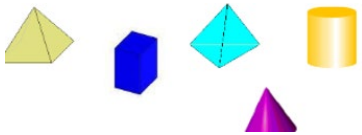
Year 3 Learn @ Home Mathematics Timetable

Big Idea Concept: Shape – Sorting and Constructing 3D Objects

- **I can identify and name common 3D shapes.**
- **I can describe and compare features of common 3D shapes.**
- **I can construct models of common 3D shapes.**
- **I can deconstruct 3D shapes into their 2D nets.**

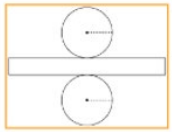
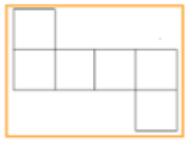
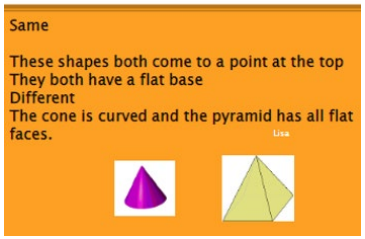
Australian Curriculum Connection: MGP.4 Sort, describe and name familiar two-dimensional shapes in the environment.

Monday	Tuesday	Wednesday	Thursday	Friday
Launch and Tune In • Ask: What is a 3D object? Does your brain already know some words/vocabulary to name and describe 3D objects and their properties/ what they have? • Adult and student gather a collection of multiple household 3D objects: spheres, cubes, rectangular prisms, cylinders, cones and pyramids (see suggestions in resources section below).	**Launch and Tune In** • View the *Shapes Glorious Shapes* episode from ABC Education's Mixed Up Maths series http://splash.abc.net.au/media/-/m/1566372 • Go outside to spot any interesting shapes and structures near or around your house. • Look closely or maybe take some photos because you will draw these objects in your journal later. • Do you know the names of the shapes or structures you saw?	**Launch and Tune In** What 3D objects can you see? What does it make you think about 3D objects? What does it make you wonder about 3D objects?	**Launch and Tune In** What 3D object might be under the cloth? What makes you think that? Explain your thinking.	**Launch and Tune In** Shape Heads (Celebrity Heads) The game is played the same as celebrity heads. Instead of being a celebrity, student is allocated an unseen 3D object (shape cards and descriptions are in resource section below). Student needs to ask yes or no questions to determine which shape they are. 

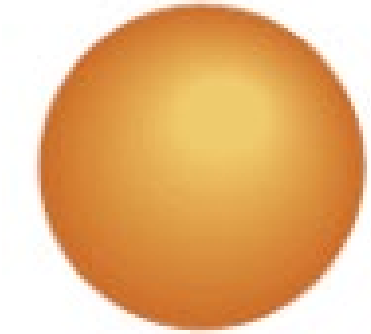
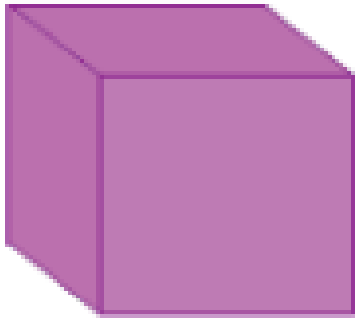
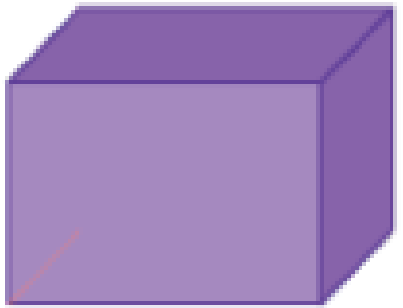
Vocabulary in Mathematics

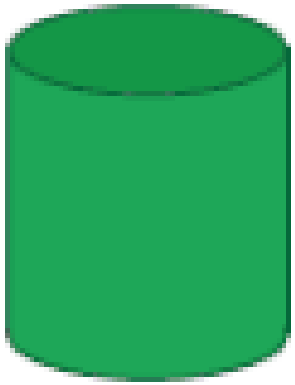
Students should be able to communicate using the following language: object, two-dimensional shape (2D shape), three-dimensional object (3D object), cone, cube, cylinder, prism, pyramid, sphere, surface, flat surface, curved surface, face, edge, vertex (vertices), net.
A 'face' refers to a flat surface with only straight edges, as in prisms and pyramids, e.g. a cube has six faces. Curved surfaces found in cylinders, cones and spheres, are not classified as 'faces'. Flat surfaces with curved boundaries, such as the circular surfaces of cylinders and cones, are not 'faces'.

Conceptual Development	Conceptual Development	Conceptual Development	Conceptual Development	Conceptual Development
1. Adult revises properties of cube (die): showing the cube touch and count its features using the terms faces, edges, corners/vertices e.g. A cube has: 6 faces, 12 edges and 8 vertices/corners 2. Using a rectangular prism (tissue box) compare and contrast with the cube.	1. Using household 3D objects collected yesterday display one full set for reference i.e. sphere, cube, rectangular prism, cylinder, cone and pyramid. 2. Adult selects one 3D object to secretly place in the mystery bag (pillowcase).	1. Compare the two different nets for the cube (see resources below) Say: *How are they the same? How are they different? Will they both make a cube even though they look different?*	1. Using the collection of 3D objects and the range of matching nets (provided below – except the last one) ask student to select a net and predict which 3D object the net would fold up to be. 2. Ask student to check by folding the net and taping it together. 3. Ask student: What part of the net helped you to predict which shape it was?	1. Adult and student create models of 3D objects using play dough or plasticine. 2. Adult and student imagine and draw the shape they would get if they were to cut the object into two pieces (see Learning Journal task below). 3. Swap drawings and make the cut required to get the cross section that was drawn. Ask:

Ask: *What is the same about these two objects?* (both have 6 faces, 12 edges and 8 vertices/corners) *What is different about these objects?* (length of edges) 3. Give student two 3D objects (e.g. a pyramid and cone) to discuss similarities and differences. Record what is the same and different in your learning journal.	3. Student picks up the object in the box and describes it without revealing its name. 4. Support student to use geometric language in their description by prompting: *How many faces does it have? Does it have straight or curved sides? How many vertices/corners does it have?* 5. When student has guessed the name of the shape and selected the matching shape from the display, they reveal the shape in the box. 6. Repeat by secretly hiding another shape in the bag/pillowcase with adult or siblings taking turns.	2. Construct each cube net – carefully, cut, fold and tape. 3. Ask students to create a different net for a cube (as per the Problem-Solving task below). There are 11 possibilities.	 	e.g. *Why did your cut through the rectangular prism not match the cross-section drawing? Can you cut it a different way?*
Learning Journal • Draw both objects and write three sentences about what is the same and different e.g. 	**Learning Journal** • Draw and name the 3 D structures and objects found in the Launch and Tune In task.	**Learning Journal** • Draw the different nets that you were able to make.	**Learning Journal** • Draw the nets and matching 3D objects. • Write three sentences about your thinking. You might like to consider these questions: Were you able to see the 3D object in your mind from looking at the net? What part of the net helped you to predict? Were there any problems that made the matching challenging?	**Learning Journal** • Draw the shapes you imagined you would get if the 3D objects were cut into two pieces. • Write your answers to the Learning task questions: Did the cut match the drawing? Could it be cut a different way?
Problem Solving • Student constructs a cube, rectangular prism or pyramid using straws, string, paper and sticky tape.	**Problem Solving** • Student constructs a cube, rectangular prism or pyramid using straws, string, paper and sticky tape.	**Problem Solving** • Can you make another net to construct a cube? It needs to be different to the two provided.	**Problem Solving** • Select another net and predict which 3D object the net would fold up to be. Check your prediction by constructing it.	**Problem Solving** • Using the final net – predict which 3D object the net would fold up to be. Check your prediction by constructing it.
Resources: Ideas of household 3D shapes for student to find:				

spheres	cubes	rectangular prisms	cylinders	cones	pyramids

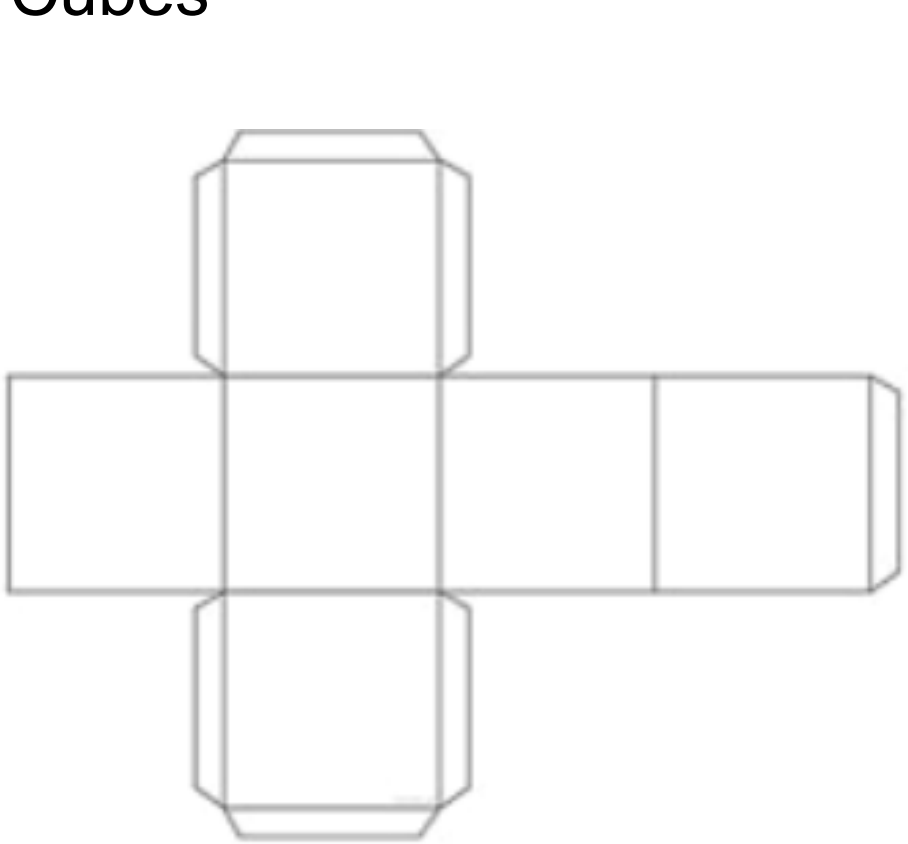
		
sphere	cube	rectangular prism

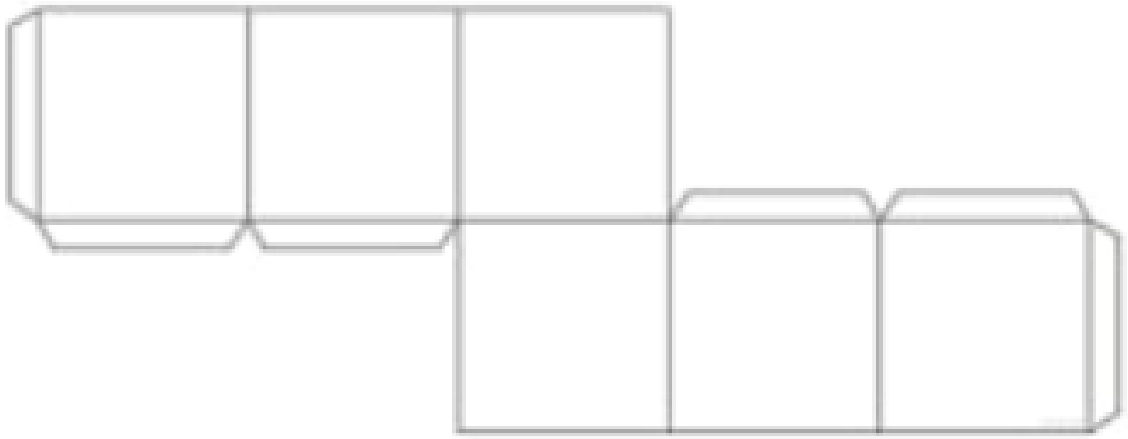
		
cone	cylinder	pyramid
I have 6 flat square faces. All my faces are the same size. I have eight corners and twelve edges.		
I have one curved round surface. I am a perfectly round 3D object shaped like a ball.		
I have two ends which are parallel to each other. Each end is the same sized circular shape. I have no corners, two flat faces and two edges.		
I have a flat circular base and one curved surface. I have one edge and one vertex.		

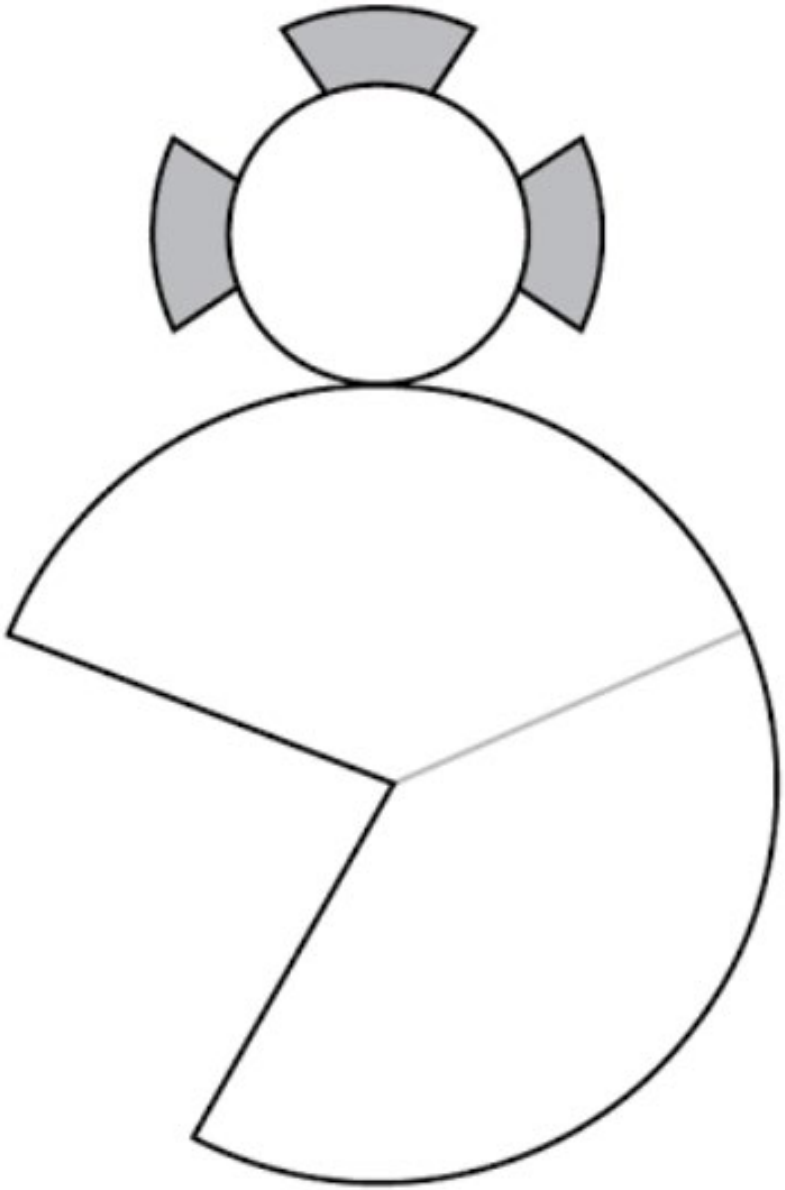
I have six flat rectangular faces. I have eight corners or vertices and twelve edges.
I have a square base and four triangular shaped faces. I have eight edges.

2D nets for 3D objects:

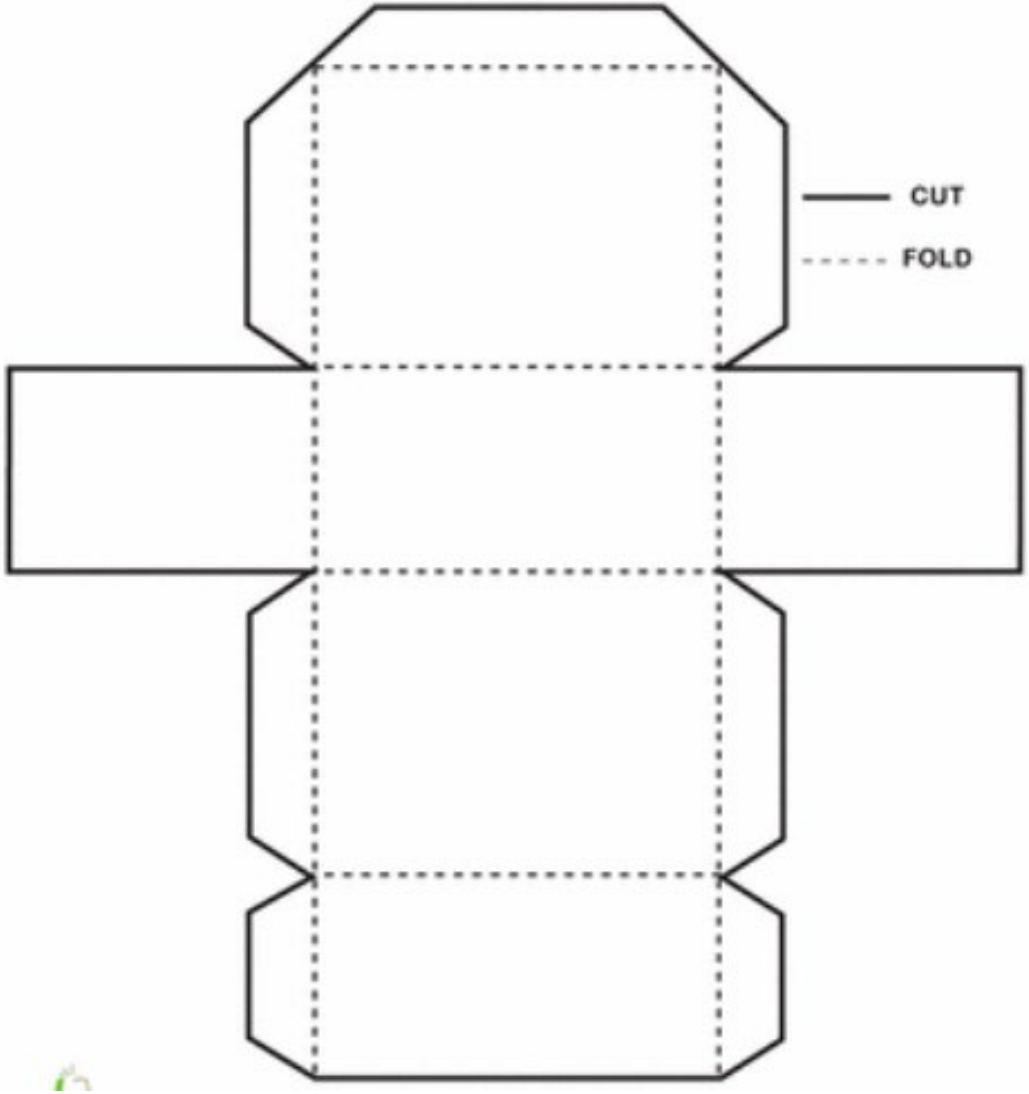
Cubes

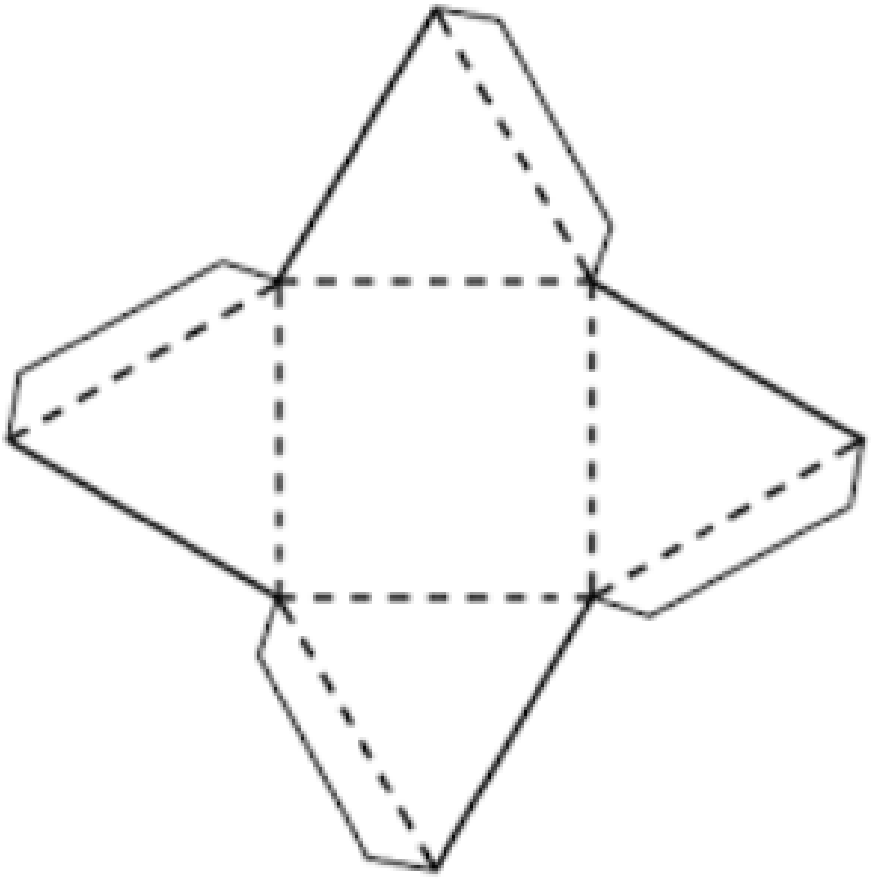


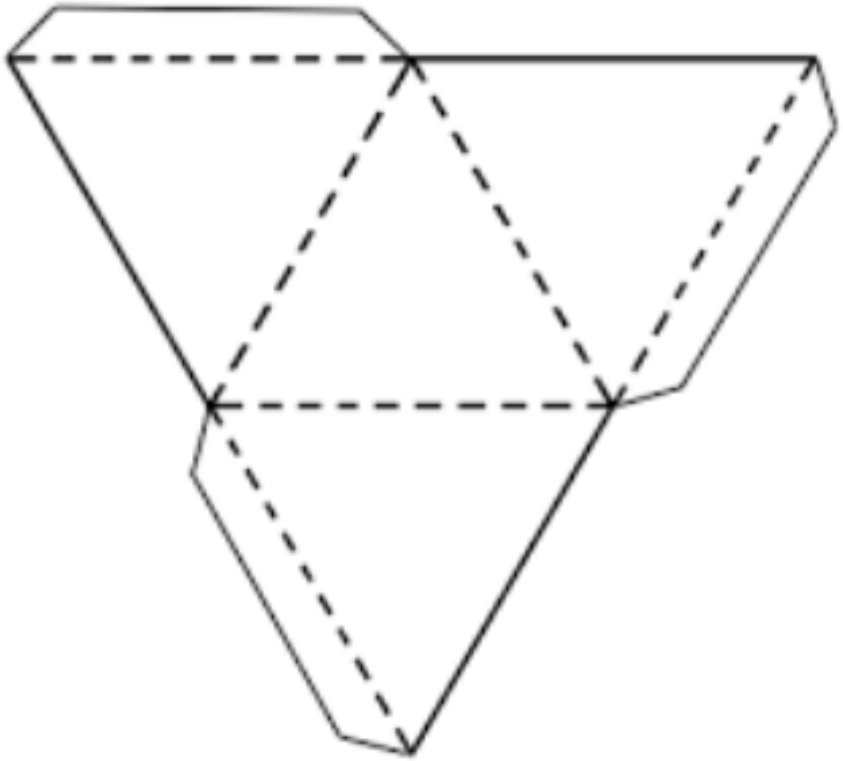


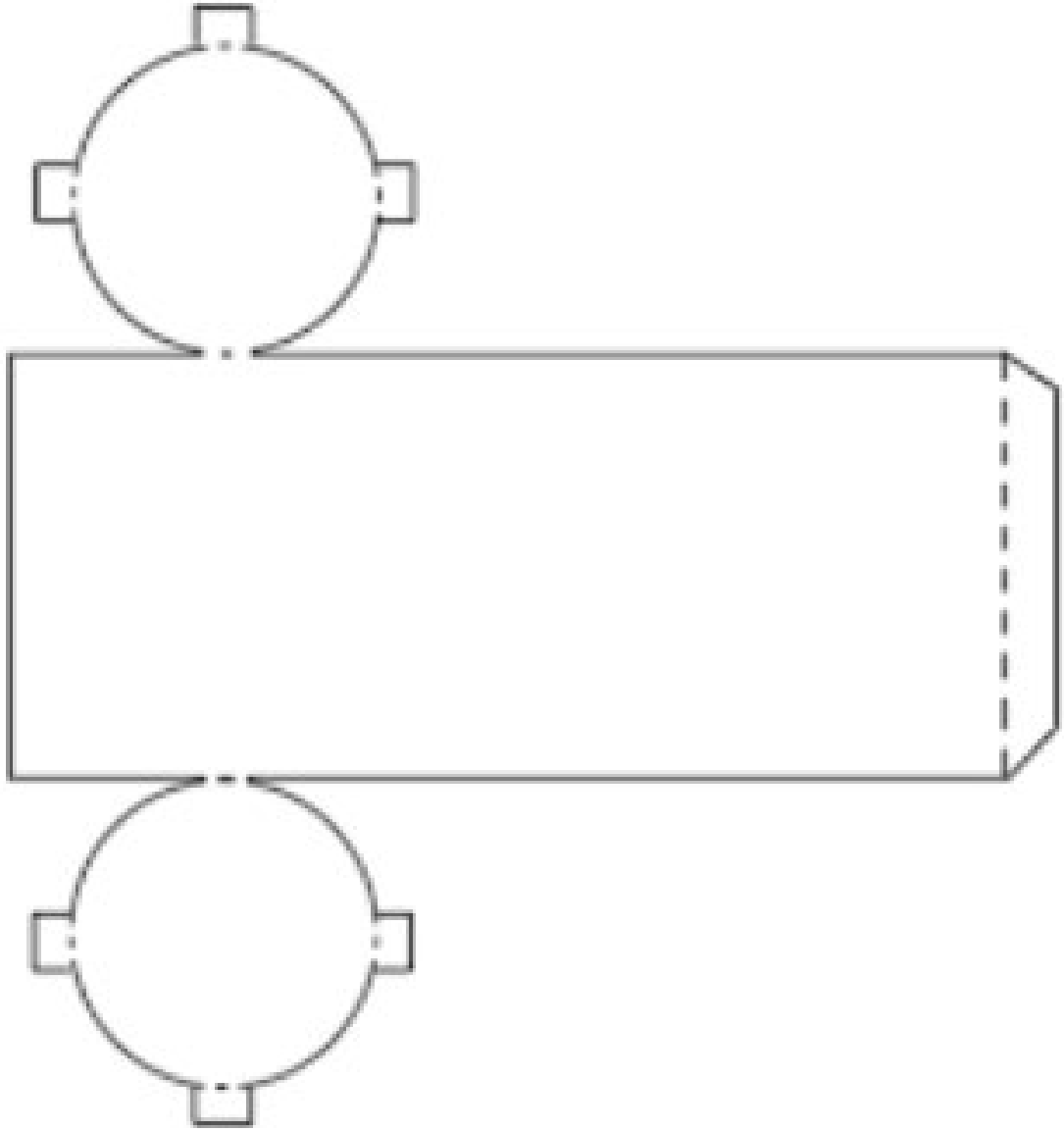
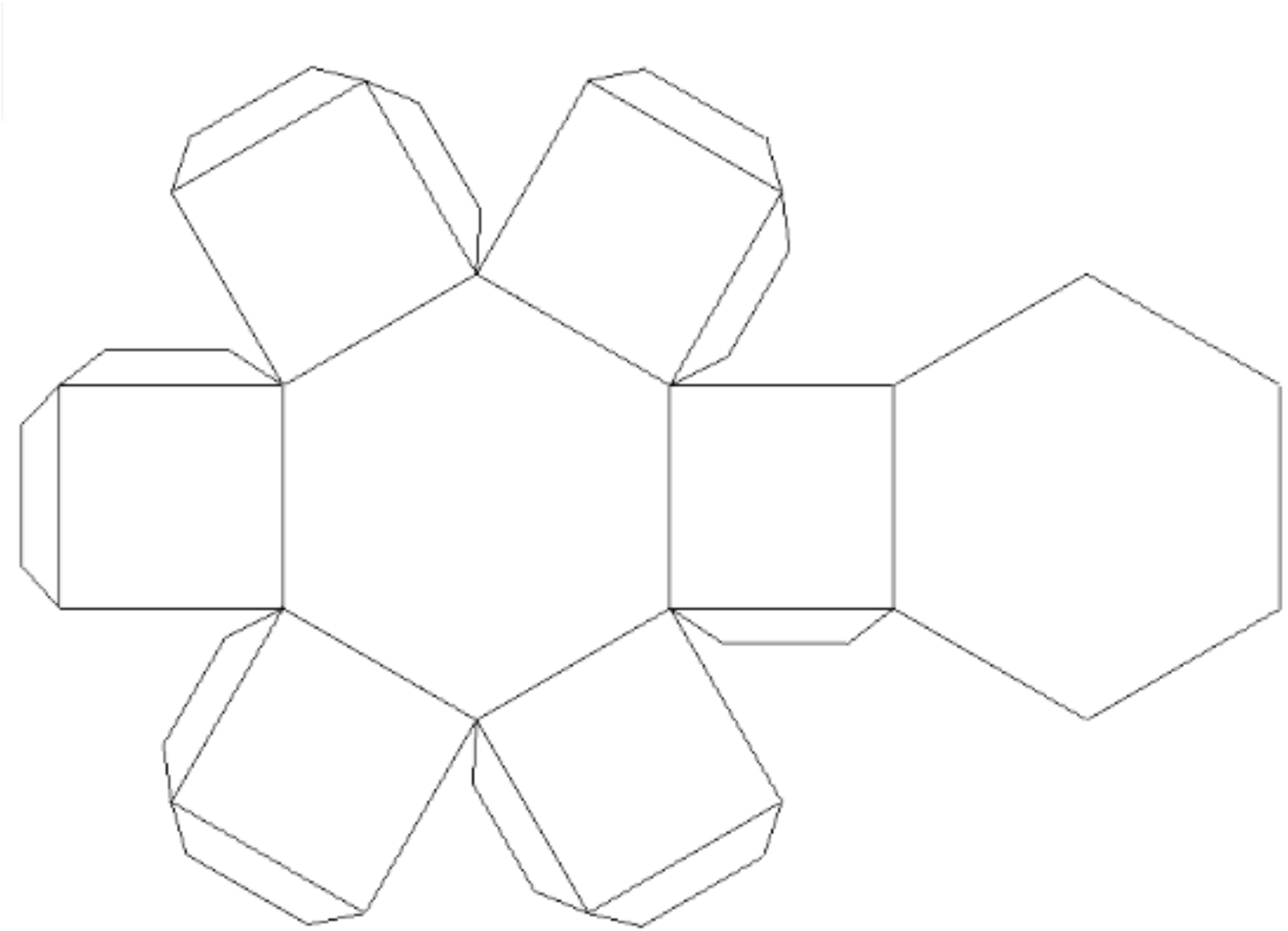


RECTANGULAR PRISM









THIS NET IS FOR USE IN THE FRIDAY PROBLEM SOLVING TASK