Homework/Extension
Step 9: Reasoning about 3D Shapes

National Curriculum Objectives:

Mathematics Year 5: (5G3b) Identify 3-D shapes, including cubes and other cuboids, from 2-D representations

Differentiation:

Questions 1, 4 and 7 (Varied Fluency)
Developing Use the nets to complete the table about the properties of simple 3D shapes, including cubes, cuboids and triangular or square based pyramids.
Expected Use the nets to complete the table about the properties of 3D shapes, including pyramids and prisms.
Greater Depth Use the nets to complete the table about the properties of 3D shapes, including pyramids, prisms and hedrons.

Questions 2, 5 and 8 (Varied Fluency)
Developing Match each description to the correct simple 3D shape, including cubes, cuboids and triangular or square based pyramids. Mixture of images and shape names.
Expected Match each description to the correct 3D shape, including pyramids and prisms. Mixture of images and shape names.
Greater Depth Match each description to the correct 3D shape, including pyramids, prisms and hedrons. Shape names only.

Questions 3, 6 and 9 (Reasoning and Problem Solving)
Developing Use the clues to name the simple 3D shapes, including cubes, cuboids and triangular or square based pyramids.
**Expected** Use the clues to name the 3D shapes, including pyramids and prisms.
Greater Depth Use the clues to name the 3D shapes, including pyramids, prisms and hedrons.

More Year 5 Properties of Shape resources.

Did you like this resource? Don't forget to review it on our website.

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Reasoning about 3D Shapes

1. Use the nets of the 3D shapes to complete the table.
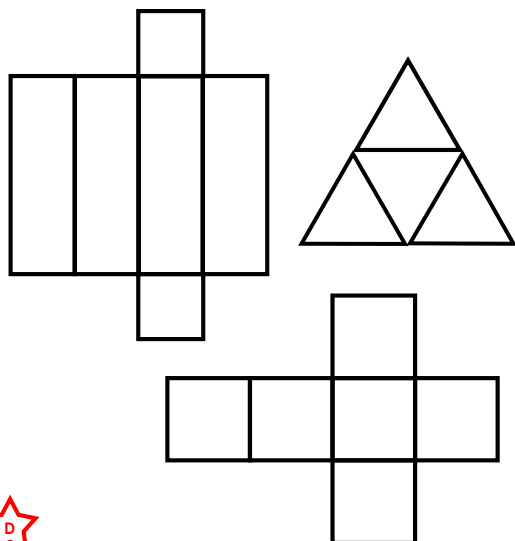
Name of Shape	2D Faces	Number of Edges	Number of Vertices
		12	
Cube			8
	4 triangles		

⭐D

2. The children have lost their shapes. Match the children to the correct 3D shape.
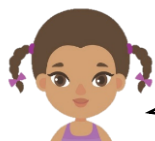
Nadia
My shape has square and rectangular faces.

Ty
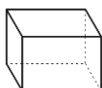My shape has square and triangular faces.

Precious
My shape has only square faces.

Peter
My shape only has triangular faces.
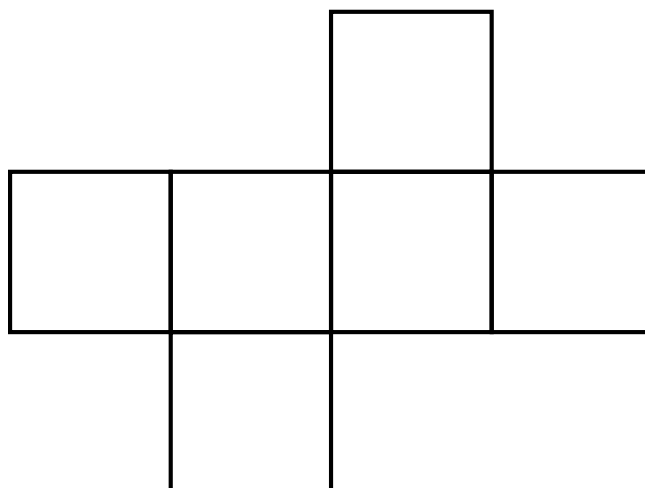
A.

B. Triangular based pyramid

C.

D. Square based pyramid
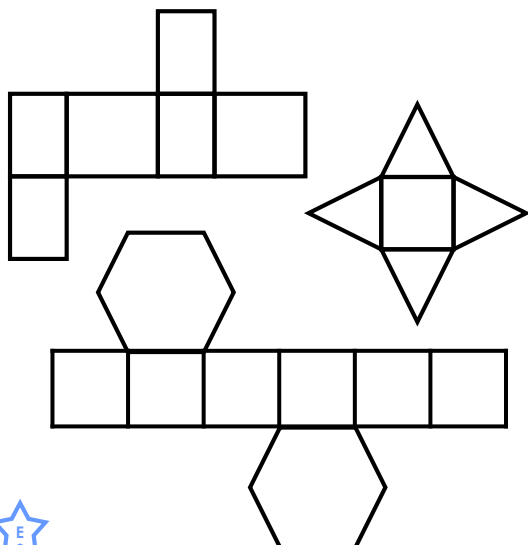
⭐D

3. True or false? The following shape is a cuboid.

Convince me.

⭐D

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Homework/Extension – Reasoning about 3D Shapes – Year 5 Developing

Reasoning about 3D Shapes

4. Use the nets of the 3D shapes to complete the table.

Name of Shape	2D Faces	Number of Edges	Number of Vertices
	1 square 4 triangles		
Cuboid			
		18	

5. The children have lost their shapes. Match the children to the correct 3D shape.

Lola: My shape has square faces.

Kara: My shape only has triangular faces.
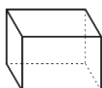
Tom: My shape has 6 rectangular faces.

Jemal: My shape has two pentagonal faces.
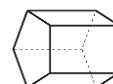
A. Hexagonal prism

B.

C. Triangular pyramid

D.

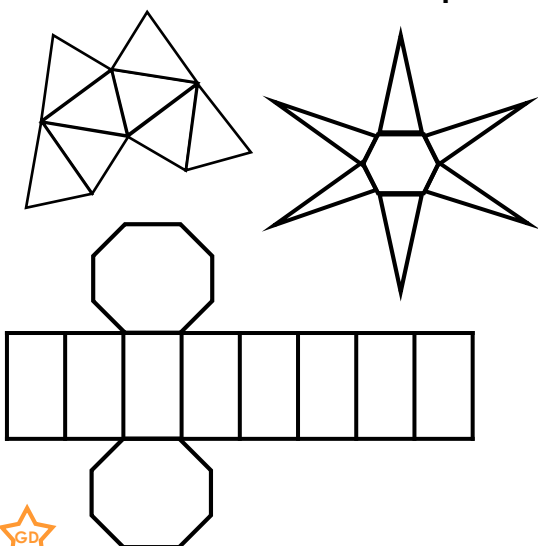**6. True or false? The following shape is a rectangular based pyramid.**

Convince me.

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Homework/Extension – Reasoning about 3D Shapes – Year 5 Expected

Reasoning about 3D Shapes

7. Use the nets of the 3D shapes to complete the table.

Name of Shape	2D Faces	Number of Edges	Number of Vertices
			7
	8 triangles		
Octagonal prism			

8. The children have lost their shapes. Match the children to the correct 3D shape.

Arjun: My shape has pentagonal faces.

Layla: My shape includes 7 rectangular faces.

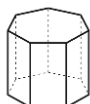**Callum:** My shape has faces that are isosceles triangles.

Kate: My shape has four rectangular faces.
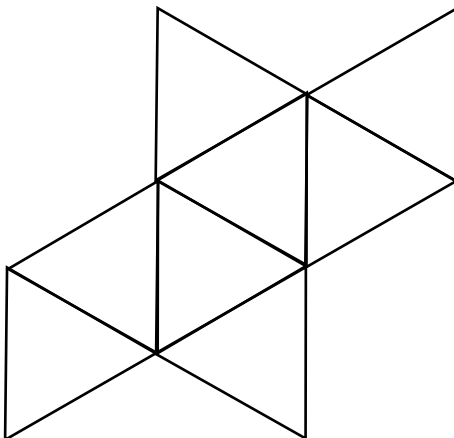
A. Hexagonal pyramid

B.

C. Dodecahedron

D. Trapezium prism

9. True or false? The following shape is a tetrahedron.

Convince me.

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Homework/Extension – Reasoning about 3D Shapes – Year 5 Greater Depth

Homework/Extension
Reasoning about 3D Shapes

Developing

1.

Name of Shape	2D Faces	Number of Edges	Number of Vertices
Cuboid	2 squares 4 rectangles	12	8
Cube	6 squares	12	8
Triangular based Pyramid	4 triangles	6	4

2. Nadia – A; Precious – C; Ty – D; Peter – B

3. False because a cuboid has square and rectangular faces. The shape displayed is a cube.

Expected

4.

Name of Shape	2D Faces	Number of Edges	Number of Vertices
Square based pyramid	1 square 4 triangles	8	5
Cuboid	4 rectangles 2 squares	12	8
Hexagonal prism	2 hexagons 6 squares	18	12

5. Lola – A; Kara – C; Tom – B; Jemal – D

6. False because the base of the pyramid would be a rectangle and the four other faces would be triangles. The shape displayed is a triangular prism.

Greater Depth

7.

Name of Shape	2D Faces	Number of Edges	Number of Vertices
Hexagonal pyramid	1 hexagon 6 triangles	12	7
Octahedron	8 triangles	12	6
Octagonal prism	8 rectangles 2 octagons	24	16

8. Arjun – C; Layla – B; Callum – A; Kate – D

9. False a tetrahedron would have 4 triangular faces not 8. The shape displayed is a octahedron.

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