

Teacher Lesson Guide

Calculating Surface Area and Volume

The important stuff

This unit was designed for		Total content duration	
Target audience	Year 8 & 9	Total content duration	60-120 minutes
This unit contains		Duration	
Area		Video: 3:17 min + worksheet	
Surface area		Video: 3:19 min + worksheet	
Volume		Video: 3:06 min + worksheet	
Detailed curriculum code alignment for ACARA v9 is available in the Curriculum Alignment section of this unit guide.		Check the timing and notes of these activities and find links to all of the individual resources in the Lesson Breakdown section of this unit guide.	

An overview of the lesson

This unit uses scenarios from the Snowy Hydro scheme to give real life examples of how to use area, surface area and volume calculations. Videos walk through the calculations for the first time, then use the worksheets with your class to practice the skills.

[Suggested prior knowledge](#)

[Find detail on ideas discussed in this unit](#)

Lesson breakdown

Activity timing and delivery guide			
Order	Duration	Activity description	Notes
1	25-35 min	Area	Calculate the area of simple 2D shapes
2	25-35 min	Surface Area	Calculate the surface area of a complex area by breaking the task into multiple 2D shapes
3	25-35 min	Volume	Calculate the volume of 3D shapes using the area of their base

For this lesson you will need	
Teaching resources	
Videos	Year 9 Maths Program - Area Year 9 Maths Program - Surface Area Year 9 Maths Program - Volume
Student resources	
Worksheets	Area calculations worksheet Surface area calculations worksheet Volume calculations worksheet
Materials for Volume worksheet	For each student or group of 2: 1 x container that can hold water (<500 mL) 1 x ruler 1 x measuring instrument such as a volumetric cylinder, measuring jug or cup measures

Key themes and ideas

Suggested prior knowledge before this lesson

- Students should know how to establish the formula for the area of a rectangle and use it to solve practical problems ([AC9M6M02](#))
- Students should know how to solve problems involving the area of triangles and parallelograms using established formulas and appropriate units ([AC9M7M01](#))
- Students should know how to solve problems involving the volume of right prisms including rectangular and triangular prisms, using established formulas and appropriate units ([AC9M7M02](#))

Curriculum alignment

Mathematics	
Year 7	
Measurement	AC9M7M02 solve problems involving the volume of right prisms including rectangular and triangular prisms, using established formulas and appropriate units
Year 8	
Measurement	AC9M8M01 solve problems involving the area and perimeter of irregular and composite shapes using appropriate units
Measurement	AC9M8M02 solve problems involving the volume and capacity of right prisms using appropriate units
Year 9	
Measurement	AC9M9M01 solve problems involving the volume and surface area of right prisms and cylinders using appropriate units
Year 10	
Measurement	AC9M10M01 solve problems involving the surface area and volume of composite objects using appropriate units