

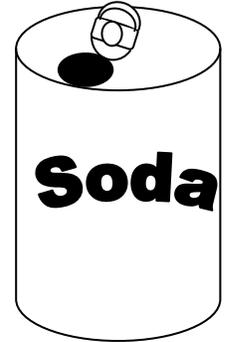
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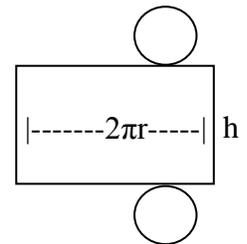
## Dimensions: Visualize Relationships between 2D and 3D objects

Three-dimensional objects can be thought of as a combination of two-dimensional objects, as in the examples below:

**Example:** While taking the measurements for the surface area of a can of soda, Janie noticed that the top and bottom of the can resembled circles. Determine the shape of the outside of the can.

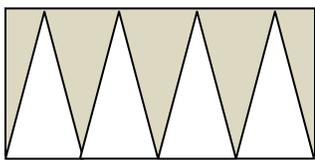


The shape created by the can is a cylinder. After removing the top and bottom circles by cutting along their edges, Janie can slice down the height of the cans and unroll. This reveals that the shape of the outside of the can is actually a rectangle.

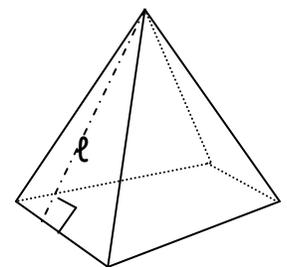


The length of the rectangle formed is the same as the circumference of the circles,  $2\pi r$ .

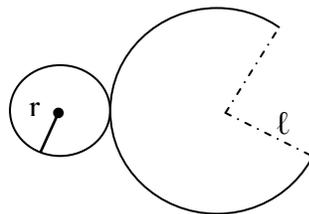
Another three-dimensional object created by a combination of two dimensional objects is the regular pyramid. By repetition and rotation of an isosceles triangle, a pyramid is formed.



Notice that the dimensions of the light and dark triangles are the same. By cutting away the dark triangles and taping the edges, a pyramid is formed.



**Challenge:** What object do you think is expressed by the 2-dimensional picture below?



**Answer:** A cone

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

Date: \_\_\_\_\_

**Practice.** Identify the three-dimensional object based on the description provided.

1. Two hexagons and six squares
2. Five isosceles triangles
3. A circle connected to a circle section
4. Two circles and a rectangle
5. Six rectangles
6. Four triangles

**Sketch.** Draw a picture of what you think the following objects might look like if cut along their edges and laid flat?

7. A round table with four straight legs
8. A rectangular table top
9. A basic dollhouse
10. A can of vegetables

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

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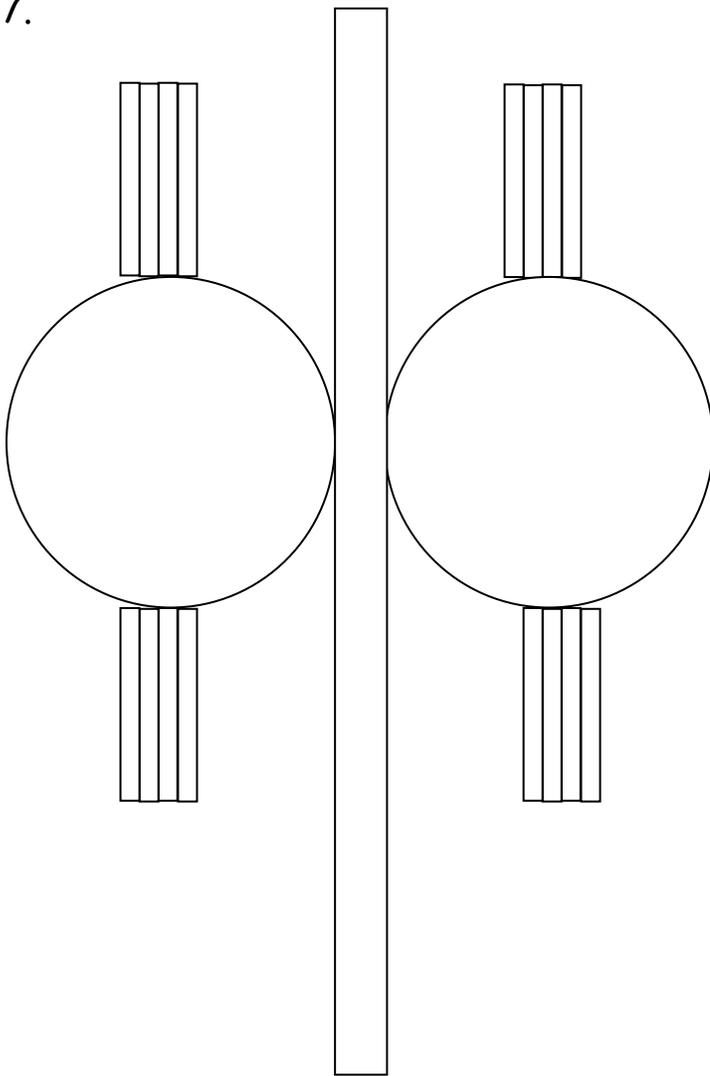
## Answer Key

### Dimensions: Visualize Relationships between 2D and 3D Objects

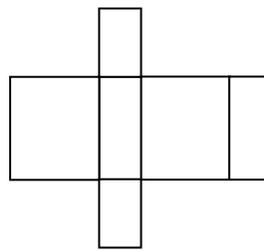
1. Hexagonal prism
2. Pentagonal Pyramid
3. Cone
4. Cylinder
5. Rectangular Prism
6. Pyramid

#7-10 Sketches may vary

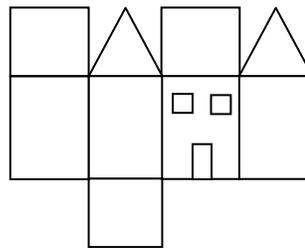
7.



8.



9.



10.

