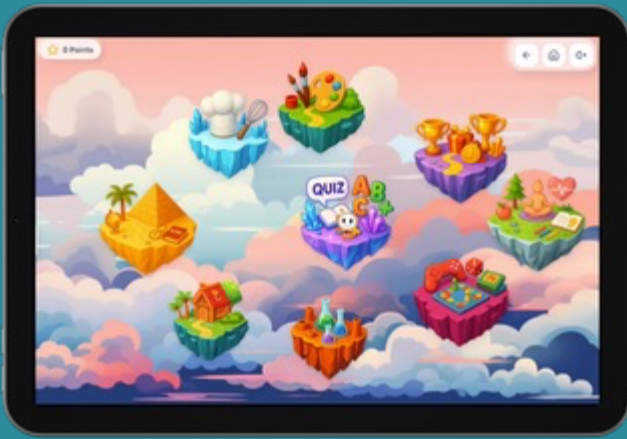




Sukindi

— LEARNING —

Homework without the hassle

Sukindi is an Australian learning platform that supports Teachers, Parents and Students with an interactive homework app and downloadable resources.



Scan to start your
free 7-day trial

www.sukindi.com.au



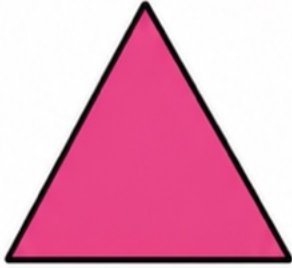
Properties of 2D and 3D Shapes- Year 4

Table of Contents
Presentation: Properties of 2D and 3D Shapes- Year 4
Classroom Display: 2D and 3D Shape Properties Snapshot
Activity: 2D Shape Property Puzzle Cards
Activity: 3D Object Property Puzzle Cards
Game: Shape Safari Board
Game: Shape Safari Clue Cards
Activity: I Have, Who Has? 2D Shapes and 3D Objects
Worksheet: Feature Match - 2D Shapes
Worksheet: Plenty of Polygons
Worksheet: 3D Object Properties Table
Worksheet: Prisms or Pyramids?
Worksheet: Shape Hunt Around Us
Worksheet: Shape Sorting Clues
Quiz: Properties of 2D and 3D Shapes- Year 4
Assessment: Shape Property Investigation
Rubric: Properties of 2D and 3D Shapes- Year 4 Rubric



2D and 3D Shape Properties

2D Shapes



- flat
- length and width
- sides
- vertices
- angles
- lines of symmetry



- flat
- length and width
- sides
- vertices
- angles
- lines of symmetry

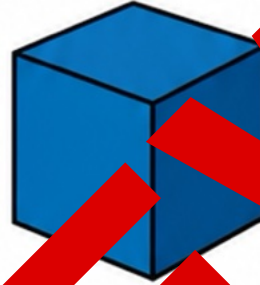


- flat
- length and width
- sides
- vertices
- angles
- lines of symmetry



- flat
- length and width
- sides
- vertices
- angles
- lines of symmetry

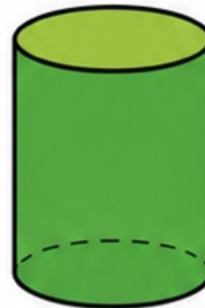
3D Objects



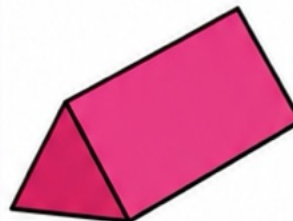
- solid
- length, width and height
- faces
- edges
- vertices
- prisms
- pyramids



- solid
- length, width and height
- faces
- edges
- vertices
- prisms
- pyramids



- solid
- length, width and height
- faces
- edges
- vertices
- prisms
- pyramids

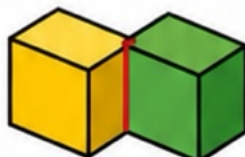


- solid
- length, width and height
- faces
- edges
- vertices
- prisms
- pyramids

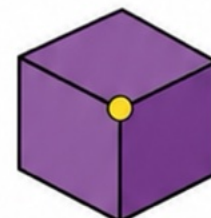
Key Words



A face is a flat surface.



An edge is where faces meet.



A vertex is a corner point.

2D shapes Property Puzzle Cards

square



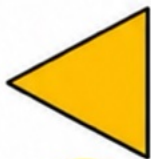
4 equal sides and 4 right angles

rectangle



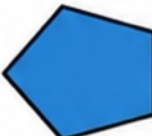
opposite sides equal and 4 right angles

triangle



3 sides and 3 vertices

pentagon



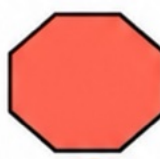
5 sides and 5 vertices

hexagon



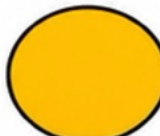
6 sides and 6 vertices

octagon



8 sides and 8 vertices

circle



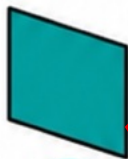
1 curved edge and no vertices

rhombus



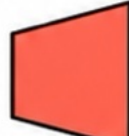
4 equal sides

parallelogram



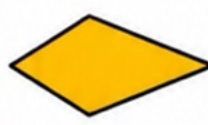
2 pairs of parallel sides

trapezium



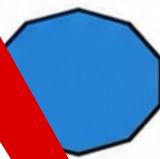
1 pair of parallel sides

kite



2 pairs of adjacent equal sides

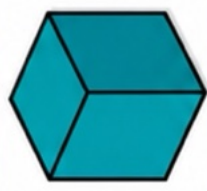
decagon



10 sides and 10 vertices

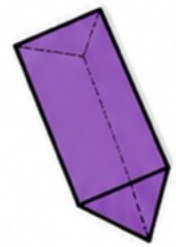
3D Objects Property Puzzle Cards

cube



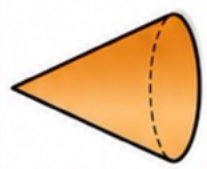
6 square faces,
12 edges,
8 vertices

triangular prism



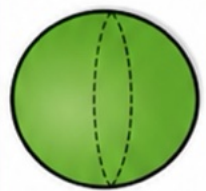
5 faces,
9 edges,
6 vertices

cone



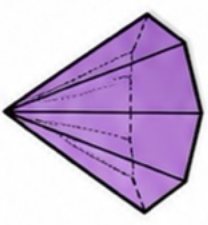
1 flat face,
1 curved surface,
1 vertex

sphere



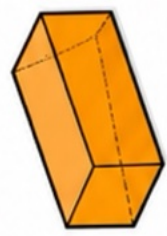
1 curved surface,
no edges or
vertices

octagonal pyramid



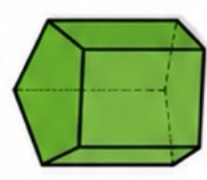
9 faces,
16 edges,
9 vertices

rectangular prism



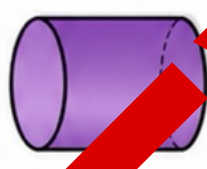
6 rectangular faces,
12 edges,
8 vertices

pentagonal prism



7 faces,
15 edges,
10 vertices

cylinder



2 flat faces and
1 curved surface

square pyramid



5 faces,
8 edges,
5 vertices

dodecahedron



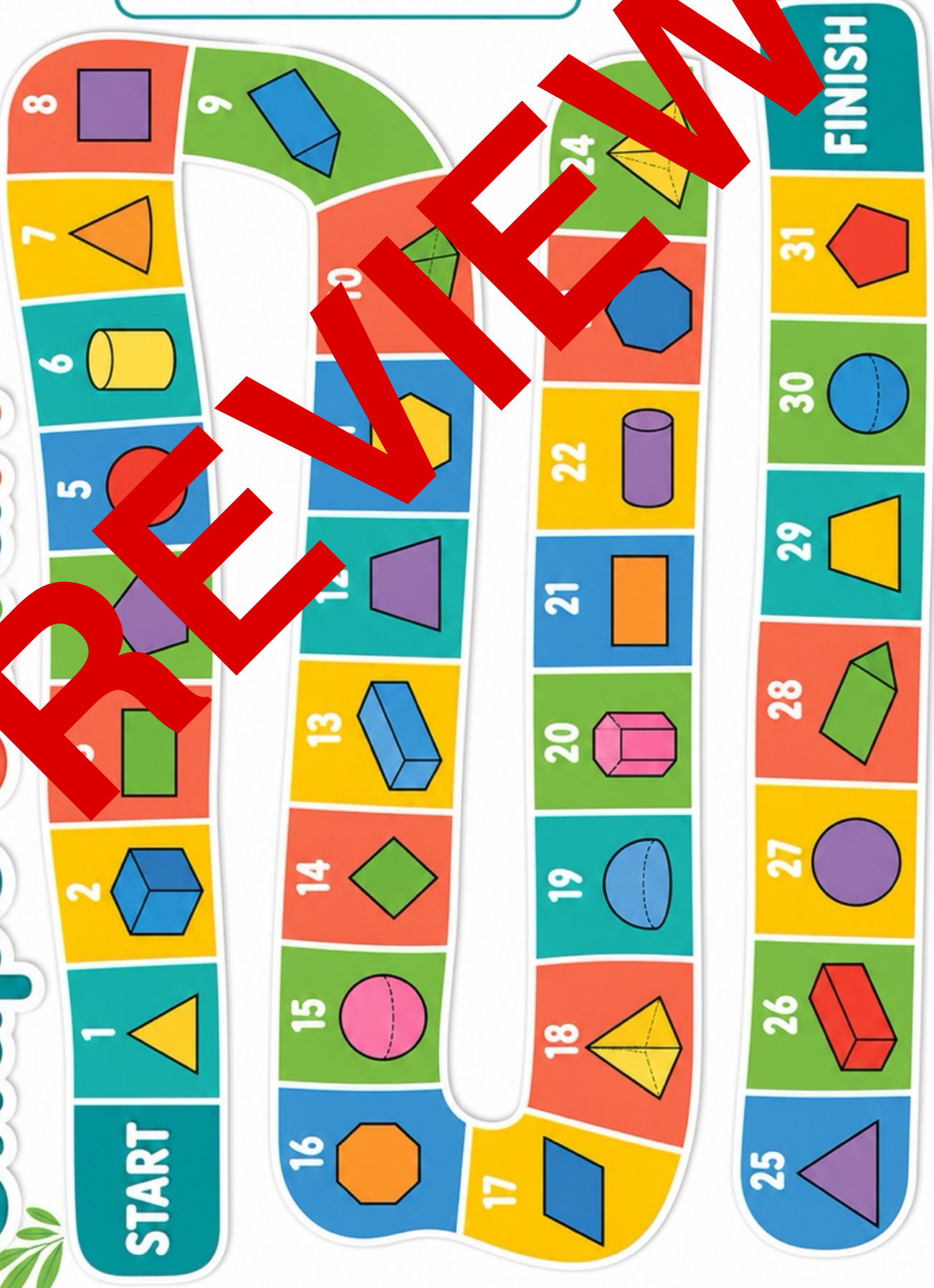
12 pentagonal faces,
30 edges,
20 vertices

Shape Safari

Rules

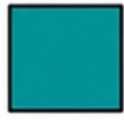
1. Roll a die.
2. Move along the path.
3. Draw a clue card.
4. Name the shape or object.
5. If you are correct, stay there.
If not, move back 1 space.

Bonus: explain one property.

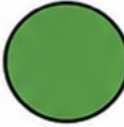


Share Safari Clue Cards

I have 4
equal sides.



I have
1 curved edge.



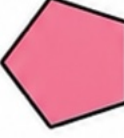
I have
3 vertices.



I have
6 square faces.



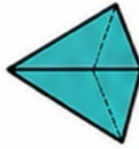
I have
5 sides.



I have
no vertices.



I have
triangular faces.



I have
2 parallel bases.



I am
a prism.



I am
a pyramid.



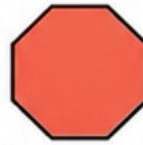
I have
12 edges.



I have
3 sides.



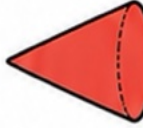
I have
10 vertices.



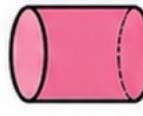
I have
opposite
sides equal.



I have
1 vertex.



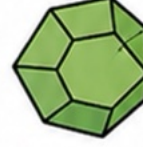
I have
2 flat faces.



I have
pentagonal
faces.



I have
9 faces.



I have
4 right angles.



I have
6 vertices.



I have
1 pair of
parallel sides.



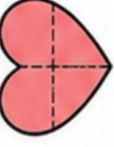
I have
a curved
surface.



I have
30 edges.



I have
lines of
symmetry.



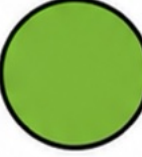
I Have Who Has? Shapes!

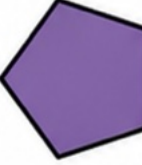
I have ...
I have a square.

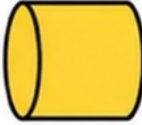
Who has ... ?
Who has 6 square faces?

I have ...
I have a cube.

Who has ... ?
Who has 1 curved surface?

I have ...
I have a circle.

Who has ... ?
Who has 5 sides?

I have ...
I have a pentagon.

Who has ... ?
Who has 2 flat circular faces?

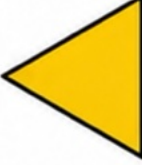
I have ...
I have a cylinder.

Who has ... ?
Who has 4 equal sides?

I have ...
I have a rhombus.

Who has ... ?
Who has 12 pentagonal faces?

I have ...
I have a dodecahedron.

Who has ... ?
Who has 12 sides?

I have ...
I have a triangle.

Who has ... ?
Who has 1 vertex?

I have ...
I have a cone.

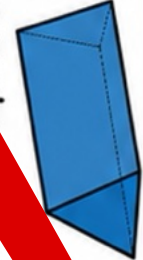
Who has ... ?
Who has opposite sides equal?

I have ...
I have a rectangle.

Who has ... ?
Who has a curved surface and no vertices?

I have ...
I have a sphere.

Who has ... ?
Who has 2 parallel bases?

I have ...
I have a triangular prism.

Who has ... ?
Who has 4 equal sides and 4 right angles?

Feature Match: 2D Shapes

Name: _____

Draw or paste each shape beside the matching features.

Shape	Sides	Vertices
	3	3
	4	4
	5	5
	6	6
	8	8
	10	10
	1 curved edge	0
	1 curved edge	0

Challenge: Choose one shape. Write two extra facts about it.

Shape: _____

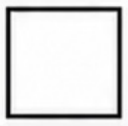
Facts: 1. _____

2. _____

Feature Match: 2D Shapes

Name: ANSWERS

Draw or paste each shape beside the matching features.

Shape	Sides	Vertices
 triangle	3	3
 square	4	4
 pentagon	5	5
 hexagon	6	6
 octagon	8	8
 decagon	10	10
 circle	1 curved edge	0
 oval	1 curved edge	0

Challenge: Choose one shape. Write two extra facts about it.

Shape: square

Facts: 1. It has 4 equal sides.

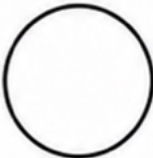
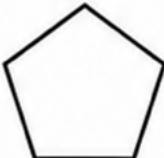
2. It has 4 right angles.

Plenty of Polygons

Name: _____

A polygon is a closed 2D shape made from straight sides.

1. Tick the shapes that are polygons.

 ☐	 ☐	 ☐	 ☐	 ☐	 ☐
---	---	---	---	---	---

2. Complete the table.

Shape	Sides	Regular or irregular?

Draw each polygon.

Draw a 4-sided polygon	Draw a 6-sided polygon	Draw an irregular polygon
------------------------	------------------------	---------------------------

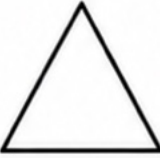
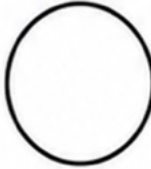
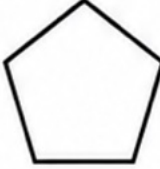
Explain: How do you know a shape is a polygon?

Plenty of Polygons

Name: **ANSWERS**

A polygon is a closed 2D shape made from straight sides.

1. Tick the shapes that are polygons.

 ☒	 ☐	 ☒	 ☐	 ☒	 ☒
--	---	--	---	--	--

2. Complete the table.

Shape	Sides	Regular or irregular?
triangle		regular or irregular
pentagon	5	regular
hexagon	6	regular
quadrilateral	4	irregular

3. Draw each polygon.

Draw a 4-sided polygon 	Draw a 6-sided polygon 	Draw an irregular polygon 
---	---	--

Explain: How do you know a shape is a polygon?

It is closed and has only straight sides.

3D Object Properties Table

Name: _____



A face is a flat surface.

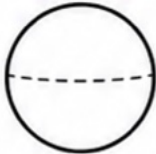


An edge is where faces meet.



A vertex is a corner point.

Complete the table.

Object	Faces	Edges	Vertices	Common world example
cube 				
rectangular prism 				
triangular prism 				
cylinder 				
cone 				
sphere 				

Challenge: Which object has no vertices? Explain why.

3D Object Properties Table

Name: ANSWERS



A face is a flat surface.

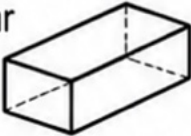
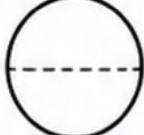


An edge is where faces meet.



A vertex is a corner point.

Complete the table.

Object	Faces	Edges	Vertices	One real world example
cube 	6	12	8	dice
rectangular prism 	6	12	8	cereal box
triangular prism 	5	9	6	tent
cylinder 	3	2	0	can
cone 	2	1	1	traffic cone
sphere 	1 curved surface	0	0	ball

Challenge: Which object has no vertices? Explain why.

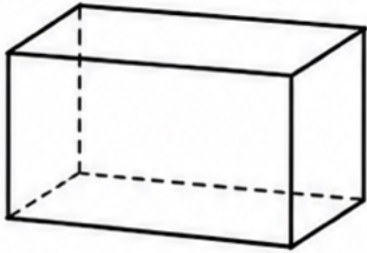
The sphere has no vertices because it has no corners.

Prisms or Pyramids?

Name: _____

Prisms

A prism has two matching, parallel faces.



Pyramids

A pyramid has one base and triangular faces that meet at a point.



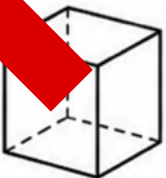
Cut, sort and glue each object into the correct column.

Prisms

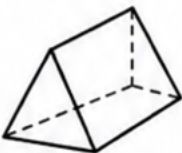
Pyramids



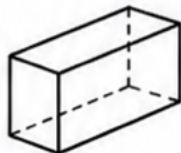
cube



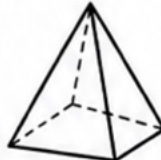
triangular prism



rectangular prism



square pyramid



triangular pyramid



pentagonal pyramid



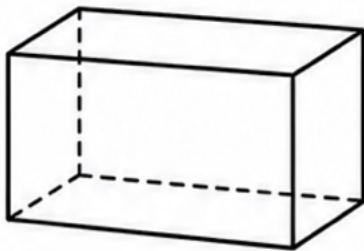
Explain one difference between a prism and a pyramid.

Prisms or Pyramids?

Name: ANSWERS

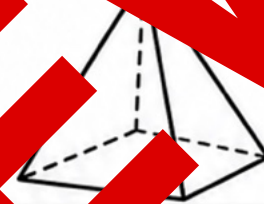
Prisms

A prism has two matching, parallel faces.



Pyramids

A pyramid has one base and triangular faces that meet at a point.



Cut, sort and glue each object into the correct column.

Prisms

Pyramids

cube

triangular prism

rectangular prism

square pyramid

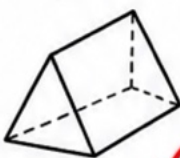
triangular pyramid

pentagonal pyramid

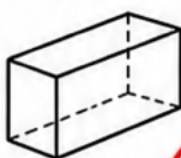
cube



triangular prism



rectangular prism



square pyramid



triangular pyramid



pentagonal pyramid



Explain one difference between a prism and a pyramid.

A prism has two matching parallel faces; a pyramid has
one base and triangular faces meeting at a point.

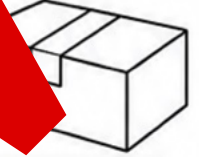


Shape Hunt Around Us

Name: _____



Look around your classroom, home or school.
Find examples of 2D shapes and 3D objects.



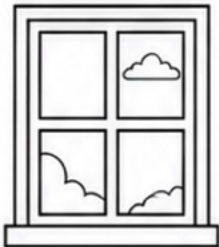
Shape or object	Where did you find it?	Describe it	List its properties

Use words such as sides, vertices, faces, edges, curved surface and symmetry.



Reflection: Which object was hardest to describe? Why?



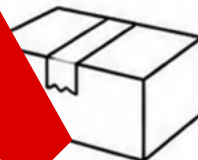


Shape Hunt Around Us

Name: ANSWERS



Look around your classroom, home or school.
Find examples of 2D shapes and 3D objects.



Shape or object	Where did you find it?	Draw it	Properties Use words such as sides, vertices, faces, edges, curved surface and symmetry.
door	classroom		4 sides, 4 vertices, right angles
clock	wall		1 curved edge, no vertices
dice	mat / tub		6 square faces, 12 edges, 8 vertices
tissue box	shelf		6 faces, 12 edges, 8 vertices
ball	sports bag		curved surface, no edges or vertices
party hat	display		circular base, curved surface, 1 vertex

Use words such as sides, vertices, faces, edges, curved surface and symmetry.



Reflection: Which object was hardest to describe? Why?

Answers will vary; use shape properties.





Shape Sorting Clues



Name: _____

Read each clue. Write the shape or object that matches.

- ① I have 4 equal sides
and 4 right angles.

- ② I have 6
square faces.

- ③ I have 1 curved edge
and no vertices.

- ④ I have 5 sides
and 5 vertices.

- ⑤ I have 2 flat circular
faces and 1 curved
surface.

- ⑥ I have one base and
triangular faces that
meet at a point.

- ⑦ I have two matching
parallel faces.

- ⑧ I have 12
pentagonal faces.

- ⑨ I have 8 sides
and 8 vertices.

- ⑩ I have a curved surface
and no edges
or vertices.

Extension: Write your own clue for a shape or object.



Shape Sorting Clues



Name: ANSWERS

Read each clue. Write the shape or object that matches.

- ① I have 4 equal sides
and 4 right angles.

square

- ② I have 6
square faces.

cube

- ③ I have 1 curved edge
and no vertices.

circle

- ④ I have 5 sides
and 5 vertices.

pentagon

- ⑤ I have 2 flat circular
faces and 1 curved
surface.

cylinder

- ⑥ I have one base and
triangular faces that
meet at a point.

pyramid

- ⑦ I have two matching
parallel faces.

prism

- ⑧ I have 12
pentagonal faces.

dodecahedron

- ⑨ I have 8 sides
and 8 vertices.

octagon

- ⑩ I have a curved surface
and no edges
or vertices.

sphere

Extension: Write your own clue for a shape or object.

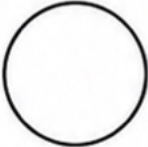
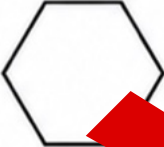
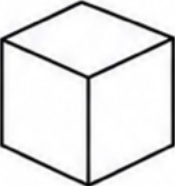
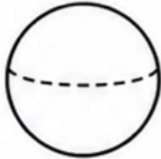
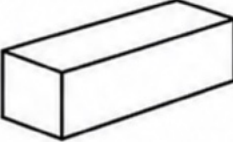
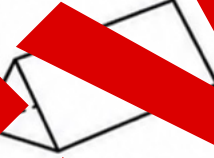
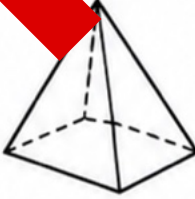
I have 6 sides and 6 vertices - hexagon.

Shape Property Investigation

Name: _____

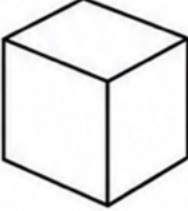
Section A: Identify

Write 2D or 3D beside each shape or object.

1.  _____	2.  _____	3.  _____	4.  _____
5.  _____	6.  _____	7.  _____	8.  _____
9.  _____	10.  _____	11.  _____	12.  _____

Section B: Compare

Compare a square and a cube.

	How are they alike? _____ _____ _____	How are they different? _____ _____ _____	
---	--	--	---

Section C: Count properties

Choose two 3D objects from Section A. Complete the table.

Object	Faces	Edges	Vertices

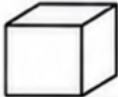
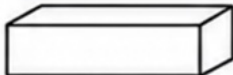
Shape Property Investigation

Page 2

Name: _____

Section D: Prisms and pyramids

Tick the correct group for each object.

Object	Prism	Pyramid
1. 	☐	☐
2. 	☐	☐
3. 	☐	☐
4. 	☐	☐
5. 	☐	☐
6. 	☐	☐

Section E: 2D faces

Name the 2D shapes you can see on the faces.

1. cube  _____ _____ _____	2. triangular prism  _____ _____ _____	3. cylinder  _____ _____ _____
---	---	---

Section F: Design task

Design a package for a small gift.

Draw your package. 	Which 3D object did you choose?	
	List at least three properties.	1. _____ 2. _____ 3. _____
	Explain why this shape is useful.	_____ _____ _____

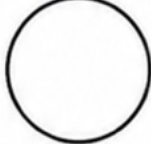
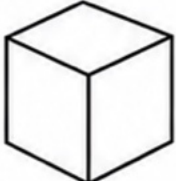
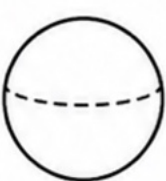
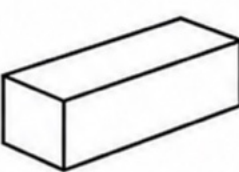
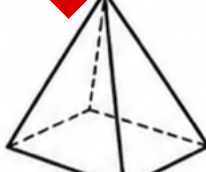
Shape Property Investigation

Page 1

Name: ANSWERS

Section A: Identify

Write 2D or 3D beside each shape or object.

1. 
2D
2. 
2D
3. 
2D
4. 
2D
5. 
3D
6. 
3D
7. 
3D
8. 
3D
9. 
3D
10. 
3D
11. 
3D
12. 
3D

Section B: Compare

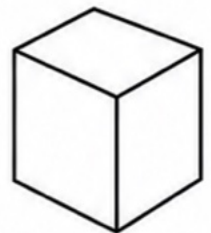
Compare a square and a cube.

How are they alike?

Both have square
faces/shape and
4-sided features.

How are they different?

A square is flat;
a cube is solid
with 6 faces.



Section C: Count properties

Choose two 3D objects from Section A. Complete the table.

Object	Faces	Edges	Vertices
<u>cube</u>	<u>6</u>	<u>12</u>	<u>8</u>
<u>triangular prism</u>	<u>5</u>	<u>9</u>	<u>6</u>

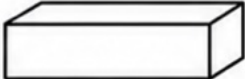
Shape Property Investigation

Page 2

Name: ANSWERS

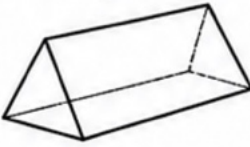
Section D: Prisms and pyramids

Tick the correct group for each object.

Object	Prism	Pyramid
1. 	☒	☐
2. 	☒	☐
3. 	☒	☐
4. 	☐	☒
5. 	☐	☒
6. 	☐	☒

Section E: 2D faces

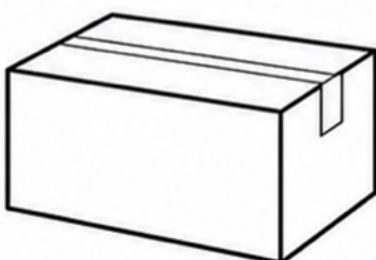
Name the 2D shapes you see on the objects.

1.  squares	2. triangular prism  triangles and rectangles	3. cylinder  circles and curved surface
---	--	--

Section F: Design task

Design a package for a small gift.

Draw your package.



Which 3D object did you choose?

rectangular prism

List at least three properties.

1. 6 faces

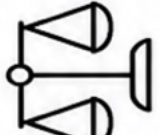
2. 12 edges

3. 8 vertices

Explain why this shape is useful.

It stacks easily and has flat faces for labels.

Properties of 2D and 3D Shapes- Year 4 Rubric

Criteria	BEGINNING	ACHIEVING	CONFIDENT	EXCEEDING
 Identifies 2D and 3D forms	Needs support	Names common forms	Names forms accurately	Uses precise names
 Describes properties	Few properties	Some properties	Accurate property counts	Flexible property language
 Compares and classifies	Sorts with help	Sorts simple examples	Classifies comparing features	Justifies classifications
 Explains reasoning	Limited explanation	Basic explanation	Explains with examples	Clear, detailed reasoning

What Is Geometry?

Geometry helps us describe shapes, objects and spaces.
In this unit we compare 2D shapes and 3D objects using their properties.



2D Shapes Are Flat

A 2D shape has length and width.

It can have sides, vertices, angles and lines of symmetry.

Examples include triangles, quadrilaterals, polygons and circles.



Describing 2D Shapes

Useful words include side, vertex, angle, parallel, regular and symmetry.

A hexagon has 6 sides and 6 vertices.

A circle has one curved edge and no vertices.



3D Objects Are Solid

A 3D object has length, width and height.

We describe 3D objects using faces, edges, vertices and curved surfaces.



Faces, Edges and Vertices

A face is a surface.

An edge is where faces meet.

A vertex is a corner point.

These features help us identify and compare objects.



Common 3D Objects

A cube has 6 square faces, 12 edges and 8 vertices.

A cylinder has 2 flat circular faces and a curved surface.

A sphere has a curved surface and no vertices.



2D Faces on 3D Objects

The faces of many 3D objects are 2D shapes.

A cube has square faces.

A triangular prism has triangular and rectangular faces.



Prisms

A prism has two matching, parallel faces.

The other faces are rectangles or parallelograms.

Examples include cubes, rectangular prisms and triangular prisms.



Pyramids

A pyramid has one base.

Its triangular faces meet at a point.

The base shape names the pyramid, such as square pyramid or pentagonal pyramid.



Platonic Solids

Platonic solids have matching regular polygon faces.

A cube, tetrahedron, octahedron, dodecahedron and icosahedron are examples.



Compare and Classify

To classify a shape or object, look for properties.

Ask: Is it flat or solid? Does it have straight sides? How many faces, edges or vertices does it have?



Shapes Around Us

Geometry appears in classroom buildings, games, packaging and art.

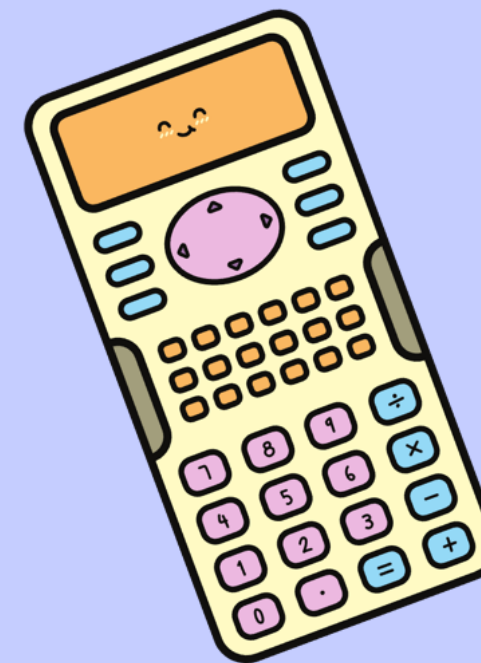
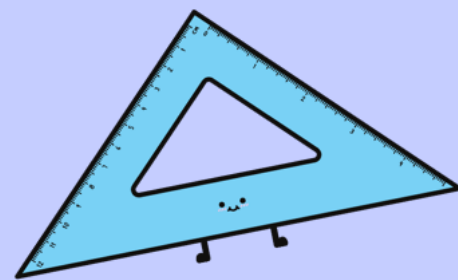
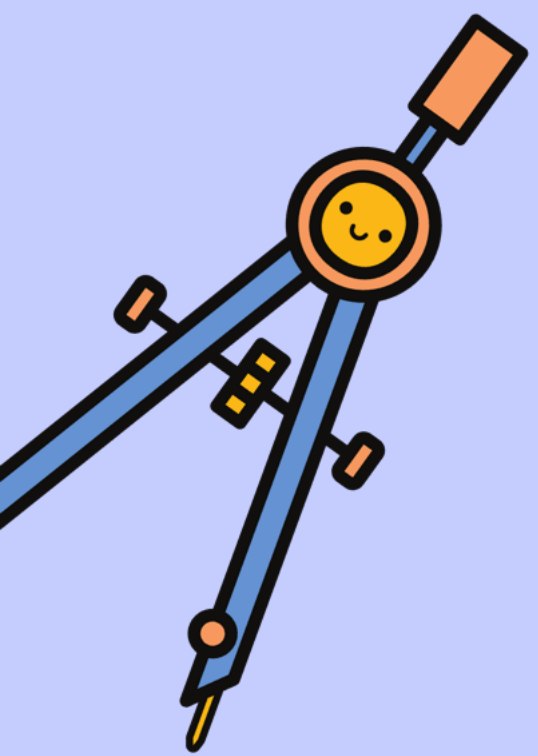
Real-world examples help us explain why certain shapes and objects are useful.



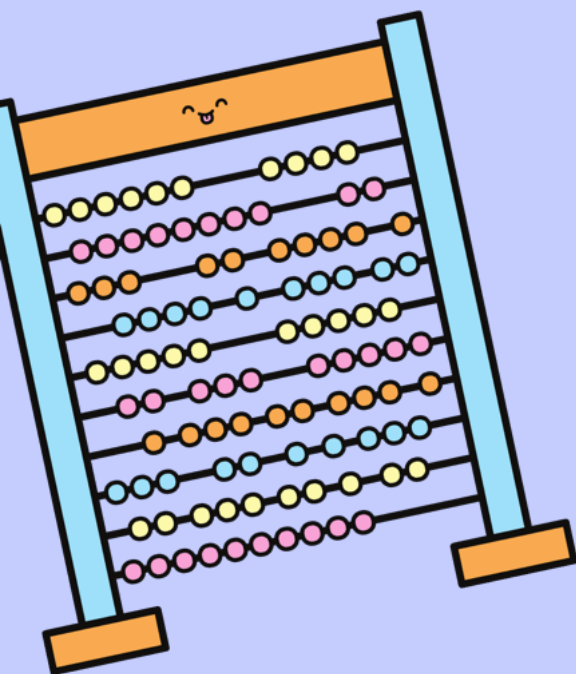
This Week

We will sort and describe shapes, match property cards, play Shape Safari, complete worksheets, and show our understanding in a shape property investigation.

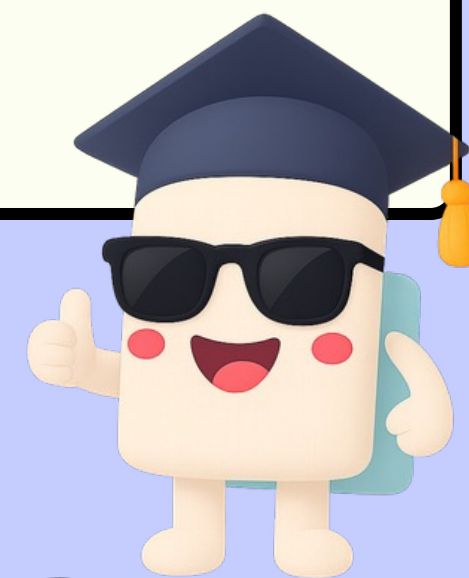
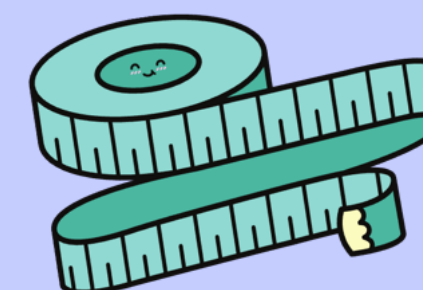
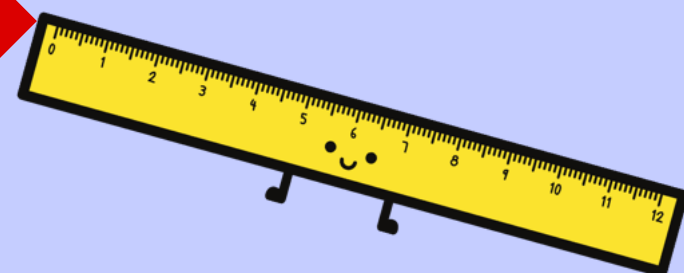




Well Done!



PREVIEW



Question 1

Which option is a two-dimensional shape?

- A. Cube
- B. Square
- C. Cone
- D. Sphere



Answer 1

P Square



Question 2

True or false?

A 3D object has length, width and height.



Answer 2

True.



Question 3

How many vertices does a pentagon have?



Answer 3

A pentagon has 5 vertices.



Question 4

Which 3D object has 7 square faces?

A. Cube

B. Cylinder

C. Cone

D. Triangular prism



Answer 4

A. Cube



Question 5

True or false?

A circle has straight sides.



Answer 5

False. A circle has a curved edge.



Question 6

Name the 2D face shape on each face of a cube.



Answer 6

squares.



Question 7

Which object has 2 flat circular faces and 1 curved surface?

A. Sphere

B. Cylinder

C. Pyramid

D. Prism



Answer 1

B. Cylinder



Question 8

What is the difference between an edge and a vertex?



Answer 8

An edge is where faces meet. A vertex is a corner point.



Question 9

True or false?

A pyramid has one base and triangular faces that meet at a point.



Answer 9

True.



Question 10

Which object is a prism?

A. Square pyramid

B. Cone

C. Triangular prism

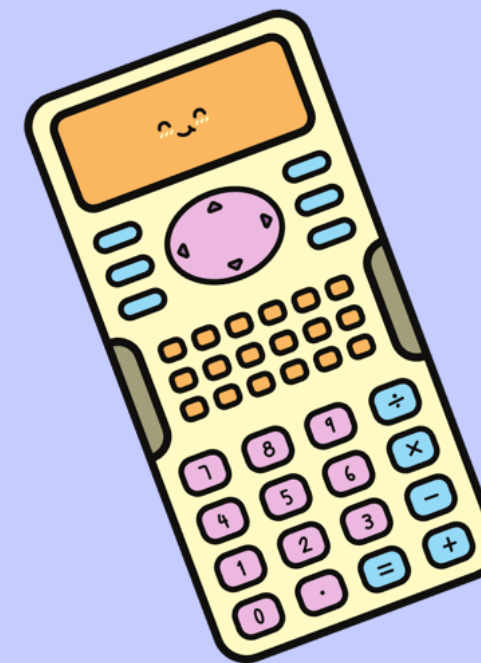
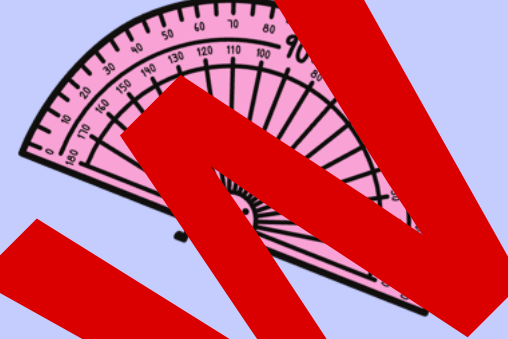
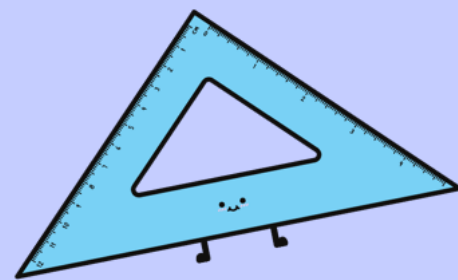
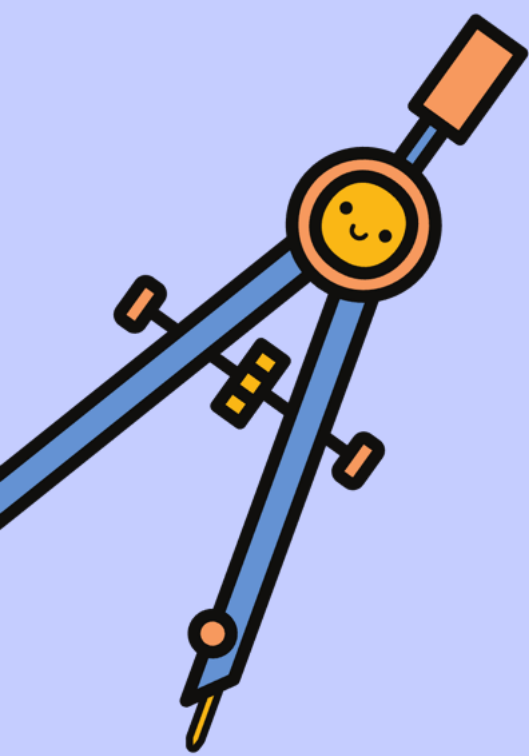
D. Sphere



Answer 10

of triangular prism





PREVIEW

Great Work!

