Year 4 Mathematics
Shapes & Data: Solid Objects (3D)

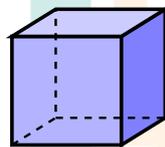Australian Curriculum v9.0 — AC9M4SP01

Worksheet 45: Naming & Properties
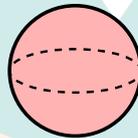
Name: _____   Date: _____

Section 1: Fluency – Naming 3D Objects

3D objects have three dimensions: length, width, and height. Let's identify common 3D shapes!
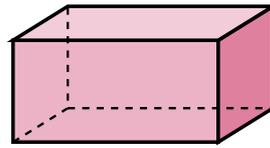
1. Name these 3D objects:

(a)   **(b)**   **(c)**   **(d)**

(a) _____   (b) _____

(c) _____   (d) _____

2. Which 3D object has no flat faces?
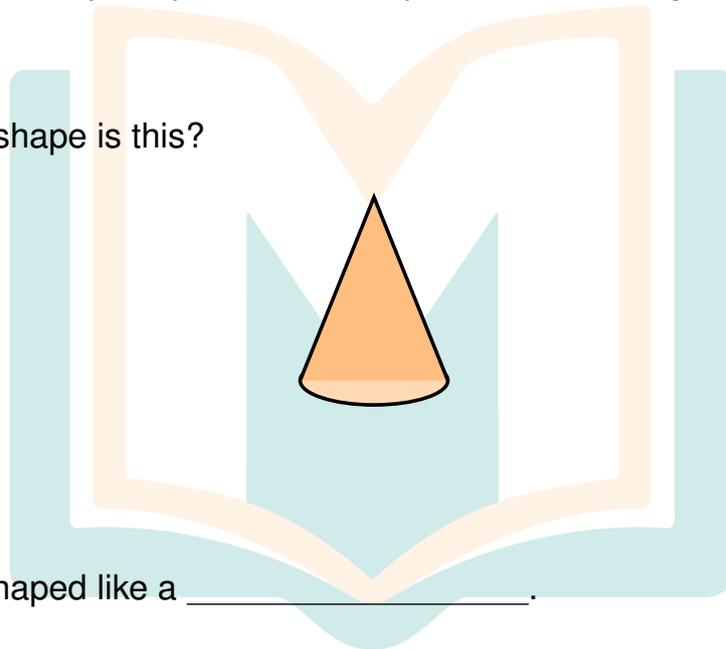
3. A can of soup is shaped like a _____.

4. Name the 3D object shown below:

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5. True or False: A cone has a circular base and one vertex.
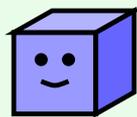
6. Name two 3D objects you can see in your classroom right now.

7. Which 3D shape is this?

8. A dice is shaped like a _____.

> **Reward Box: 3D Specialist!**
>
> **Fantastic work naming 3D objects!**
>
> *Year 4 Joke:* Why was the cube so popular?
> Because it had so many faces to make friends with!
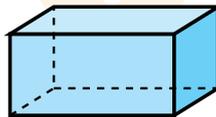
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Section 2: Reasoning – Counting Properties (AC9M4SP01)

3D objects have faces (flat surfaces), edges (where two faces meet), and vertices (corners where edges meet).

9. How many faces, edges, and vertices does a cube have?

Faces: _____   Edges: _____   Vertices: _____

10. How many faces, edges, and vertices does a rectangular prism have?
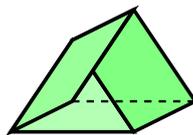

Faces: _____   Edges: _____   Vertices: _____

11. How many faces does a cylinder have?

12. How many edges does a sphere have?

13. A triangular prism has _____ faces, _____ edges, and _____ vertices.

14. How many vertices does a square-based pyramid have?

15. True or False: A cone has 1 face, 1 edge, and 1 vertex.

16. Which 3D object has 0 vertices?

Reward Box: Solid Gold Effort!

Brilliant work counting properties!

Year 4 Joke: Why did the pyramid go to the party?

Because it was the point of the celebration!

Section 3: Fluency – Prisms and Pyramids

Prisms have two identical ends and the same cross-section all along. Pyramids taper to a point (apex).

17. What is the main difference between a triangular prism and a triangular-based pyramid?
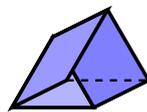
Triangular Prism   **Triangular Pyramid**

18. Is a cylinder a prism or a pyramid? Explain your answer.

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19. How many faces does a pentagonal prism have?

20. How many faces does a hexagonal pyramid have?
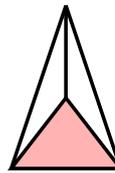
21. True or False: All pyramids have a square base.

22. Name a prism with a rectangular cross-section.

23. A triangular-based pyramid has how many edges?

24. Which has more vertices: a cube or a square-based pyramid?

Reward Box: Shape Detective!
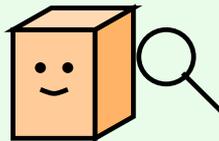
Outstanding work distinguishing prisms and pyramids!

Year 4 Joke: Why did the prism refuse to play hide and seek?

Because it always had two faces showing!

Excellent! You're becoming a 3D expert!

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Answer Key
Worksheet 45: Naming & Properties

Section 1: Fluency – Naming 3D Objects

1. (a) Cube   (b) Sphere   (c) Cylinder   (d) Square-based pyramid (or square pyramid)

2. Sphere

3. Cylinder

4. Rectangular prism (or cuboid)

5. True

6. Student's own answer (e.g., books = rectangular prisms; soccer ball = sphere; water bottle = cylinder, etc.)

7. Cone

8. Cube

Section 2: Reasoning – Counting Properties

9. Faces: 6   Edges: 12   Vertices: 8

10. Faces: 6   Edges: 12   Vertices: 8

11. 3 faces (2 circular faces and 1 curved face)

12. 0 edges (a sphere has no edges)

13. Faces: 5   Edges: 9   Vertices: 6

14. 5 vertices (4 at the base corners and 1 at the top/apex)

15. True

16. Sphere (or cylinder has 0 vertices as well)

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Section 3: Fluency – Prisms and Pyramids

17. A triangular prism has two triangular faces (ends) and three rectangular faces connecting them, while a triangular-based pyramid has one triangular base and three triangular faces that meet at a point (apex). Prisms have uniform cross-sections; pyramids taper to a point.

18. A cylinder is like a prism because it has two identical circular ends and a uniform cross-section throughout its length. (Accept: "A cylinder is a type of circular prism.")

19. 7 faces (2 pentagonal faces and 5 rectangular faces)

20. 7 faces (1 hexagonal base and 6 triangular faces)

21. False. Pyramids can have bases of different shapes (triangular, pentagonal, hexagonal, etc.)

22. Rectangular prism (or cube, which is a special rectangular prism)

23. 6 edges

24. A cube has 8 vertices and a square-based pyramid has 5 vertices, so the cube has more vertices.

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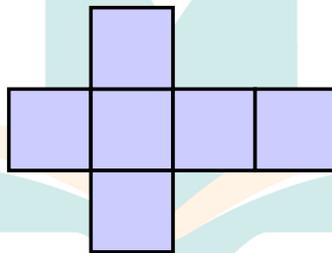
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Worksheet 46: Nets & Environmental Objects
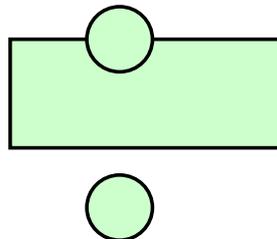
Name: _____ Date: _____

Section 1: Fluency – Identifying Nets

A net is a 2D shape that can be folded to make a 3D object. When we unfold a 3D shape, we see its net!
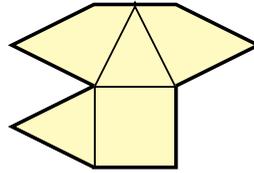
1. Which 3D object would this net make when folded?

2. Which 3D object would this net make when folded?

3. Draw a simple net for a triangular prism.

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4. Which 3D object has this net?

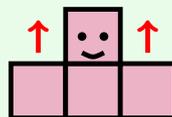**5.** True or False: Every 3D object has only one possible net.

6. How many faces would you see in the net of a rectangular prism?

7. Draw a net for a cube using 6 connected squares.

8. Which shape cannot be unfolded into a net: a sphere or a cube?

Reward Box: Net Navigator!

Superb work with nets!

Year 4 Joke: Why did the net go to school?

To learn how to fold itself into shape!

Section 2: Problem Solving – Objects in the World (AC9M4SP01)

Many everyday objects are 3D shapes. Let's identify them and their properties!

9. Think of a cereal box. What 3D shape is it? How many vertices does it have?

10. A tennis ball is shaped like a _____. How many faces does it have?

11. An ice cream cone (just the cone part) is shaped like a _____.

12. Look at a tissue box. Name the 3D shape and count its edges.

13. A camping tent shaped like a triangular prism has how many rectangular faces?

14. Name three objects in your home that are cylinders.

15. A chocolate bar is often shaped like a _____. How many faces does it have?

16. The Great Pyramid of Egypt is an example of which 3D shape?

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17. A battery is shaped like a _____.

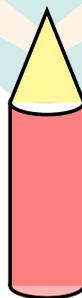**Reward Box: Real-World Expert!**

Amazing work identifying real-world 3D shapes!

Year 4 Joke: Why did the sphere go traveling?

Because it wanted to see the whole world!

Section 3: Challenge – Composite Objects (AC9M4SP01)

Composite 3D objects are made from two or more basic 3D shapes joined together!

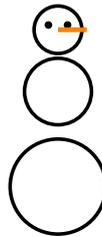**18.** Which two 3D solids were used to create this rocket?

19. Draw a composite object made from a cube and a square-based pyramid.

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20. A simple house can be made from which two 3D shapes?

21. Look at this snowman. Which 3D shape is used three times?

22. Create your own composite 3D object using at least two different shapes. Draw it and label the shapes.

23. A pencil is a composite object made from a _____ (the wood) and a _____ (the lead tip).

24. True or False: A composite 3D object can be made from more than two basic shapes.

Reward Box: Composite Champion!
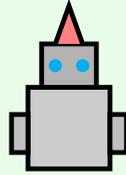
Fantastic work with composite objects!

Year 4 Joke: Why did the composite shape win the prize?

Because it was outstanding in its field—with multiple shapes!

Congratulations! You're a 3D Shapes Master!

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Answer Key
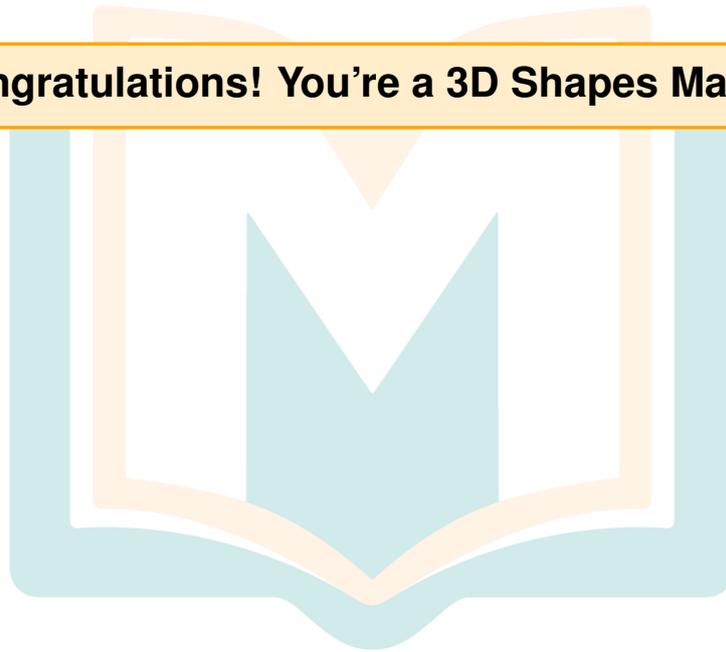## Worksheet 46: Nets & Environmental Objects

Section 1: Fluency – Identifying Nets

1. Cube

2. Cylinder

3. Student's own drawing. Should show 2 triangular faces and 3 rectangular faces connected in a way that can be folded into a triangular prism.

4. Square-based pyramid (or square pyramid)

5. False. Most 3D objects can have multiple different nets. For example, a cube has 11 different possible nets.

6. 6 faces (the net would show all 6 rectangular faces laid flat)

7. Student's own drawing. Should show 6 squares connected in a cross pattern or another valid cube net arrangement.

8. Sphere (a sphere has a curved surface that cannot be unfolded into a flat net)

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Section 2: Problem Solving – Objects in the World

9. Rectangular prism (or cuboid); it has 8 vertices

10. Sphere; 0 faces (or 1 curved face—accept either answer with explanation)

11. Cone

12. Rectangular prism; 12 edges

13. 3 rectangular faces

14. Student's own answer (e.g., cans of food, paper towel rolls, candles, batteries, drink bottles, toilet paper rolls, etc.)

15. Rectangular prism; 6 faces

16. Square-based pyramid

17. Cylinder

Section 3: Challenge – Composite Objects

18. Cylinder (body) and cone (top/nose)

19. Student's own drawing. Should clearly show a cube as the base with a square-based pyramid on top (like a house).

20. Rectangular prism (or cube) for the base and triangular prism (or triangular-based pyramid) for the roof

21. Sphere (used three times for the three balls of the snowman)

22. Student's own composite object with labels (check for creativity and correct identification of at least 2 different 3D shapes)

23. Cylinder (the wood) and cone (the lead tip). Accept: hexagonal prism for the wood part if students recognize the typical pencil shape.

24. True. Composite objects can be made from any number of basic shapes (e.g., a castle might use cubes, prisms, pyramids, and cones).

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Teacher Notes

AC9M4SP01: Students represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects.

These worksheets provide comprehensive practice in:

- Naming common 3D objects (cubes, spheres, cylinders, prisms, pyramids, cones)

- Counting and understanding properties of 3D objects (faces, edges, vertices)

- Distinguishing between prisms (uniform cross-sections) and pyramids (tapering to a point)

- Visualizing and identifying nets as 2D representations of 3D objects

- Recognizing 3D shapes in the environment

- Analyzing composite 3D objects made from multiple basic shapes

Extension Activities:

- Have students bring in examples of 3D objects from home and classify them

- Use construction paper to create nets and fold them into 3D objects

- Build composite structures using blocks or modeling clay

- Photograph 3D shapes around the school and create a shape gallery

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