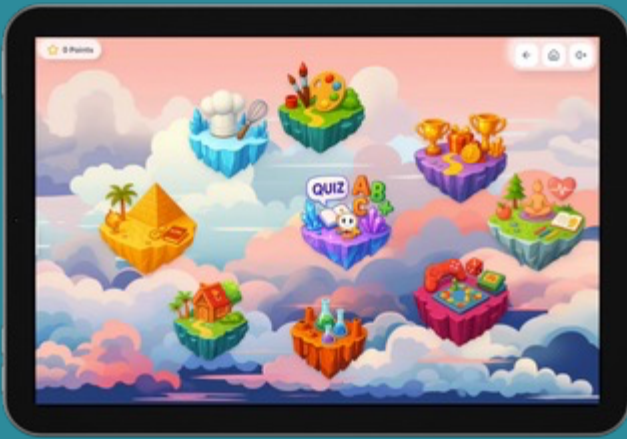


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Prisms and Pyramids - Year 6

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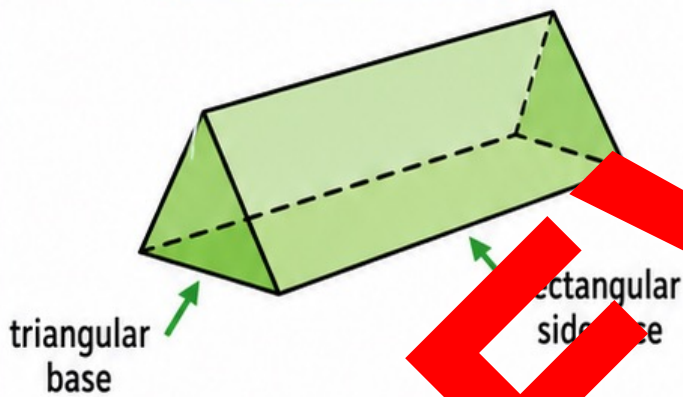


Prisms and Pyramids

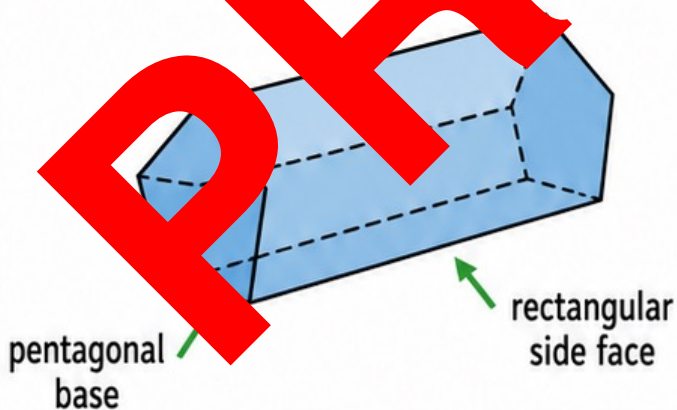
Prism

- two matching polygon bases
- rectangular side faces
- named by the base

Triangular Prism



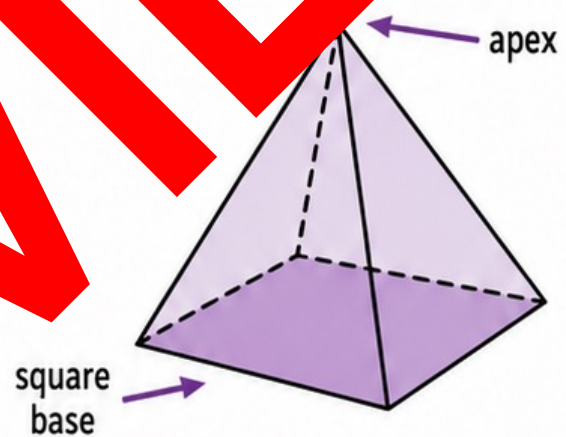
Pentagonal Prism



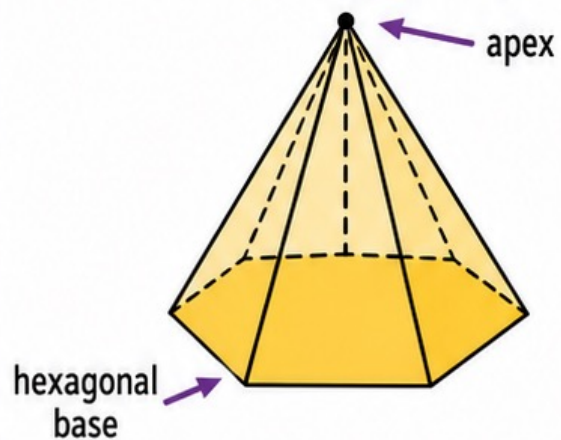
Pyramid

- one polygon base
- triangular side faces
- apex above the base

Square Pyramid



Hexagonal Pyramid



Look for **faces**, **edges**,
vertices and **nets**.

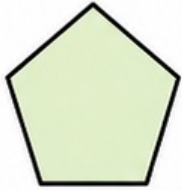


Prism or Pyramid?

Use these steps to identify and name 3D objects.

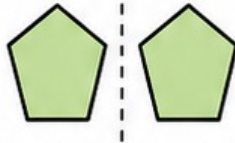
1

Find the base shape.



2

Count matching bases.



3

Check the side faces.



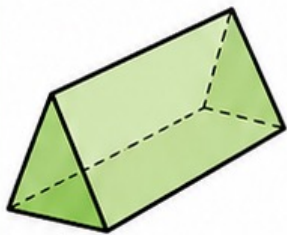
4

Name the object.



Examples

Triangular Prism

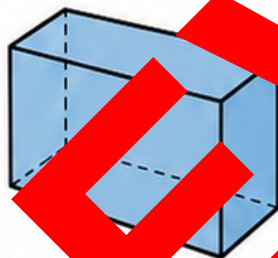


Two triangular bases.

Rectangular side faces.

Named by the base: triangular prism

Rectangular Prism

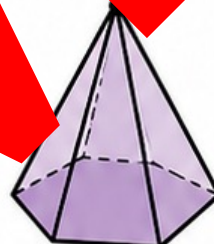


Two rectangular bases.

Rectangular side faces.

Named by the base: rectangular prism

Pentagonal Pyramid

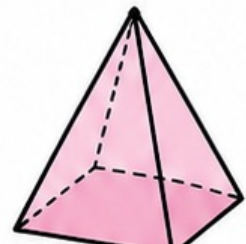


One pentagonal base.

Triangular side faces.

Named by the base: pentagonal pyramid

Square Pyramid



One square base.

Triangular side faces.

Named by the base: square pyramid

Key vocabulary

face



A flat surface on a 3D object.

edge



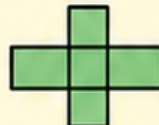
A line where two faces meet.

vertex



A corner where three or more edges meet.

net



A flat pattern that can fold to make a 3D object.

base



The bottom polygon face.

apex



The top corner of a pyramid.

Think: What is the base shape? How many bases are the same? What do the side faces look like?

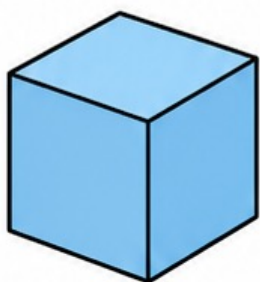




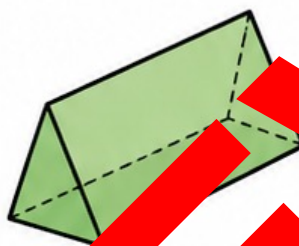
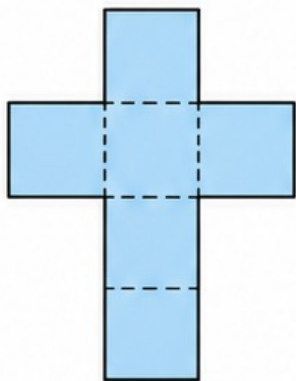
Net Match-Up Cards



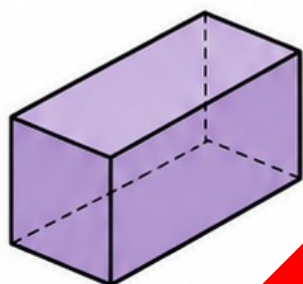
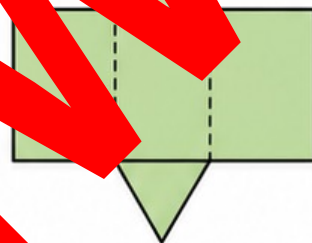
Cut out the cards. Match each object to its net.



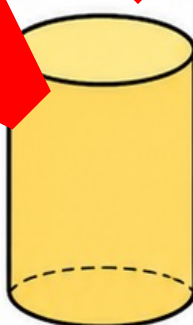
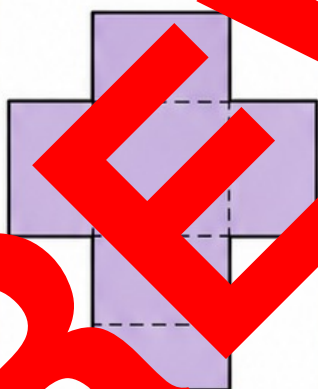
cube



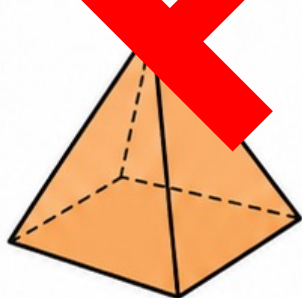
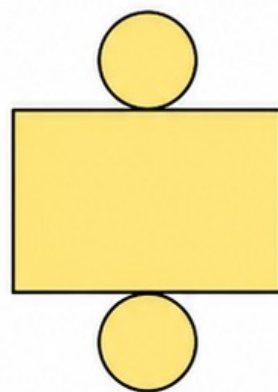
triangular prism



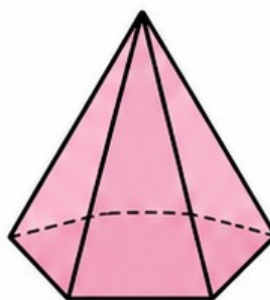
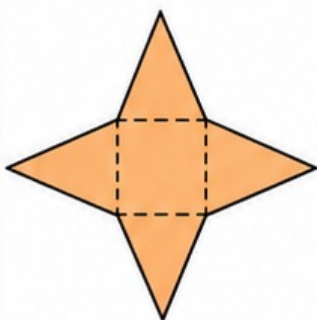
rectangular prism



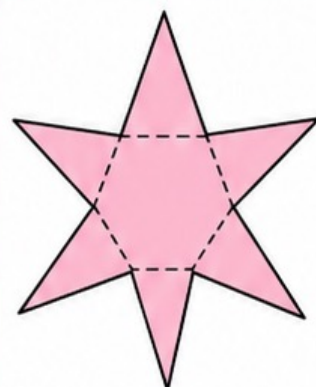
cylinder



square pyramid



pentagonal pyramid

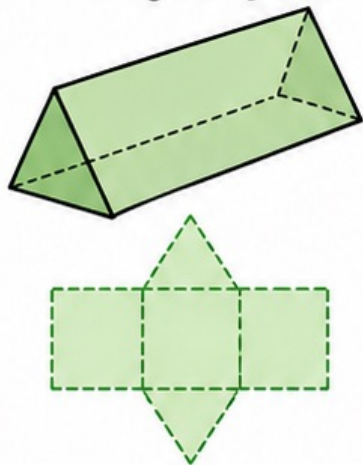


Prism Builder Challenge

Choose a challenge. Build the prism. Record its features.

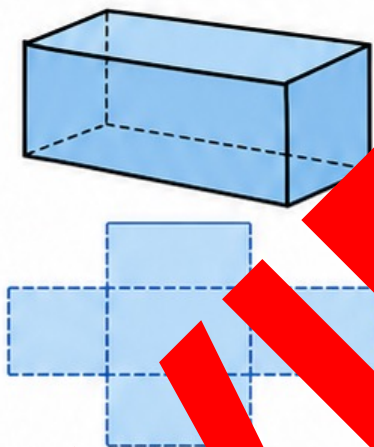
1

Build a
triangular prism

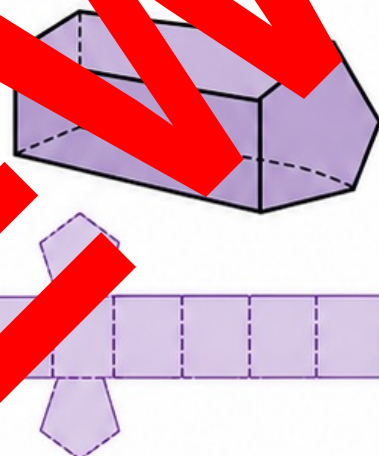


2

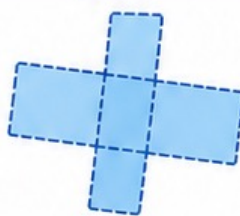
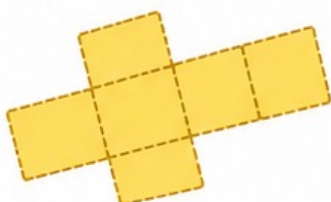
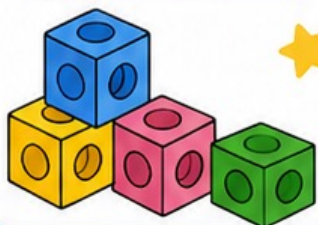
Build a
rectangular prism



Build a
pentagonal prism



Base shape	Faces	Edges	Vertices	Sketch
1				
2				
3				



Name: _____

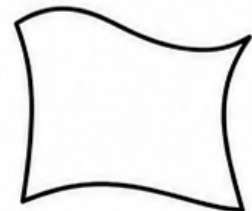
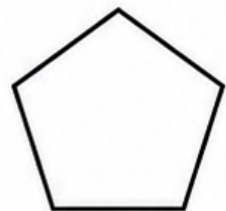
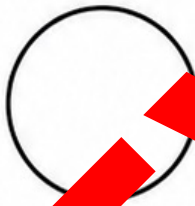
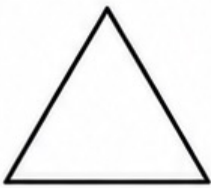
Worksheet 1: Polygon Foundations

A. Match each prefix to its number.

tri • _____
quad • _____
pent • _____
hex • _____
oct • _____
dec • _____

• 3
• 4
• 5
• 6
• 7
• 8
• 9
• 10

B. Circle the polygons. Cross out the non-polygons.



C. Complete the table.

Shape	Number of sides	Regular or irregular?
triangle		
quadrilateral		
pentagon		
hexagon		
octagon		

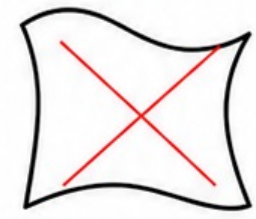
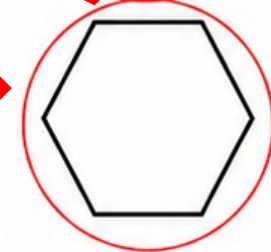
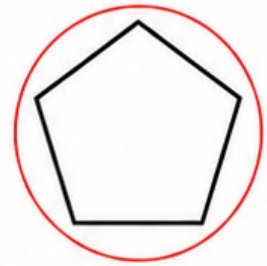
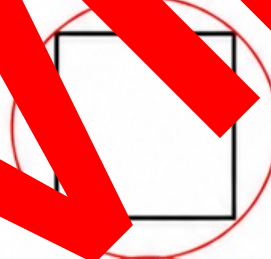
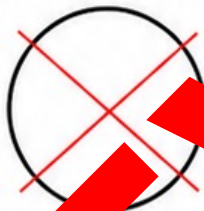
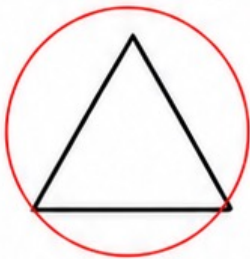
Worksheet 1: Polygon Foundations

A. Match each prefix to its number.

tri • 3
quad • 4
pent • 5
hex • 6
oct • 8
dec • 10

• 3
• 4
• 5
• 6
• 8
• 10

B. Circle the polygons. Cross out the non-polygons.



C. Complete the table.

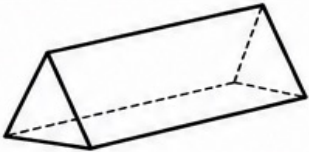
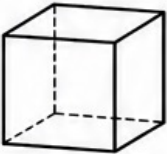
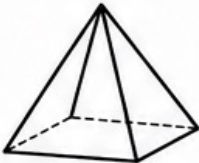
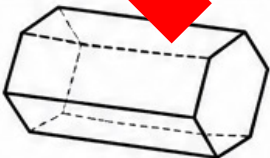
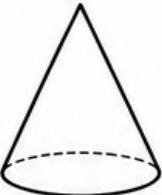
Shape	Number of sides	Regular or irregular?
triangle	3	regular
quadrilateral	4	irregular
pentagon	5	regular
hexagon	6	regular
octagon	8	regular

Name: _____

Worksheet 2: Prism or Pyramid?

Prisms have two matching polygon bases.
Pyramids have one polygon base and triangular side faces.

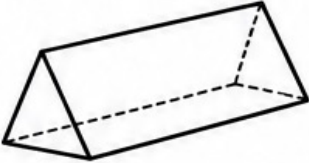
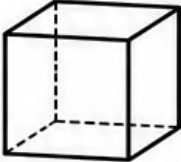
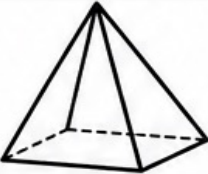
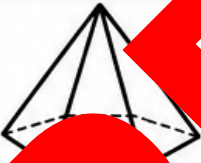
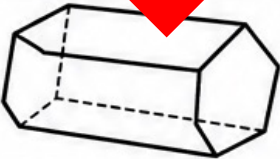
Classify each object.

Object	Prism, pyramid or neither?	Base shape	Base side length
			
			
			
			
			
			
			
			

Worksheet 2: Prism or Pyramid?

Prisms have two matching polygon bases.
Pyramids have one polygon base and triangular side faces.

Classify each object.

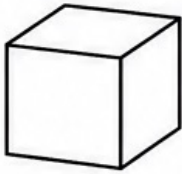
Object	Category	Base shape	Reason
	prism	triangle	two matching triangle bases
	prism	square	two matching square bases
	pyramid	square	one base and apex
	prism	rectangle	two matching rectangle bases
	pyramid	pentagon	one base and apex
	neither	circle	curved surface
	prism	hexagon	two matching hexagon bases
	neither	circle	curved surface and apex

Name: _____

Worksheet 3: Nets of 3D Objects

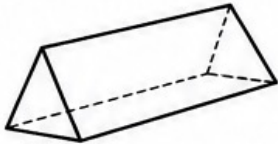
A. Match each object to its net.

1.



cube

2.



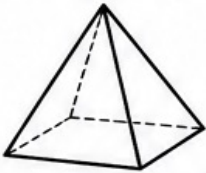
triangular prism

3.



rectangular prism

4.

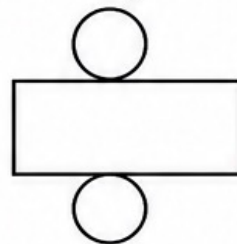
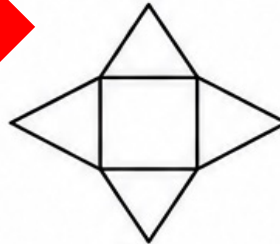
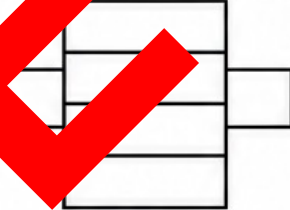
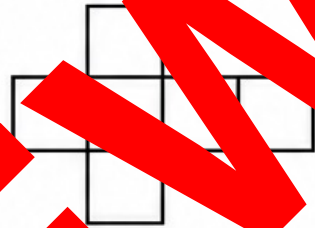
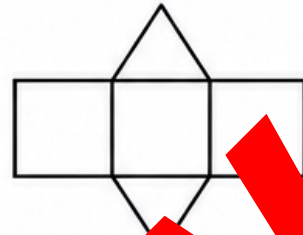


square pyramid

5.

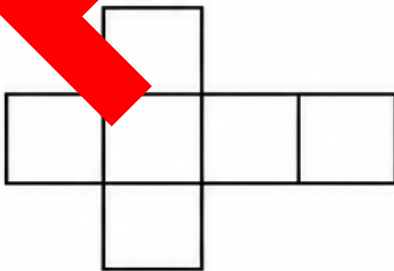


cylinder

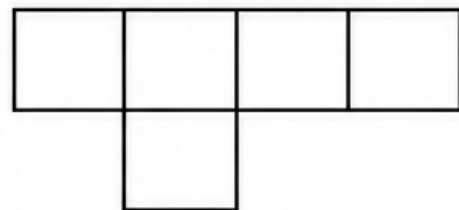


B. Will it fold? Explain your thinking.

1. Net 1: will fold / will not fold

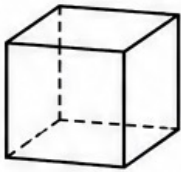


2. Net 2: will fold / will not fold

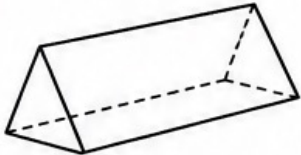


Worksheet 3: Nets of 3D Objects

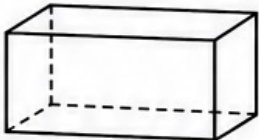
A. Match each object to its net.



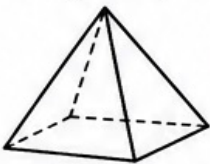
cube



triangular prism



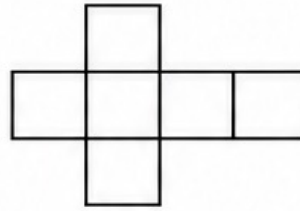
rectangular prism



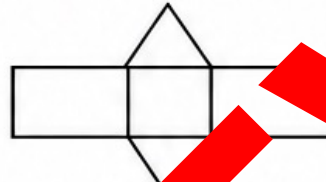
square pyramid



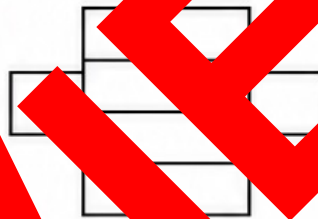
cylinder



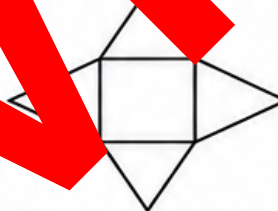
cube



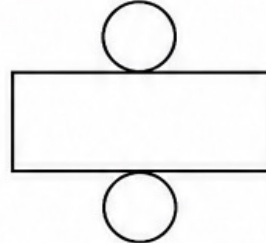
triangular prism



rectangular prism



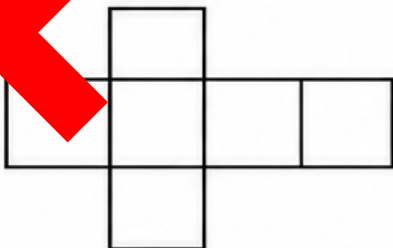
square pyramid



cylinder

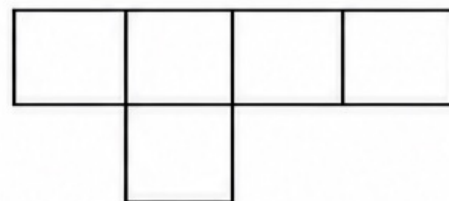
B. Will it fold? Explain your thinking.

Net 1: **will fold**



six faces connect without overlap

Net 2: **will not fold**



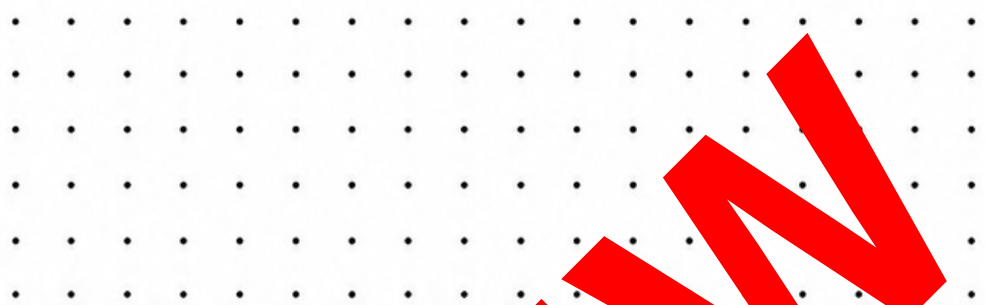
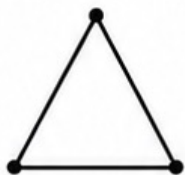
missing one square face

Name: _____

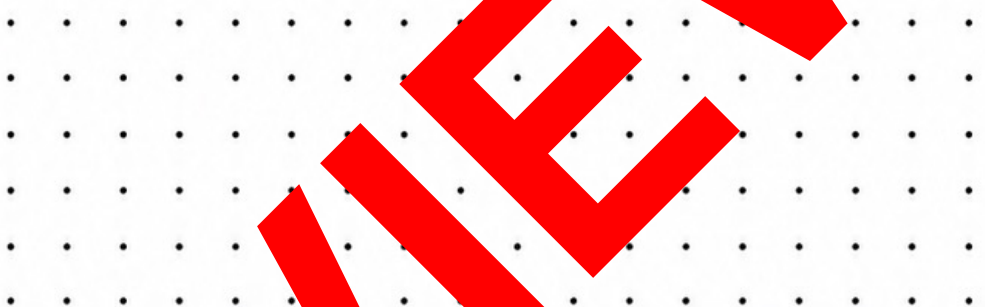
Worksheet 4: Drawing Prisms

Draw a matching face, then join corresponding vertices to complete each prism.

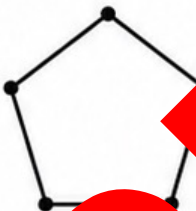
triangular
prism



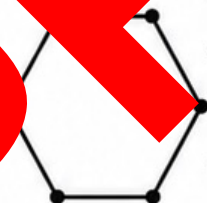
rectangular
prism



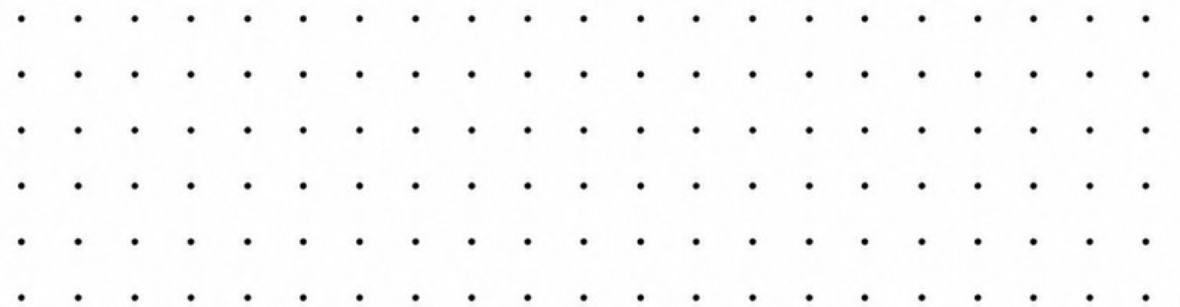
pentagonal
prism



hexagonal
prism



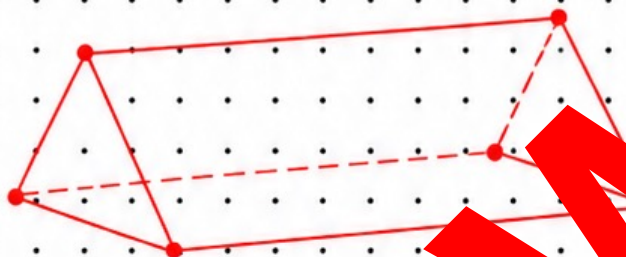
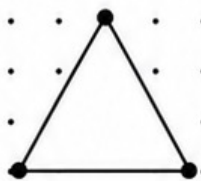
design
your own
prism



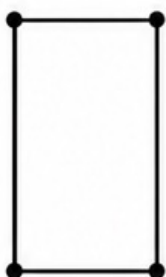
Worksheet 4: Drawing Prisms

Draw a matching face, then join corresponding vertices to complete each prism.

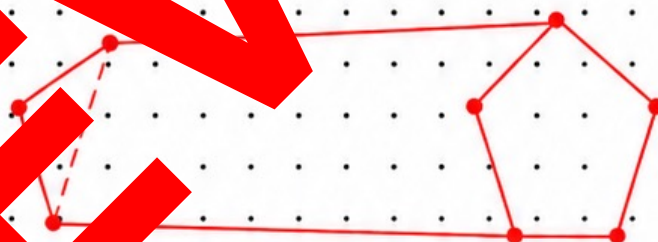
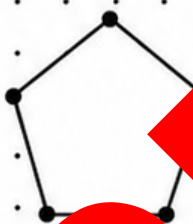
triangular
prism



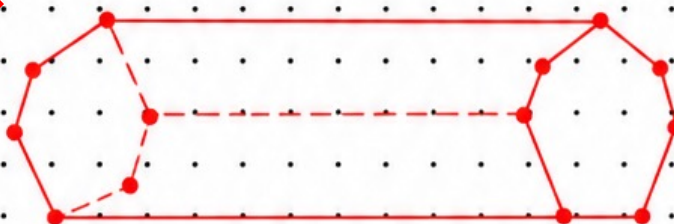
rectangular
prism



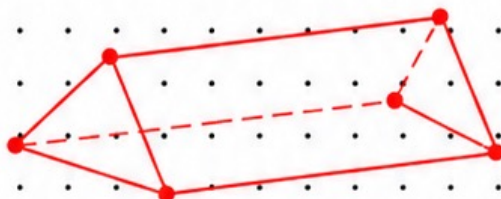
pentagonal
prism



hexagonal
prism



design
your own
prism



answers vary

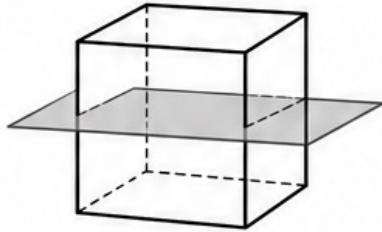
Suggested solutions shown. Final designs may vary.

Name: _____

Worksheet 5: Shape Cutter Cross-Sections

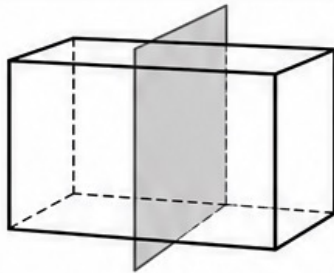
Sketch the 2D face made by the cut.

cube -
horizontal cut



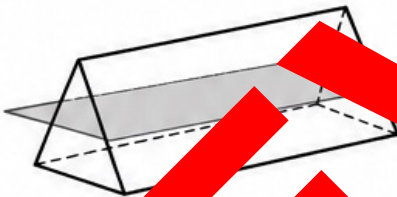
Cross-section

rectangular
prism -
vertical cut



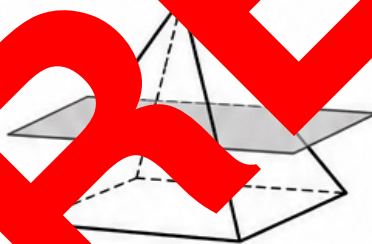
Cross-section

triangular
prism -
horizontal cut



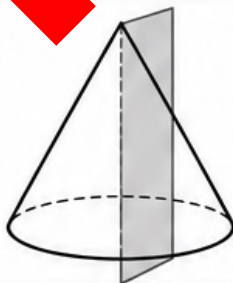
Cross-section

square
pyramid -
horizontal cut



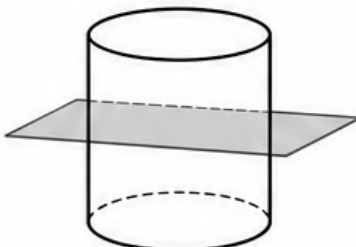
Cross-section

cone -
vertical cut



Cross-section

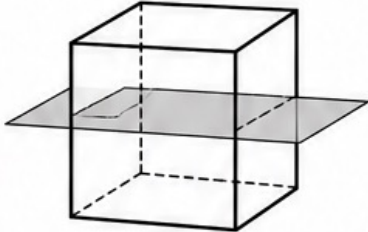
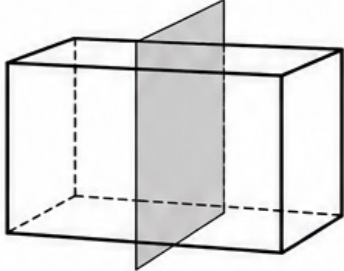
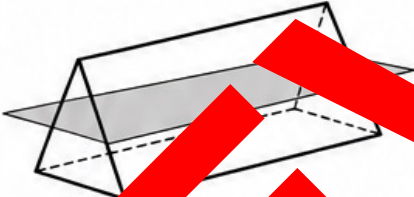
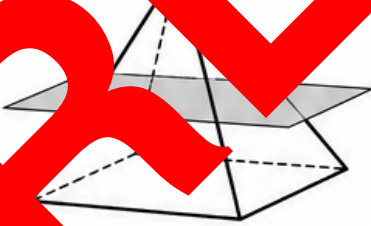
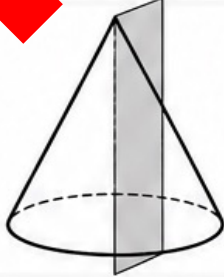
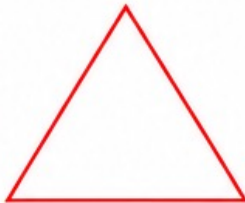
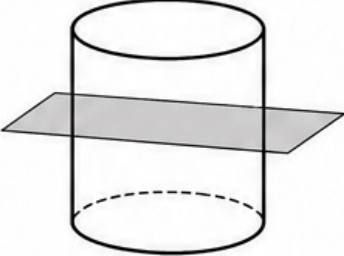
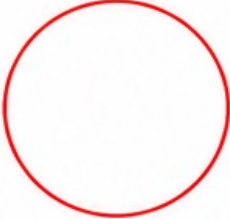
cylinder -
horizontal cut



Cross-section

Worksheet 5: Shape Cutter Cross-Sections

Sketch the 2D face made by the cut.

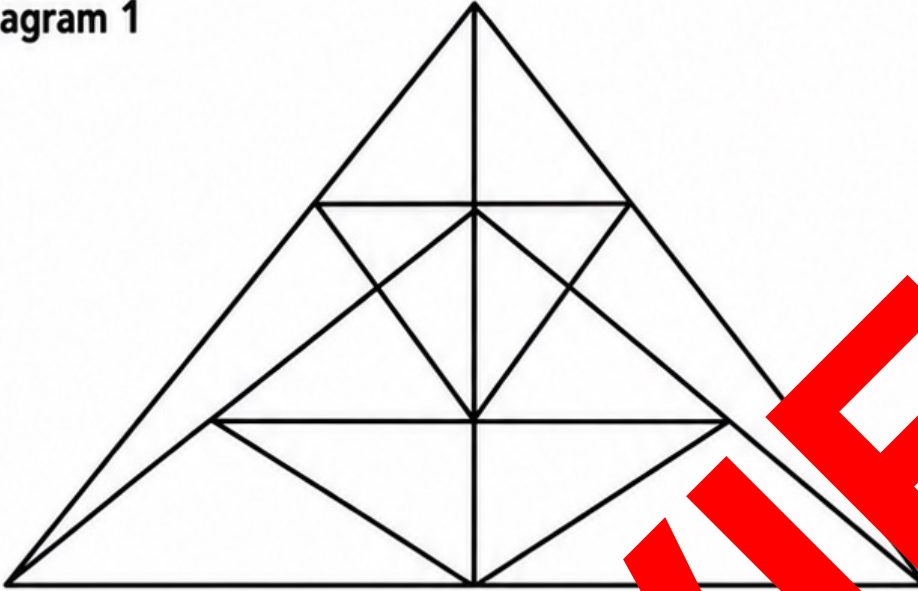
cube - horizontal cut		Cross-section square 
rectangular prism - vertical cut		Cross-section rectangle 
triangular prism - horizontal cut		Cross-section rectangle 
square pyramid - horizontal cut		Cross-section square 
cone - vertical cut		Cross-section triangle 
cylinder - horizontal cut		Cross-section circle 

Name: _____

Worksheet 6: Composite Face Hunt

Look carefully at each diagram. Count the shapes that can be made using the straight lines.

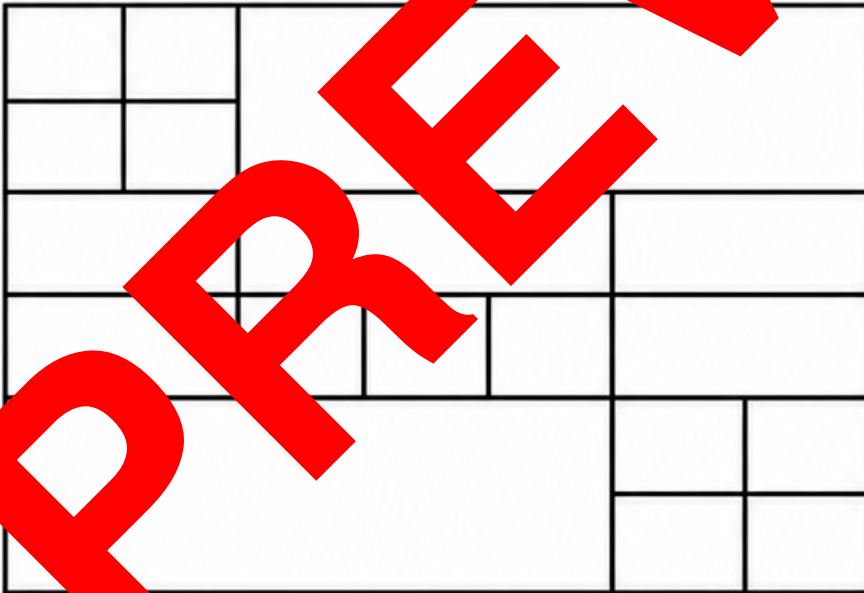
Diagram 1



Task 1:

How many triangles
can you find?

Diagram 2



Task 2:

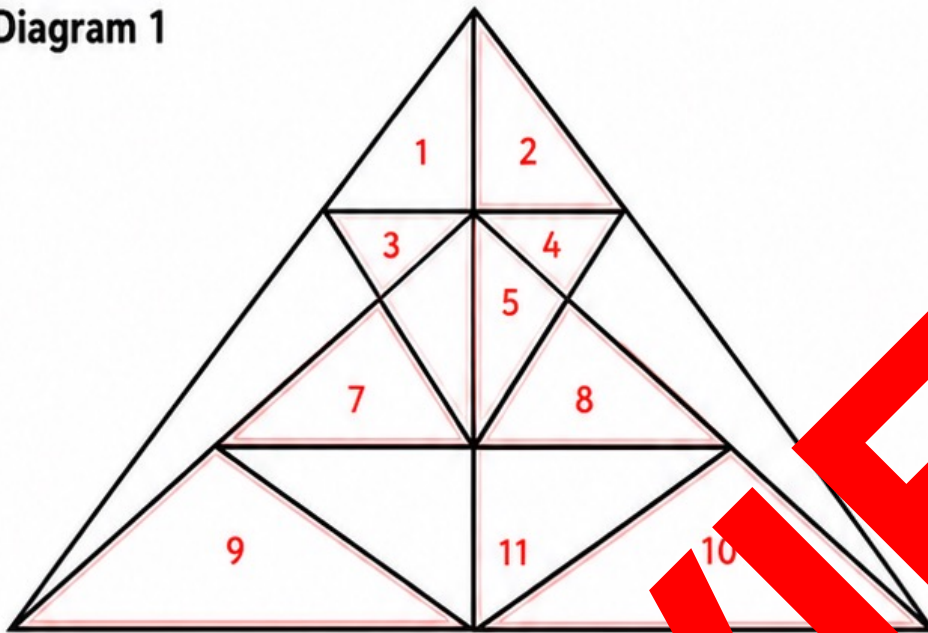
How many
quadrilaterals
can you find?

Task 3: Explain one strategy you used.

Worksheet 6: Composite Face Hunt

Look carefully at each diagram. Count the shapes that can be made using the straight lines.

Diagram 1



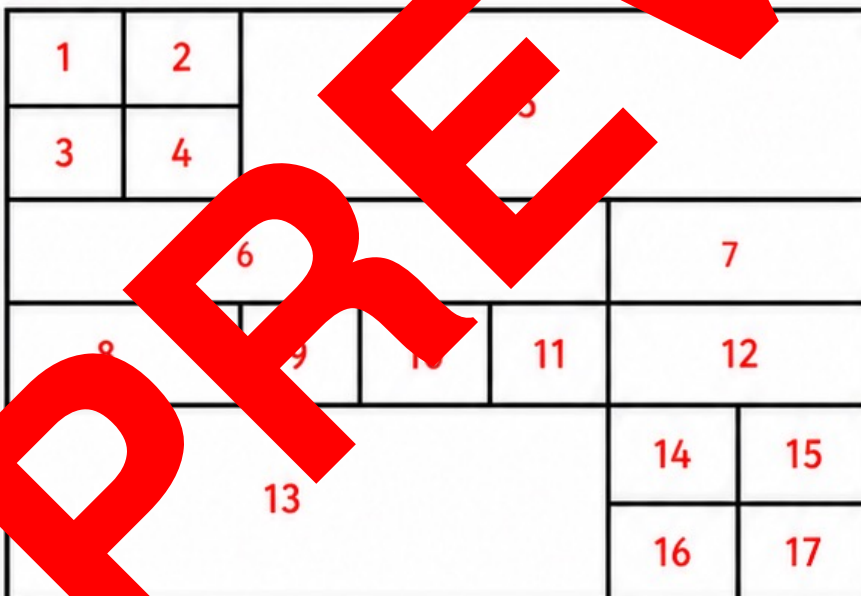
Task 1:

How many triangles
can you find?

11

Answers may vary.
Count smallest
triangles first, then
combined triangles.

Diagram 2



Task 2:

How many
quadrilaterals
can you find?

17

Answers may vary.
Count single
quadrilaterals, then
larger combined
quadrilaterals.

Task 3: Explain one strategy you used.

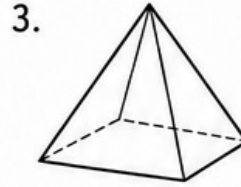
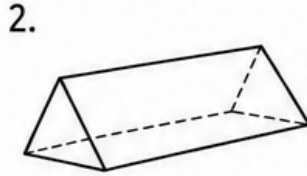
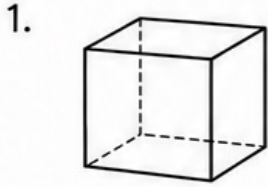
I marked each shape once, then looked for larger shapes made
by combining smaller ones.

Name: _____

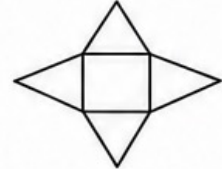
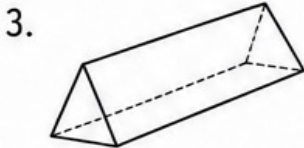
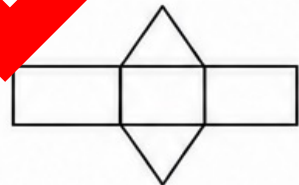
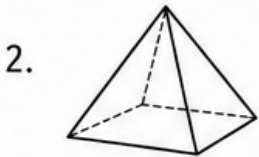
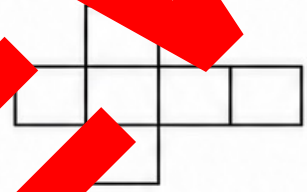
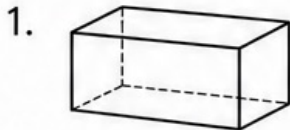
Assessment: Geometry Museum

A museum is labelling a display of 3D objects.

A. Name each object.



B. Match each object to its net.



C. Complete the table.

Object	Faces	Edges	Vertices
cube			
triangular prism			
square pyramid			

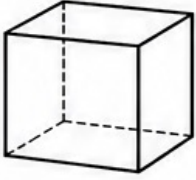
D. Explain how to decide whether an object is a prism or a pyramid.

Assessment: Geometry Museum

A museum is labelling a display of 3D objects.

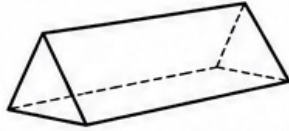
A. Name each object.

1.



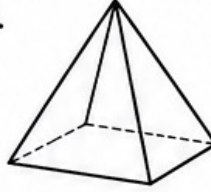
cube

2.



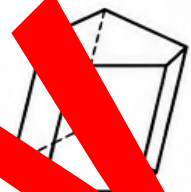
triangular prism

3.



square pyramid

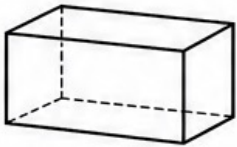
4.



rectangular prism

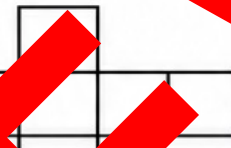
B. Match each object to its net.

1.



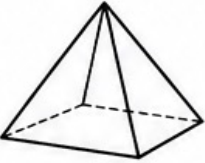
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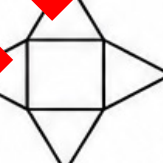
rectangular prism

2.



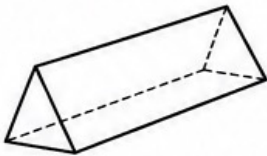
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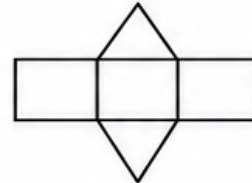
square pyramid

3.



•

•



triangular prism

C. Complete the table

Object	Faces	Edges	Vertices
cube	6	12	8
triangular prism	5	9	6
square pyramid	5	8	5

D. Explain how to decide whether an object is a prism or a pyramid.

A prism has two matching polygon bases and rectangular side faces.

A pyramid has one polygon base and triangular side faces meeting at an apex.

Prisms and Pyramids Rubric

	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Classifies prisms and pyramids	Struggles to identify prisms and pyramids. Often incorrect or inconsistent.	Identifies some prisms and pyramids with support. May have some errors.	Correctly identifies and classifies prisms and pyramids in familiar situations.	Accurately classifies prisms and pyramids independently in a variety of situations.	Accurately classifies prisms and pyramids in challenging situations and explains decisions.
Connects nets to objects	Finds it difficult to match nets to 3D objects. Many incorrect matches.	Matches some nets to objects. Understanding is inconsistent.	Correctly matches most nets to their objects and can explain the match.	Accurately matches all nets to their objects independently and justifies choices.	Accurately matches nets to objects, including complex nets, and explains thoroughly.
Uses geometric vocabulary	Uses few or incorrect geometric terms (e.g. face, edge, vertex, base, apex).	Uses some geometric terms with support. May use terms incorrectly.	Uses geometric vocabulary appropriately in explanations and answers.	Consistently uses accurate geometric vocabulary confidently in all work.	Uses precise geometric vocabulary to explain thinking in detail and connect concepts.
Draws and interprets diagrams	Diagrams are incomplete or inaccurate. Finds it hard to interpret.	Draws or interprets simple diagrams with support. Some inaccuracies.	Draws accurate diagrams and interprets them to solve problems.	Draws clear, accurate diagrams and interprets them confidently and independently.	Creates detailed diagrams and uses them to solve complex problems and explain reasoning.
Explains reasoning	Provides limited or unclear explanations. Reasoning is difficult to follow.	Provides basic explanations with support. Reasoning is partial.	Explains reasoning clearly using correct mathematical ideas and terms.	Explains reasoning clearly and independently with appropriate detail.	Explains reasoning in depth with flexibility and clear justification using multiple strategies.

Prisms and Pyramids



Prisms and Pyramids Quiz

