MATHS STANDARD YEAR 11 - MODULE 2 - LESSON 8

Surface Area of Pyramids, Cones, and Spheres

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

Find the slant height first. Always. Then apply the formula. Composite solids hide faces at the join — list what is exposed before calculating anything.

- SA formulas for square pyramids, cones ($\pi r\ell + \pi r^2$), and spheres ($4\pi r^2$)
- Why slant height $\ell \neq$ vertical height h — and why using h in the formula gives a wrong answer

2. Success Criteria

By the end, you should be able to:

- SA formulas for square pyramids, cones ($\pi r\ell + \pi r^2$), and spheres ($4\pi r^2$)
- How slant height relates to vertical height via Pythagoras
- How to handle composite solids with hidden faces

3. Key Terms

Key idea
The central concept from Surface Area of Pyramids, Cones, and Spheres.

Evidence
Information, observations or calculations used to support an answer.

Explain
Give a reasoned answer that links cause and effect.

Apply
Use a learned idea in a new example, problem or scenario.

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "SA formulas for square pyramids, cones ($\pi r\ell + \pi r^2$), and spheres ($4\pi r^2$)". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "How slant height relates to vertical height via Pythagoras". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Surface Area of Pyramids, Cones, and Spheres: "How to handle composite solids with hidden faces".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Surface Area of Pyramids, Cones, and Spheres but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Surface Area of Pyramids, Cones, and Spheres?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of Surface Area of Pyramids, Cones, and Spheres?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: SA formulas for square pyramids, cones ($\pi r\ell + \pi r^2$), and spheres ($4\pi r^2$)

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: How slant height relates to vertical height via Pythagoras

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: How to handle composite solids with hidden faces

BAND 5 4 MARKS

One thing I still need help with: