Merit Tutoring

WORKSHEET 37

PROPERTIES OF 3D OBJECTS

Year 5 Mathematics — Australian Curriculum v9.0

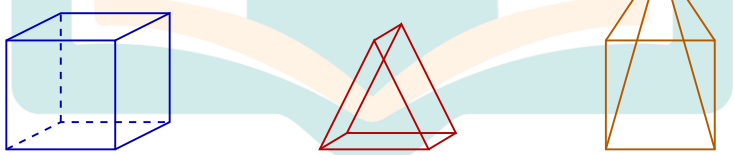
Strand: Space | **Sub-strand:** Shape | **Code:** AC9M5SP01

Name: _____ **Date:** _____

Key Concept: 3D objects have faces, edges, and vertices. Understanding these properties helps us identify and describe objects in our world.

Section 1 — Fluency: Identifying 3D Objects

Question 1: Name the 3D object shown below:



Object A **Object B** **Object C**

Object A: _____

Object B: _____

Object C: _____

Question 2: Circle all the 3D objects from the list below:

Cube Circle Sphere Triangle Cylinder Square

Question 3: Draw a simple sketch of a rectangular prism.

Question 4: Which 3D object has all square faces?

Answer: _____

Question 5: A cone has how many faces?

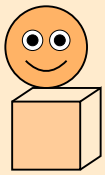
Answer: _____

Question 6: True or False: A cylinder has 2 edges.

Answer: _____

Question 7: Name a 3D object that has no vertices.

Answer: _____



3D Dimension Defender!

You've mastered identifying 3D objects!

Joke: Why was the 3D shape so lonely? Because it had too many faces but no one to talk to!

Section 2 — Reasoning: Faces, Edges & Vertices

Question 8: How many faces does a cube have?

Answer: _____

Question 9: How many edges does a cube have?

Answer: _____

Question 10: How many vertices does a cube have?

Answer: _____

Question 11: How many faces does a rectangular prism have?

Answer: _____

Question 12: How many vertices does a rectangular prism have?

Answer: _____

Question 13: Explain the difference between a prism and a pyramid.

Answer: _____

_____

Question 14: A triangular prism has _____ faces, _____ edges, and _____ vertices.

Question 15: Complete the table:

3D Object	Faces	Edges	Vertices
Square-based Pyramid			
Triangular-based Pyramid			

Question 16: A pentagonal prism has how many faces?

Answer: _____

Property Penguin!

You've conquered faces, edges, and vertices!

Joke: What do you call a shape that's always in a hurry? A rush-tangle!

Section 3 — Challenge: Real-World 3D Objects

Question 17: What 3D shape is a standard dice?

Answer: _____

Question 18: What 3D shape is a can of soup?

Answer: _____

Question 19: What 3D shape is an ice cream cone?

Answer: _____

Question 20: A shoebox is an example of which 3D object?

Answer: _____

Question 21: Name two real-world objects that are spheres.

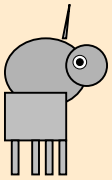
Answer: _____

Question 22: A tent is shaped like a triangular prism. If the tent has a square floor with side length 3m and triangular ends with height 2m, how many faces does the tent have in total?

Answer: _____

Question 23: The Egyptian pyramids are examples of which 3D shape? How many triangular faces does one pyramid have?

Shape: _____ Triangular faces: _____



Real-World Rhino!

You’re a champion at spotting 3D shapes everywhere!

Joke: Why did the sphere fail math class? Because it was always going around in circles!

Well Done! You’ve completed Worksheet 37!

WORKSHEET 37
ANSWER KEY

Section 1 — Fluency: Identifying 3D Objects

1. Object A: Cube; Object B: Triangular prism; Object C: Square-based pyramid (or square pyramid)
2. Cube, Sphere, Cylinder (Circle all 3D objects)
3. Student drawing should show a box-like shape with visible edges and vertices
4. Cube
5. 2 faces (1 circular base and 1 curved surface)
6. True
7. Sphere (or cylinder, or cone – objects with curved surfaces)

Section 2 — Reasoning: Faces, Edges & Vertices

8. 6 faces
9. 12 edges
10. 8 vertices
11. 6 faces
12. 8 vertices
13. A prism has two identical parallel bases connected by rectangular faces. A pyramid has one base and triangular faces that meet at a point (apex).
14. 5 faces, 9 edges, 6 vertices
15. Square-based Pyramid: 5 faces, 8 edges, 5 vertices; Triangular-based Pyramid: 4 faces, 6 edges, 4 vertices

16. 7 faces (2 pentagonal faces and 5 rectangular faces)

Section 3 — Challenge: Real-World 3D Objects

17. Cube
18. Cylinder
19. Cone
20. Rectangular prism (or cuboid)
21. Examples: basketball, soccer ball, tennis ball, Earth, orange, etc. (any two spherical objects)
22. 5 faces (2 triangular ends and 3 rectangular sides)
23. Shape: Square-based pyramid; Triangular faces: 4

WORKSHEET 38

CONNECTING OBJECTS TO NETS

Year 5 Mathematics — Australian Curriculum v9.0

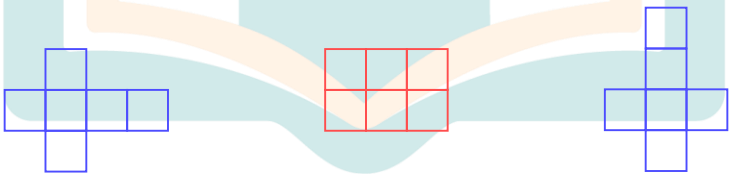
Strand: Space | **Sub-strand:** Shape | **Code:** AC9M5SP01

Name: _____ **Date:** _____

Key Concept: A net is a 2D pattern that can be folded to make a 3D object. Understanding nets helps us visualize how 3D objects are constructed.

Section 1 — Fluency: Identifying Nets

Question 1: Circle the net that would successfully fold into a cube:

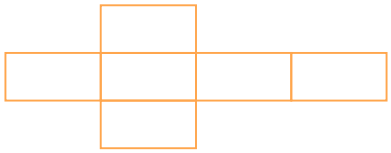


Net A Net B Net C

Question 2: How many squares are needed to make a complete net of a cube?

Answer: _____

Question 3: What 3D object would this net fold into?



Answer: _____

Question 4: True or False: Every 3D object has only one possible net.

Answer: _____

Question 5: A net of a square-based pyramid consists of how many triangles?

Answer: _____

Question 6: Draw a simple net for a triangular prism.

Question 7: What is the purpose of a net in mathematics?

Answer: _____

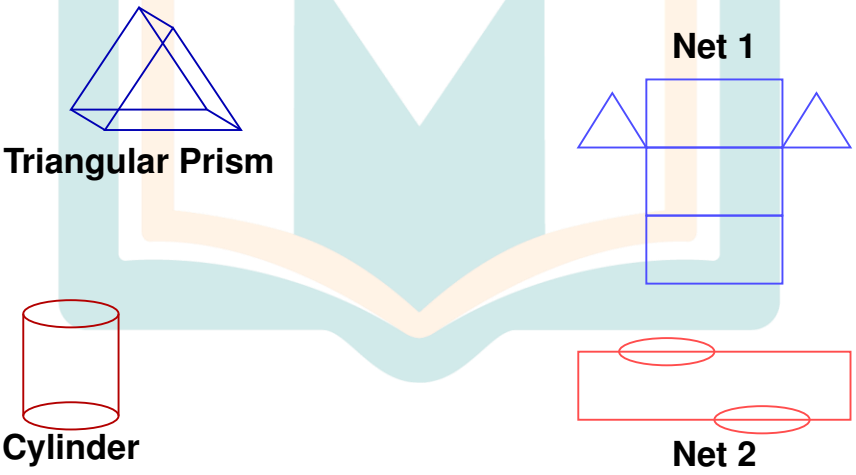
Net Navigator!

You're unfolding the secrets of 3D shapes!

Joke: What did the net say to the 3D shape? "Let's unfold this relationship!"

Section 2 — Reasoning: Matching Objects to Nets

Question 8: Match the 3D object to its correct net by drawing a line:



Question 9: A cube net is made up of 6 squares. If each square has a side length of 4 cm, what is the total area of the net?

Answer: _____

Question 10: Look at the net below. Name the 3D object it would create:

Answer: _____

Question 11: Which two 2D shapes make up the net of a cylinder?

Answer: _____

Question 12: A rectangular prism has dimensions 5cm × 3cm × 2cm. How many rectangles are in its net?

Answer: _____

Question 13: Explain why some shapes have multiple possible nets.

Answer: _____

_____

Question 14: How many different nets can be created for a cube?

Answer: _____

Folding Fox!

You're expertly matching objects to their nets!

Joke: Why did the net go to school? To get more well-rounded!

Section 3 — Challenge: Spatial Reasoning

Question 15: Fill in the blank: A square-based pyramid is made from one square and four _____.

Question 16: If you unfold a cylinder, what two 2D shapes would you see?

Answer: _____

Question 17: A triangular prism net contains _____ triangles and _____ rectangles.

Question 18: Design your own net for a rectangular prism with dimensions 6cm × 4cm × 3cm. Label all dimensions.

Question 19: True or False: A cone has a net that includes a circle and a triangle.

Answer: _____

Question 20: Explain why understanding nets is useful in real life.

Answer: _____

_____

Question 21: A cereal box is a rectangular prism. If you carefully unfold it, how many rectangular faces would you count in the net?

Answer: _____

Question 22: Challenge: Draw a net for a square-based pyramid with a base side length of 4cm and triangular face height of 5cm.

Question 23: Why can't a sphere have a net made from flat 2D shapes?

Answer: _____

_____

Spatial Star!

You’re a net master with brilliant spatial reasoning!

Joke: What’s a 3D shape’s favorite type of music? Wrap music—because they love being wrapped in nets!

Fantastic Work! You’ve completed Worksheet 38!

WORKSHEET 38
ANSWER KEY

Section 1 — Fluency: Identifying Nets

1. Net A and Net C are valid cube nets (students should circle both or either)
2. 6 squares
3. Rectangular prism (or cuboid)
4. False (many 3D objects have multiple possible nets)
5. 4 triangles
6. Student drawing should show 2 triangles and 3 rectangles arranged to fold into a triangular prism
7. A net shows the 2D pattern that folds to create a 3D object; it helps us understand the structure and surface area of 3D shapes

Section 2 — Reasoning: Matching Objects to Nets

8. Triangular Prism matches Net 1; Cylinder matches Net 2
9. $$\text{Total area} = 6 \times (4 \times 4) = 6 \times 16 = 96 \text{ cm}^2$$
10. Square-based pyramid (or square pyramid)
11. 1 rectangle and 2 circles
12. 6 rectangles
13. Different arrangements of the same faces can all fold into the same 3D object, creating multiple valid nets
14. 11 different nets (this is a well-known mathematical fact about cube nets)

Section 3 — Challenge: Spatial Reasoning

15. triangles
16. 1 rectangle and 2 circles (or 1 rectangular curved surface and 2 circular bases)
17. 2 triangles and 3 rectangles
18. Student drawing should show 6 rectangles with labeled dimensions: two 6×4 cm, two 6×3 cm, and two 4×3 cm rectangles
19. False (a cone's net includes a circle and a sector/curved shape, not a triangle)
20. Nets help us design packages, boxes, and containers; they're used in manufacturing, gift wrapping, construction, and understanding how 3D objects are made
21. 6 rectangular faces
22. Student drawing should show 1 square (4×4 cm) with 4 triangles attached to each side (base 4 cm, height 5 cm)
23. A sphere is a curved surface with no flat faces, so it cannot be represented by a net made of flat 2D shapes; you would need a flexible curved material to cover a sphere

Fantastic Achievement!

You've mastered 3D objects and their nets!
Keep exploring the wonderful world of shapes!