

25 YR 9 PATH: LESSON OUTLINE: AREA, SA AND VOLUME A (MATHSPACE – M.S)

Instructions: Every lesson: Remember to work off “Lesson Instructions” you glued in the front of your book (also on GC).

1. **Mathspace** : Complete “Check-in” date check-in’s table on Lesson Outline.
2. **Copy ALL the “Theory Notes”** supplied by Teacher in class.
3. **Mathspace Lesson Activity**: Read through the “Lesson” Add any additional notes to your “Theory Notes” from the class.
4. **Practical Exercises**:
 - Write Heading for Exercise with date. Complete set work showing ALL working out in your Exercise Book. Any work not completed in class AUTOMATICALLY becomes homework. When finished, entering answers into M.S and marking your answers in your exercise book. Upload working out on G.C. This is considered part of homework.

MATHSPACE/PRACTICAL EXERCISE: MATHSPACE (M.S) ACTIVITY: Set by teacher: Custom Task (C.T), Adaptive Task (A.T), Worksheet (W.S)

TOPIC	DATE	LESSON	MATHSPACE/PRACTICAL EX: MATHSPACE (M.S) ACTIVITY
Revision: Area of shapes		<ul style="list-style-type: none"> • Read “Lesson 10.01C Area Revision “ & complete the practice questions. • ADD: Definitions from Lesson to D.T 	❖ Complete M.S : “Activity: Custom Task (C.T) Area Revision (Path)” Q’S: 30 Remember follow instructions above for “ 4. Practical Exercise ”.
Revision of Area of composite shapes		<ul style="list-style-type: none"> • Read “Lesson 10.02C Area of composite shapes” 	❖ Complete M.S : “Activity: Worksheet 10.02C Area of composite shapes (9MF) Q’S: 21
Nets of prisms		<ul style="list-style-type: none"> • Read “Lesson 10.03C Nets of prisms “ • ADD: Definitions to D.T 	❖ Complete M.S : “Activity: Worksheet 10.03C Nets of prisms:” Q’S:13
Surface area of prisms		<ul style="list-style-type: none"> • Read “Lesson 10.04C Surface area of prisms 	❖ Complete M.S : “Activity: Worksheet: 10.04C Surface area of prisms” Q’S: 1-20 only
Surface area of cylinders		<ul style="list-style-type: none"> • Read “Lesson 10.05C Surface area of cylinders “ 	❖ Complete M.S : “Activity: Worksheet 10.05C Surface area of cylinders:” Q’S: 25
Volume vs Area		• Complete “Lesson “INVESTIGATION: Volume versus area (3 Activities)”	
Volume of prisms		<ul style="list-style-type: none"> • Read “Lesson 10.06C Volume of prisms 	❖ Complete M.S : “Activity: Worksheet 10.06C Volume of prisms Q’S: 28
Volume of cylinders		<ul style="list-style-type: none"> • Read “Lesson 10.07C Volume of cylinders 	❖ Complete M.S : “Activity: Worksheet 10.07C Volume of cylinders Q’S: 23
Volume of composite solids		<ul style="list-style-type: none"> • Read “Lesson 10.08C Volume of composite solids” 	❖ Complete M.S : “Activity: Worksheet 10.08C Volume of composite solids:” Q’S: 18
		Custom Task 10.08C Volume of composite solids Q’S: 19	

REMEMBER:

- Pre-set Mathspace is to be continually completed throughout the topic. Work not completed in class **automatically** becomes homework. Complete additional revision sheets. Challenge yourself by completing other topic tasks from Mathspace when finished set work. Always date your work in your Exercise Book with ALL working out & your Lesson Outline.

TOPIC: AREA AND SURFACE AREA A

Outcomes: A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly **MAO-WM-01**
- solves problems involving the surface area of right prisms and practical problems involving the area of composite shapes and solids **MA5-ARE-C-01**

Related Life Skills outcomes: MALS-ARE-01

Content: Solve problems involving areas and surface areas

Solve practical problems involving the areas of composite shapes

Example(s):

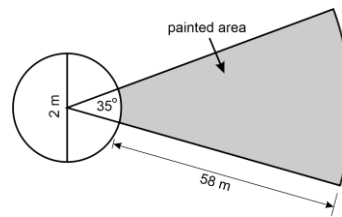


Image long description: A circle with a diameter of 2 metres. The vertex of a sector with an internal angle of 35 degrees and has a radius of 58 metres is attached to the centre of the circle. The part of the sector that is outside the circle is shaded.

Creating your name using composite shapes to a maximum of 50 cm².

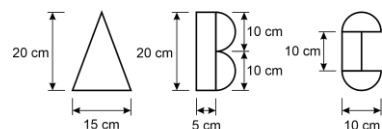
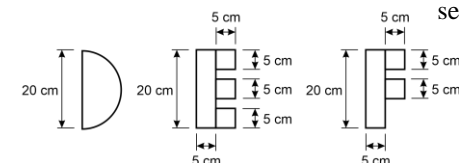
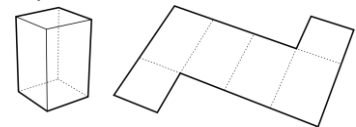


Image long description: The letters A to F made up of simple rectangles and semicircles. Each shape has dimensions varying between 5 cm and 20 cm. For example, the letter C is composed of a rectangle 10 cm long and 2 semicircles with a diameter of 10 cm.



- Identify the edge lengths and the faces making up the surface area of prisms

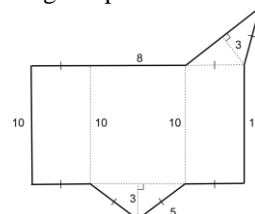
Example(s): Using digital tools to examine and construct various right prisms and their corresponding nets, and identifying the edge lengths and



faces making up the surface area of the relevant prism.

- Recognise and justify whether a diagram represents a net of a right prism
- Create and rearrange nets of right prisms
- Find the surface areas of prisms, given their nets, excluding curved surfaces

Example(s): Finding the surface area of a triangular prism.



- Solve problems involving surface areas of prisms, excluding curved surfaces

Example(s): Finding the amount of paint needed to paint the walls and ceiling of this room if 1 litre covers 10 square metres.

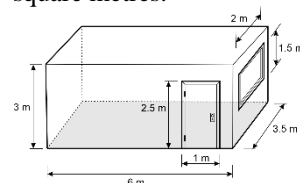


Image long description: A rectangular room that is 6 metres long, 3.5 metres wide and 3 metres high. A rectangular door that is 2.5 metres high and 1 metre wide and rectangular window that is 2 metres long and 1.5 metres high.

Content: Develop and apply the formula for surface areas of cylinders

- Recognise the curved surface of a cylinder as a rectangle and apply this knowledge to calculate the area of the curved surface
- Develop and apply the formula to find the surface area of a closed cylinder: $A = 2\pi r^2 + 2\pi rh$, where r is the length of the radius and h is the perpendicular height

Example(s): Applying the surface area formula for a variety of yidaki (didgeridoo), identifying different tones the instrument makes based on the surface area of the yidaki.

Examining the effects on the surface area of cylinders of equal height when the radius is changed.

Content: Solve problems involving surface areas of cylinders and related composite solids

- Solve problems involving surface areas of cylinders and related composite solids

Example(s): Calculating the surface area in square metres of the outside of a large mailbox that requires painting.

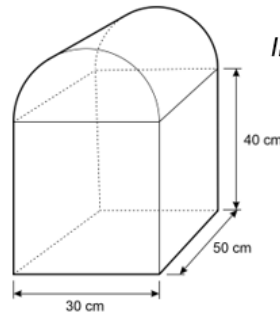


Image long description A composite prism with a front face of half a cylinder on top of a rectangle. The rectangular prism is 30 cm wide, 50 cm long and 40 cm high.

- Calculating the surface area of an emu caller, clapsticks or a warup drum from the Torres Strait Islands.

TOPIC: VOLUME A

Outcomes: A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly **MAO-WM-01**
- solves problems involving the volume of composite solids consisting of right prisms and cylinders **MA5-VOL-C-01**

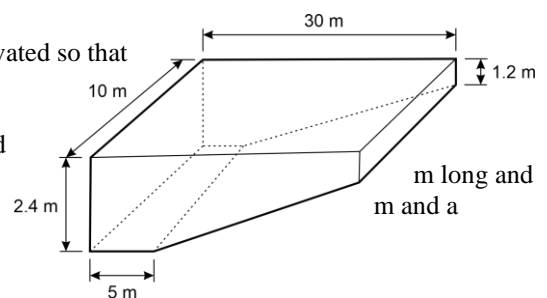
Related Life Skills outcomes: MALS-VOL-01

Content: Solve problems involving composite solids consisting of right prisms and cylinders

- Find the volumes of composite right prisms with uniform cross-sections that may be dissected into triangles and quadrilaterals

Example(s): Calculating the volume of earth that must be excavated so that the pool shell below fits exactly into the hole.

Image long description: A composite prism with a rectangle and trapezium as the face and a depth of 10 m. The rectangle is 2.4 5 m wide and the trapezium has parallel sides of 1.2 m and 2.4 perpendicular of 25 m.



- Find the volumes of right prisms that have uniform cross-sections in the form of sectors, semicircles and quadrants
- Calculate volumes of composite solids consisting of right prisms and cylinders
- Solve practical problems related to the volumes and capacities of composite solid