predecessors	None
Successors	S4 Area by counting squares S5 Volume by counting cubes S8 Polygons S20 Reflection symmetry within a shape S21 Rotation symmetry within a shape
KS2 & KS3 Guidance	Learners begin to recognise shapes and solids in Year 1 (page 42, KS1 and KS2 guidance).
AQA GCSE Specification Reference	Knowledge of the properties of 2D shapes and 3D solids is key to success across the GCSE specification.

S3 Angle facts

What is being tested	Learners are being tested on their ability to describe an angle as a fraction of a whole revolution.
Learning Objectives	S3.1 Recall the definition of angle S3.2 Recall the number of degrees equivalent to a full turn S3.3 Recall the number of degrees equivalent to a half of a full turn S3.4 Recall the number of degrees equivalent to a quarter of a full turn S3.5 Match the terms acute, obtuse and reflex angles with their definitions (improve definitions) S3.6 Identify the correct notation of an angle (single correct answer, remove reverse notation)
Predecessors	None
Successors	S6 Angles on a line and at a point
KS2 & KS3 Guidance	Learners begin to consider angles as parts of a full turn in Year 3 (page 134, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G1 use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries Use the standard conventions for labelling and referring to the sides and angles of triangles.

S4 Area by counting squares

What is being tested	Learners are being tested on their understanding of area, and their ability to find areas by counting squares.
Learning Objectives	S4.1 Find the area of a rectangle by counting squares S4.2 Find the area of a simple 2D shape by counting squares S4.3 Recall the definition of area S4.4 Find the area of a 2D shape by counting squares and half squares S4.5 Know that the area of a square of side 1cm is 1 square centimetre
Predecessors	S1 Dimensions: Units of length, area and volume S2 Shapes
Successors	S13 Area of rectangles/squares
KS2 & KS3 Guidance	Learners begin to calculate area in Year 5 (page 269, KS1 and KS2 guidance).
AQA GCSE Specification Reference	Understanding that area is represented by the number of square units within the boundary of a shape is key to success with area across the GCSE specification.

S5 Volume by counting cubes

What is being tested	Learners are being tested on their understanding of volume, and their ability to find volumes by counting cubes.
Learning Objectives	S5.1 Calculate volume of a cuboid by counting cubes S5.2 Find how many more cubes are needed to fill the cuboid S5.3 Find how many more cubes are needed to make a cuboid S5.4 Identify the volume of a cube of side 1cm S5.5 Find the volume of a shape made from cubes
Predecessors	S1 Dimensions: Units of length, area and volume S2 Shapes
Successors	S16 Volumes: Cubes, cuboids
KS2 & KS3 Guidance	Learners begin to work with volume in upper KS2, extending on this knowledge in Year 8 (page 183, KS3 guidance).
AQA GCSE Specification Reference	Understanding that volume is represented by the number of cubic units within a solid is key to success with area across the GCSE specification.

S6 Angles on a line and at a point

What is being tested	Learners are being tested on their ability to recall common angle facts and apply these to calculate missing angles.
Learning Objectives	S6.1 Recall how many degrees there are at a point S6.2 Recall that vertically opposite angles are equal S6.3 Recall the number of degrees on a straight line S6.4 Recall the definition of perpendicular S6.5 Calculate the size of an unknown angle at a point S6.6 Calculate the size of an unknown angle on a straight line
Predecessors	S3 Angle Facts
Successors	S7 Angles on parallel lines
KS2 & KS3 Guidance	Learners begin to recognise relationships with angles that meet at a point, and at a point on a straight line, in KS2 and build on this knowledge in Year 8 (page 195, KS3 guidance).
AQA GCSE Specification Reference	G3 apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.

S7 Angles on parallel lines

What is being tested	Learners are being tested on their understanding of the relationship between angles when parallel lines are crossed by a transversal.
Learning Objectives	S7.1 Recall the definition of parallel S7.2 Determine the value of a corresponding angle on the given diagram S7.3 Identify corresponding angles on parallel lines S7.4 Identify alternate angles on parallel lines S7.5 Calculate missing angles on parallel lines S7.6 Calculate missing angles on parallel lines with 2 transversals
Predecessors	S6 Angles on a line and at a point
Successors	S8 Polygons
KS2 & KS3 Guidance	Learners begin to recognise relationships with angles in parallel lines in Year 8 (page 195, KS3 guidance).
AQA GCSE Specification Reference	G3 understand and use alternate and corresponding angles on parallel lines.

S8 Polygons

What is being tested	Learners are being tested on their ability to distinguish between regular and irregular polygons.
Learning Objectives	S8.1 Identify drawings of polygons S8.2 Identify irregular and regular polygons S8.3 Recall the definition of a regular polygon S8.4 Know the features of a polygon S8.5 Know that squares are regular quadrilaterals S8.6 Know that equilateral triangles are regular triangles
Predecessors	S2 Shapes S7 Angles on parallel lines S20 Reflection symmetry within a shape S21 Rotation symmetry within a shape
Successors	S9 Triangles S10 Quadrilaterals S11 Interior and exterior angles S22 Congruence, similarity and corresponding features
KS2 & KS3 Guidance	Learners begin to distinguish between regular and irregular polygons in Year 4 (page 197, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G1 use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries Use the standard conventions for labelling and referring to the sides and angles of triangles.

S9 Triangles

What is being tested	Learners are being tested on their ability to recall common angle facts in special triangles and apply these to calculate missing angles.
Learning Objectives	S9.1 Recall the sum of angles in any triangle S9.2 Match drawings of types of triangles and their names S9.3 Identify the properties of angles in equilateral triangles S9.4 Identify the properties of sides in isosceles triangles S9.5 Calculate a missing angle in a scalene triangle S9.6 Calculate a missing angle in an isosceles triangle
Predecessors	S8 Polygons
Successors	S11 Interior and exterior angles S15 Area of triangles
KS2 & KS3 Guidance	Learners begin to recognise relationships with angles in triangles in Year 8 (page 195, KS3 guidance).
AQA GCSE Specification Reference	G4 derive and apply the properties and definitions of: triangles and other plane figures using appropriate language.

S10 Quadrilaterals

What is being tested	Learners are being tested on their ability to recognise special quadrilaterals and apply angle facts to calculate missing angles.
Learning Objectives	S10.1 Match drawings of different quadrilaterals and their names S10.2 Know the equal sides properties of quadrilaterals S10.3 Know the parallel sides properties of quadrilaterals S10.4 Know the angle properties of quadrilaterals S10.5 Know the diagonal properties of quadrilaterals
Predecessors	S8 Polygons
Successors	S11 Interior and exterior angles S18 Areas of trapezia and parallelograms
KS2 & KS3 Guidance	Learners begin to appreciate the properties of special quadrilaterals in Year 8 (page 195, KS3 guidance).
AQA GCSE Specification Reference	G4 derive and apply the properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus.

S11 Interior and exterior angles

What is being tested	Learners are being tested on their understanding of the relationship between interior and exterior angles in polygons, using the angle sum of polygons to calculate missing angles.
Learning Objectives	S11.1 Identify interior and exterior angles S11.2 Recall what the sum of exterior angles of a polygon equals to S11.3 Know the sum of the interior and exterior angles at a vertex is 180 degrees S11.4 Recall the sum of the interior angles in a 3,4,5, 6 sided polygon S11.5 Calculate a missing exterior angle based on the interior angles of a triangle S11.6 Calculate a missing interior angle in a quadrilateral
Predecessors	S8 Polygons S9 Triangles S10 Quadrilaterals
Successors	None
KS2 & KS3 Guidance	Learners begin to recognise relationships with interior and exterior angles in polygons in Year 8 (page 195, KS3 guidance).
AQA GCSE Specification Reference	G3 derive and use the sum of angles in a triangle (eg to deduce and use the angle sum in any polygon, and to derive properties of regular polygons).

S12 Perimeter of rectangles

What is being tested	Learners are being tested on their understanding of perimeter, using this knowledge to calculate missing lengths.
Learning Objectives	S12.1 Know that the perimeter of a 2D shape is the total of the length of its sides S12.2 Find the perimeter of a rectangle S12.3 Write the formula for the perimeter of a rectangle S12.4 Calculate the length of one side of a rectangle when given one length and the perimeter S12.5 Identify the formula for the perimeter of a rectangle S12.6 Know that rectangles with the same area can have different perimeters
Predecessors	S1 Dimensions: Units of length, area and volume
Successors	S14 Perimeter of rectilinear compound shapes S32 Circumference of circles
KS2 & KS3 Guidance	Learners first encounter perimeter in Year 4 (page 197, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G17 calculate perimeters of 2D shapes.

S13 Area of rectangles/squares

What is being tested	Learners are being tested on their understanding of area, calculating the area of rectangles and squares.
Learning Objectives	S13.1 Calculate the area of a rectangle using the formula length × width S13.2 Match rectangles to their areas (both lengths given) S13.3 Calculate the side of a square given the area S13.4 Calculate the length of one side of a rectangle given the area S13.5 Match rectangles to their lengths (Area and one length given)
Predecessors	S1 Dimensions: Units of length, area and volume S4 Area by counting squares
Successors	S15 Area of triangles S16 Volumes: Cubes, cuboids S17 Area of compound shapes
KS2 & KS3 Guidance	Learners begin to calculate area in Year 5 (page 269, KS1 and KS2 guidance).
AQA GCSE Specification Reference	Knowledge of area of rectangles and squares is key to success with area across the GCSE specification.

S14 Perimeter of rectilinear compound shapes

What is being tested	Learners are being tested on their understanding of perimeter, calculating the perimeter of compound rectilinear shapes.
Learning Objectives	S14.1 Identify the missing lengths of compound shapes S14.2 Calculate perimeter of compound 2D shapes using the given required lengths S14.3 Calculate perimeter of compound 2D shapes when not all required lengths are given
Predecessors	S12 Perimeter of rectangles
Successors	None
KS2 & KS3 Guidance	Learners extend their knowledge of perimeter to compound shapes in Year 6 (page 322, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G17 calculate perimeters of 2D shapes.

S15 Area of triangles

What is being tested	Learners are being tested on their understanding of area, drawing on their ability to calculate the area of rectangles and squares to calculate the area of triangles.
Learning Objectives	S15.1 Know the relationship between area of a triangle and rectangle S15.2 Identify the height of a triangle S15.3 Identify the formula of the area of a triangle S15.4 Calculate the area of a triangle using the formula S15.5 Calculate the height of a triangle, given its area and base
Predecessors	S9 Triangles S13 Area of rectangles/squares
Successors	S17 Area of compound shapes S18 Areas of trapezia and parallelograms S19 Volumes: prisms and cylinders
KS2 & KS3 Guidance	Learners extend their knowledge of area to triangles in Year 6 (page 322, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G16 know and apply formulae to calculate: area of triangles.

S16 Volumes: cubes, cuboids

What is being tested	Learners are being tested on their understanding of volume, calculating the volume of cuboids and cubes.
Learning Objectives	S16.1 Calculate the volume of a cuboid made of cubes S16.2 Calculate volume of a cube using l × l × l (unit given) S16.3 Calculate volume of a cuboid using l × w × h S16.4 Calculate the length of the side of a cube, given the volume S16.5 Calculate the length of a missing side of a cuboid, given its volume and 2 sides
Predecessors	S1 Dimensions: Units of length, area and volume S5 Volume by counting cubes S13 Area of rectangles/squares
Successors	S19 Volumes: prisms and cylinders
KS2 & KS3 Guidance	Learners encounter volume in upper KS2, extending on this knowledge in Year 8 (page 183, KS3 guidance).
AQA GCSE Specification Reference	G16 know and apply formulae to calculate: volume of cuboids.

S17 Area of compound shapes

What is being tested	Learners are being tested on their understanding of area, drawing on their ability to calculate the area of rectangles, squares and triangles to calculate the area of compound shapes.
Learning Objectives	S17.1 Identify divisions of a compound shape that can be used to calculate its area S17.2 Calculate the area of a compound shape (rectangle + rectangle) S17.3 Calculate the area of a compound shape (rectangle + triangle) S17.4 Calculate the area of a 2D compound shape by splitting the area and adding the parts (rectangle + triangle)
Predecessors	S13 Area of rectangles/squares S15 Area of triangles
Successors	S18 Areas of trapezia and parallelograms
KS2 & KS3 Guidance	Learners extend their knowledge of area to compound shapes in Year 6 (page 322, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G17 know the formulae: calculate areas of composite shapes.

S18 Areas of trapezia and parallelograms

What is being tested	Learners are being tested on their understanding of area, drawing on their ability to calculate the area of rectangles to calculate the area of parallelograms and trapezia.
Learning Objectives	S18.1 Identify the height of a parallelogram S18.2 Identify the height of a trapezium S18.3 Identify the formula of the area of a parallelogram S18.4 Calculate the area of a parallelogram using the formula S18.5 Identify the formula of the area of a trapezium S18.6 Calculate area of a trapezium using the formula
Predecessors	S10 Quadrilaterals S15 Area of triangles S17 Area of compound shapes
Successors	None
KS2 & KS3 Guidance	Learners begin to calculate the area of parallelograms in KS2, extending their knowledge to trapezia in Year 7 (page 73, KS3 guidance).
AQA GCSE Specification Reference	G16 know and apply formulae to calculate: area of parallelograms, trapezia.

S19 Volumes: prisms and cylinders

What is being tested	Learners are being tested on their understanding of volume, drawing on their understanding of the properties of prisms to calculate the volume of prisms and cylinders.
Learning Objectives	S19.1 Identify prisms S19.2 Know the properties of prisms S19.3 Calculate volume of a simple prism (given cross-sectional area) S19.4 Calculate the length of a prism, given its volume and base area S19.5 Identify the formula for the volume of a cylinder S19.6 Calculate volume of a cylinder
Predecessors	S15 Area of triangles S16 Volumes: Cubes, cuboids S31 Area of circles
Successors	None
KS2 & KS3 Guidance	Learners extend their knowledge of volume to prisms and cylinders in Year 8 (page 183, KS3 guidance).
AQA GCSE Specification Reference	G16 know and apply formulae to calculate: volume of right prisms (including cylinders).

S20 Reflection symmetry within a shape

What is being tested	Learners are being tested on their understanding of reflection symmetry.
Learning Objectives	N20.1 Order a mixture of fractions, percentages, and decimals N20.2 Order sale offers that are in a mixture of fractions, percentages and decimals N20.3 Recognise 'best buys' by using the equivalence of fractions, percentages and decimals
Predecessors	S2 Shapes
Successors	S8 Polygons S22 Congruence, similarity and corresponding features S23 Reflection
KS2 & KS3 Guidance	Learners begin to appreciate reflection symmetry in Year 4 (page 201, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G1 use conventional terms and notations: reflection symmetries.

S21 Rotation symmetry within a shape

What is being tested	Learners are being tested on their understanding of rotational symmetry.
Learning Objectives	S21.1 Identify order of rotational symmetry of a given shape S21.2 Know the rotational symmetry properties of quadrilaterals S21.3 Know the rotational symmetry properties of triangles S21.4 Recall the definition of rotational symmetry S21.5 Know a regular polygon has rotational symmetry equal to its number of sides S21.6 Know that the lowest order of rotational symmetry is 1
Predecessors	S2 Shapes
Successors	S8 Polygons S22 Congruence, similarity and corresponding features S24 Rotation
KS2 & KS3 Guidance	Learners encounter rotational symmetry in Year 9 (page 214, KS3 guidance).
AQA GCSE Specification Reference	G1 use conventional terms and notations: rotation symmetries.

S22 Congruence, similarity and corresponding features

What is being tested	Learners are being tested on their understanding of congruence and similarity.
Learning Objectives	S22.1 Recall the definition of transformation S22.2 Categorise characteristics of congruent shapes S22.3 Define similar shapes S22.4 Identify corresponding sides and angles S22.5 Identify shapes that are congruent S22.6 Identify similar shapes
Predecessors	S21 Rotation symmetry within a shape
Successors	S23 Reflection S24 Rotation S25 Translation S26 Enlargement S27 Conservation of properties of shapes post transformation
KS2 & KS3 Guidance	Learners begin to appreciate congruence and similarity in Year 9 (page 214, KS3 guidance).
AQA GCSE Specification Reference	G19 apply the concepts of congruence and similarity, including the relationships between lengths in similar figures.

S23 Reflection

What is being tested	Learners are being tested on their ability to apply reflection as a transformation, drawing on their understanding of reflection symmetry.
Learning Objectives	S23.1 Identify the line of reflection when a shape is reflected S23.2 Identify the image of a shape when transformed by a reflection S23.3 Know that a reflection needs a mirror line S23.4 Know that a reflection changes a shape's sense S23.5 Reflect a simple 2D shape in a mirror line S23.6 Identify the equation of the line of reflection of a given shape and its reflected image S23.7 Draw the image of a shape when it is transformed by a reflection around y = × line S23.8 Draw the image of a shape when it is transformed by a reflection around a specified line
Predecessors	S20 Reflection symmetry within a shape S22 Congruence, similarity and corresponding features
Successors	S27 Conservation of properties of shapes post transformation
KS2 & KS3 Guidance	Learners begin to appreciate reflection symmetry in Year 4 (page 201, KS1 and KS2 guidance).
AQA GCSE Specification Reference	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering reflection.

S24 Rotation

What is being tested	Learners are being tested on their ability to apply rotation as a transformation, drawing on their understanding of rotational symmetry.
Learning Objectives	S24.1 Identify an anticlockwise direction S24.2 Identify a clockwise direction S24.3 Recognise different angles of rotation S24.4 Identify the image of a shape when it is transformed by a rotation S24.5 Identify the image of a shape when rotated around the origin S24.6 Know that a rotation needs a centre and an angle S24.7 Know that a rotation changes orientation and not sense S24.8 Identify the image of a shape when rotated around a specified centre of rotation in co-ordinate format S24.9 Find a centre of rotation
Predecessors	S21 Rotation symmetry within a shape S22 Congruence, similarity and corresponding features
Successors	S27 Conservation of properties of shapes post transformation
KS2 & KS3 Guidance	Learners encounter the idea of rotation in KS2 and extend this idea in Year 7 (page 112, KS3 guidance).
AQA GCSE Specification Reference	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation.

S25 Translation

What is being tested	Learners are being tested on their ability to apply translation as a transformation.
Learning Objectives	S25.1 Identify a translated shape from its description S25.2 Know that a translation preserves a shape's orientation and sense S25.3 Know which is the original shape and which is the image in a translation S25.4 Know that a translation needs horizontal and vertical components S25.5 Describe a translation from a diagram
Predecessors	S22 Congruence, similarity and corresponding features
Successors	S27 Conservation of properties of shapes post transformation
KS2 & KS3 Guidance	Learners encounter the idea of translation in KS2 and extend this idea in Year 7 (page 112, KS3 guidance).
AQA GCSE Specification Reference	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering translation.

S26 Enlargement

What is being tested	Learners are being tested on their ability to apply enlargement as a transformation, drawing on their understanding of similar shapes.
Learning Objectives	S26.1 Identify the image of a shape when it is transformed by an enlargement S26.2 Identify the scale factor of enlargement of two similar shapes S26.3 Enlarge a shape on a grid by a simple integer scale factor S26.4 Enlarge a shape on a grid by a simple fractional scale factor
Predecessors	S22 Congruence, similarity and corresponding features
Successors	S27 Conservation of properties of shapes post transformation S28 Enlargement from a centre S29 Similarity: scale factors and simple integer scale factors
KS2 & KS3 Guidance	Learners encounter the idea of enlargement in KS2 and extend this idea in Year 7 (page 112, KS3 guidance).
AQA GCSE Specification Reference	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering enlargement.

S27 Conservation of properties of shapes post transformation

What is being tested	Learners are being tested on their understanding of transformations, drawing on their understanding of congruence and similarity.
Learning Objectives	S27.1 Identify the transformations that preserve the properties of congruence S27.2 Recognise that enlarging a shape does not change the size of angles but changes the length of the sides S27.3 Match types of transformation with their descriptions S27.4 Match transformations to their diagrams
Predecessors	S22 Congruence, similarity and corresponding features S23 Reflection S24 Rotation S25 Translation S26 Enlargement
Successors	S28 Enlargement from a centre
KS2 & KS3 Guidance	Learners begin to appreciate the four transformations in KS2 and extend this knowledge in Year 7 (page 112, KS3 guidance).
AQA GCSE Specification Reference	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement.

S28 Enlargement from a centre

What is being tested	Learners are being tested on their ability to apply enlargement as a transformation, applying this knowledge to enlargements from different centres.
Learning Objectives	S28.1 Describe the properties (scale factor and centre of enlargement) when given two similar shapes S28.2 Know that an enlargement needs a centre and a scale factor S28.3 Identify the centre of enlargement given two similar shapes S28.4 Enlarge a shape on a grid by a simple positive integer scale factor given the centre of enlargement
Predecessors	S26 Enlargement S27 Conservation of properties of shapes post transformation
Successors	S29 Similarity: scale factors and simple integer scale factors
KS2 & KS3 Guidance	Learners begin to appreciate the centre of enlargement in Year 7 (page 115, KS3 guidance).
AQA GCSE Specification Reference	G7 identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering enlargement.

S29 Similarity: Scale factors and simple integer scale factors

What is being tested	Learners are being tested on their ability to apply their knowledge of similarity
Learning Objectives	S29.1 Recall that corresponding lengths in similar shapes are in the same ratio S29.2 Recognise how to calculate the scale factor that links two similar shapes S29.3 Calculate the scale factor that links two similar shapes S29.4 Calculate missing lengths in similar shapes using a scale factor
Predecessors	S26 Enlargement S28 Enlargement from a centre
Successors	None
KS2 & KS3 Guidance	Learners explore scale factors in KS2 and extend on this idea in Year 7 (page 112, KS3 guidance).
AQA GCSE Specification Reference	G19 apply the concepts of congruence and similarity, including the relationships between lengths in similar figures.

S30 Properties of circles

What is being tested	Learners are being tested on their understanding of the properties of a circle.
Learning Objectives	S30.1 Match diameter, radius, circumference with their graphical representations S30.2 Know the relationship between radius and diameter S30.3 Recognise the calculation to find the radius from the diameter S30.4 Define the relationship between circumference and diameter of a circle
Predecessors	None
Successors	S31 Area of circles S32 Circumference of circles
KS2 & KS3 Guidance	Learners begin to explore the properties of circles in Year 8 (page 183, KS3 guidance).
AQA GCSE Specification Reference	G9 identify and apply circle definitions and properties, including: centre, radius, diameter, circumference.

S31 Area of circles

What is being tested	Learners are being tested on their ability to calculate the area of circles.
Learning Objectives	S31.1 Calculate area of a circle with given radius using π given as 3.14 S31.2 Identify the formula to calculate the area of a circle S31.3 Calculate the radius of a circle, given the area S31.4 Recognise how to calculate a diameter from an area
Predecessors	S30 Properties of circles
Successors	S19 Volumes: prisms and cylinders
KS2 & KS3 Guidance	Learners extend upon their knowledge of area, calculating the area of circles in Year 8 (page 189, KS3 guidance).
AQA GCSE Specification Reference	G17 know the formulae: area of a circle = πr^2 calculate areas of circles

S32 Circumference of circles

What is being tested	Learners are being tested on their ability to calculate the circumference of circles.
Learning Objectives	S32.1 Identify the calculation for circumference with a given radius S32.2 Identify the formula to calculate the circumference of a circle S32.3 Identify the calculation for approx diameter of a circle with given circumference S32.4 Calculate circumference of a circle with given diameter using π given as 3.14
Predecessors	S12 Perimeter of rectangles S30 Properties of circles
Successors	None
KS2 & KS3 Guidance	Learners extend their knowledge of perimeter to include the circumference of a circle in Year 8 (page 185, KS3 guidance).
AQA GCSE Specification Reference	G17 know the formulae: circumference of a circle = 2πr = πd calculate perimeters of circles

Contributors

AQA

We're an independent education charity, providing high quality assessments that are fair, reliable, and support students in their educational journey.

Our qualifications expertise dates back to 1903, when our predecessor boards were founded by five leading universities. Today, we're the largest provider of academic qualifications taught in schools and colleges.

We set and mark the papers for over half of all GCSEs and A-levels taken every year. But exams are only part of the story – we also make sure the content of our qualifications support great teaching.

Our qualifications are designed to suit a range of abilities and include GCSEs, AS and A-levels, the Extended Project Qualification and Technical Awards. Our qualifications are internationally recognised and taught in more than 40 countries around the world and they're highly valued by employers and universities.

We're led by our Executive Team and governed by a Board of Trustees drawn from schools, colleges, higher education, children's services and the business community.

Our charitable purpose

We have over a century of qualifications expertise dating back to 1903 when our predecessor boards were founded by five leading universities. These public exam boards came into existence to provide an opportunity for young people from a range of backgrounds to access education and make the most of their potential.

This commitment to social mobility remains at the heart of AQA's charitable purpose, which is to advance education by enabling teachers and students to realise their potential.

We demonstrate this by providing qualifications that enable students to progress, and reinvesting any surplus we make in:

- research – through the expertise of our Assessment Research and Innovation teams, we ensure that we are able to continuously improve the quality and reliability of our assessments and contribute to the development of assessment policy and practice, both in the UK and around the world
- offering a broad range of qualifications because we believe they have educational value – and not offering qualifications that could be profitable, but we don't think would help students progress
- directly funding activities such as our AQA Unlocking Potential programme, which helps develop and inspire young people facing challenges in life.
- improving social mobility through education, by sponsoring groups of teachers from areas with low student attainment, to attend residential leadership courses with The PTI (Prince's Teaching Institute).