



Makes Maths Fun

# Level 4

## 3D SHAPES

Bloomsmath is a comprehensive mathematics program which provides a fun way for every student to be learning to the best of their ability.

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## 3D Shapes

Level 4 is designed for students in their fourth year at school often called Year 3. Students will make, compare, describe and name three dimensional objects including pyramids and represent these in drawings.

**Knowledge:** Students will name and draw 3 Dimensional shapes.



Students who demonstrate proficiency in this activity move on to Comprehension.



Students stop here as they require additional teacher support to master this activity.

**Comprehension:** Students will identify 3 Dimensional shapes in food.



Students who demonstrate proficiency in this activity move on to Application.



Students stop here if time has run out or they require additional support with this activity.

**Application:** Students will create 3 Dimensional shapes and their cross-sections.



Students who demonstrate proficiency in this activity move on to Analysis.



Students stop here if time has run out or they require additional support with this activity.

**Analysis:** Students will complete "The Attribute Block Challenge".



Students who demonstrate proficiency in this activity move on to Synthesis.



Students stop here if time has run out or they require additional support with this activity.

**Synthesis:** Students will complete "The Attribute Block Challenge 2".

**Evaluation:** Suggested questions provide a starting point for discussions related to 3 Dimensional Shapes.



Students may complete more or fewer activities for each learning outcome depending on the time allocated and their strength in the area being covered.

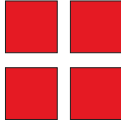


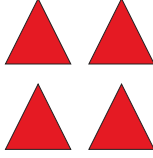


All students should participate in the Evaluation discussion to encourage the use of mathematical language, logical reasoning and reflection on that which they have completed.

Name: \_\_\_\_\_

# Knowledge

Fill in the missing information to complete the table below.

Name	Picture	Number of Faces	Draw the Faces	Vertices	Edges
Cube					
					
		0	0	0	0
					
		4			
Square Based Pyramid					
		8		12	18
Cone					

3D Shapes - Level 4 - Students will compare, draw and name 3D objects.

Knowledge  
Comprehension  
Application  
Analysis  
Synthesis  
Evaluation



Let's Try This Again



Progress To Comprehension

Name: \_\_\_\_\_

# Comprehension

Cut out the food items below and paste them into their correct box. Add 1 of your own for each shape.

Cylinder	Cube	Cone
Sphere	Rectangular Prism	Pyramid



Let's Try This Again



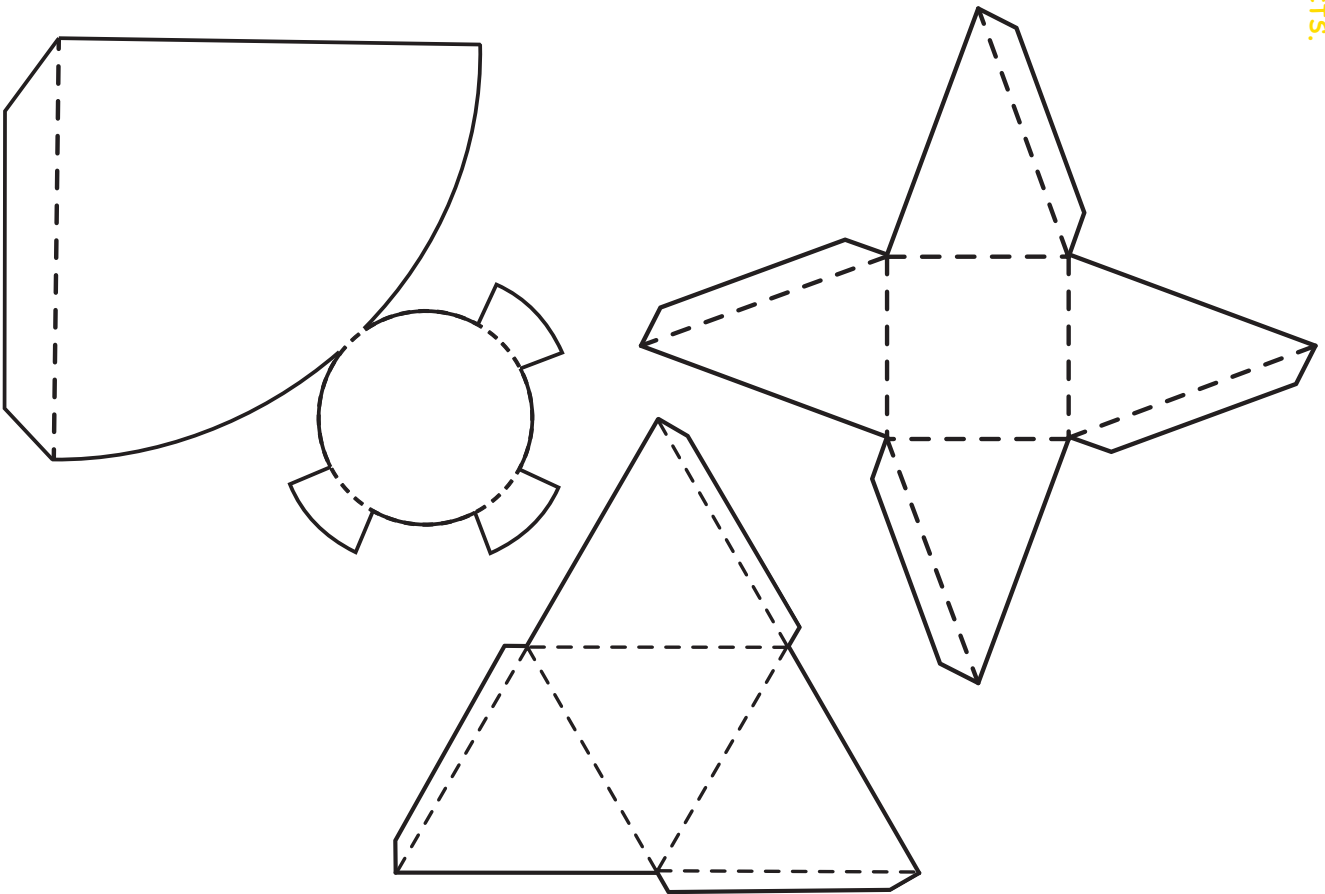
Progress To Application

Name: \_\_\_\_\_

# Application

Cut out and build each net shape below. Stamp the flat base of each to show its cross section.

Cross section of a triangular pyramid	Cross section of a square based pyramid	Cross section of a cone



Let's Try This Again



Progress To Analysis

Name: \_\_\_\_\_

# Analysis

Attribute blocks can be found in most classrooms. They are a set of wooden or plastic shapes which have four distinguishable attributes:

**Size** = Large and Small

**Thickness** = Thick and Thin

**Colour** = Red, Blue and Yellow

**Shape** = Circle, Square, Triangle, Hexagon and Rectangle

Use these to help you draw a block which will fit in the middle space. It must be different in 4 ways from the blocks on its left and right.

 <p>Yellow Thin</p>		 <p>Red Thin</p>
 <p>Red Thin</p>		 <p>Yellow Thin</p>
 <p>Blue Thin</p>		 <p>Blue Thin</p>
 <p>Red Thick</p>		 <p>Blue Thick</p>
 <p>Blue Thin</p>		 <p>Blue Thin</p>

3D Shapes - Level 4 - Students will compare, draw and name 3D objects.

Knowledge

Comprehension

Application

Analysis

Synthesis

Evaluation



Let's Try This Again

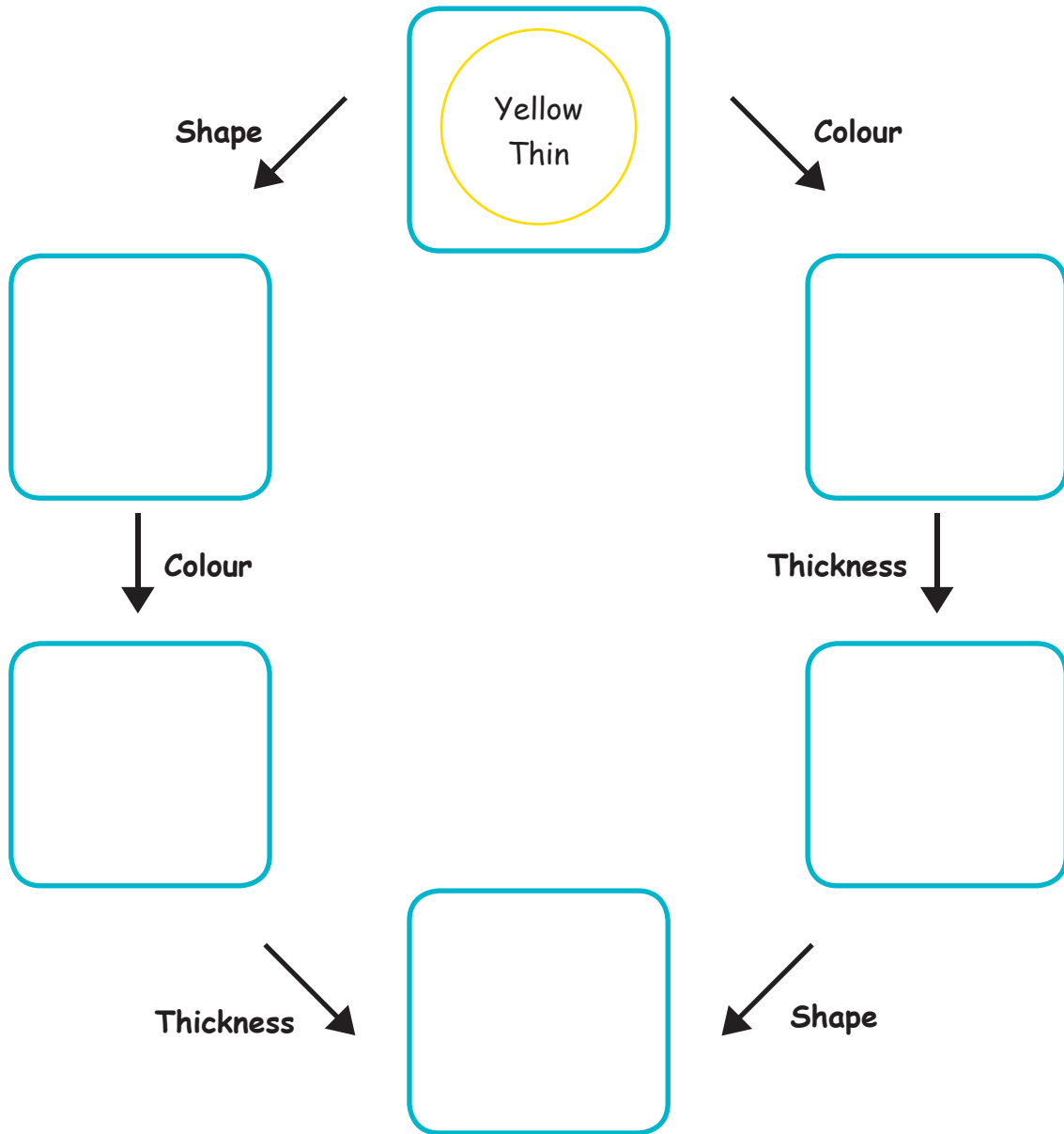


Progress To Synthesis

Name: \_\_\_\_\_

# Synthesis

Using the attribute blocks from Analysis again see if you can solve the challenge below. The words tell you how the blocks must be different.



Challenge:

If you were able to solve this see many other solutions you can find for this puzzle.



Let's Try This Again



Progress To Evaluation

# Evaluation

The following questions and activities are provided as a starting point for fun discussions related to 3 Dimensional Shape. During these conversations students will have an opportunity to use appropriate mathematical language in its correct context, to engage in reflection on the 3 Dimensional Shape activities they have completed and to use logical reasoning to tie their in-class mathematics to its everyday context.



Show students various 3D objects and see if they can draw the shape's net.



Play "Guess My Shape". You have a number of 3D shapes in a bag and give individual pieces of information about the shape until students can guess it ie. no faces - they would guess a sphere.



Use the activities in Analysis and Synthesis to see if students can suggest a shape with 1, 2 or 3 changes between them ie. a triangular pyramid with 1 change is a square based pyramid. A cube with 2 faces changed to rectangles is a rectangular prism etc.



Show students that as they move up a pyramid or cone the cross section gets smaller while it stays the same size for a prism as there is no apex.



Have students share the 3D shaped foods they found and suggest others they may not have been able to record. Discuss which 3D shape is most common in nature but least common in manufactured foods and vice versa. Why might this be so?

