

Level 7	Level 8	Level 9	Level 10	Level 10A
Measurement and Geometry				
Using units of measurement				
Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving	Choose appropriate units of measurement for area and volume and convert from one unit to another	Calculate the areas of composite shapes	Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids	Solve problems involving surface area and volume of right pyramids, right cones, spheres and related composite solids
Calculate volumes of rectangular prisms	Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites	Calculate the surface area and volume of cylinders and solve related problems		
	Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving determining radius, diameter, circumference and area from each other	Solve problems involving the surface area and volume of right prisms		
	Develop the formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume	Investigate very small and very large time scales and intervals		
	Solve problems involving duration, including using 12- and 24-hour time within a single time zone			
Shape				
Draw different views of prisms and solids formed from combinations of prisms				
Location and transformation				
Describe translations, reflections in an axis, and rotations of multiples of 90° on the Cartesian plane using coordinates. Identify line and rotational symmetries				
Geometric reasoning				
Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal	Define congruence of plane shapes using transformations and use transformations of congruent shapes to produce regular patterns in the plane including tessellations with and without the use of digital technology	Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar	Formulate proofs involving congruent triangles and angle properties	Prove and apply angle and chord properties of circles
Investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning	Develop the conditions for congruence of triangles	Solve problems using ratio and scale factors in similar figures	Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes	
Demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral	Establish properties of quadrilaterals using congruent triangles and angle properties, and solve related numerical problems using reasoning			
Classify triangles according to their side and angle properties and describe quadrilaterals				
Pythagoras and trigonometry				
Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles		Solve right-angled triangle problems including those involving direction and angles of elevation and depression	Establish the sine, cosine and area rules for any triangle and solve related problems	
	Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles		Use the unit circle to define trigonometric functions as functions of a real variable, and graph them with and without the use of digital technologies	
	Apply trigonometry to solve right-angled triangle problems		Solve simple trigonometric equations	
			Apply Pythagoras' theorem and trigonometry to solving three-dimensional problems in right-angled triangles	
Achievement Standard				
Students use formulas for the area and perimeter of rectangles. They classify triangles and quadrilaterals and represent transformations of these shapes on the Cartesian plane, with and without the use of digital technology. Students name the types of angles formed by transversals crossing parallel lines and solve simple numerical problems involving these lines and angles. They describe different views of three-dimensional objects, and use models, sketches and digital technology to represent these views. Students calculate volumes of rectangular prisms.	Students convert between units of measurement for area and for volume. They find the perimeter and area of parallelograms, rhombuses and kites. Students name the features of circles, calculate circumference and area, and solve problems relating to the volume of prisms. They make sense of time duration in real applications, including the use of 24-hour time. Students identify conditions for the congruence of triangles and deduce the properties of quadrilaterals. They use tools, including digital technology, to construct congruent shapes.	Students solve measurement problems involving perimeter and area of composite shapes, surface area and volume of rectangular prisms and cylinders, with and without the use of digital technology. They relate three-dimensional objects to two-dimensional representations. Students explain similarity of triangles, interpret ratios and scale factors in similar figures, and apply Pythagoras's theorem and trigonometry to solve problems involving angles and lengths in right-angled triangles.	Students solve and explain surface area and volume problems relating to composite solids. They use parallel and perpendicular lines, angle and triangle properties, similarity, trigonometry and congruence to solve practical problems and develop proofs involving lengths, angles and areas in plane shapes. They use digital technology to construct and manipulate geometric shapes and objects, and explore symmetry and pattern in two dimensions.	