

"Our curriculum is designed to help students truly master mathematics, so they can apply their skills in unfamiliar situations whenever needed. Topics from the same content areas have been grouped together to form mastery half terms. More time is spent teaching fundamentals to avoid reteaching in later years."

Summer 2: Area, volume and surface area	
Skills	<ul style="list-style-type: none"> • Use and apply formulae, including those with powers and roots • Calculate with the area and circumference of a circle • Area and circumference of a semi-circle and other sectors • Area and perimeter of composite shapes involving sectors of circles • Finding the volume and surface area of cuboids • Finding the volume and surface area of other prisms including cylinders • Finding the volume and surface area of composite solids • Solving equations • Convert between different units of area and volume
Knowledge	<ul style="list-style-type: none"> • Understand the concepts of length, area, volume and surface area • Recall the anatomy of a circle • Explore relationship between circumference and diameter/radius • Formula for circumference • Explore relationship between area and radius • Know the formula for area of a circle • Naming prisms, nets of prisms and using language associated with 3-D shapes
Rationale	<p>In this module learners further develop their spatial reasoning by reasoning with the properties of circles, and extending their knowledge to 3-D shapes.</p> <p>In unit 12 learners study circles. Learners explore the connection between the circumference of a circle and its diameter and through this are introduced to pi. Software and other visuals are used to give students the opportunity to see how formulae are derived. The unit ends with opportunities for students to apply their understanding to geometric problems involving the area and circumference of a circle.</p> <p>Next learners formally meet volume as a measure of the space inside a 3D object. Students may need to revisit the names and properties of 2-D shapes before moving onto 3-D. Time is spent building and breaking down 3-D shapes, both with blocks and as nets. Students develop their own methods for finding the volume of prisms and before any exposure to the conventional formulae for cuboids, cylinders and other uniform prisms. Different units for volume are explored and converting between these units is an opportunity to practice fractional arithmetic and proportional reasoning. Students are expected to understand the concept of surface area as an application of the area formulae that they encountered in previous units earlier in the year and in year 7.</p>