

# Investigating the Geometry around Us

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# Investigating the Geometry around Us

Geometry in Names

Tangrams

- Use patty paper to cut shapes and make designs
- Review attributes of geometric figures

*Grandfather Tang*

*Greedy Triangle*

- Create polygons
- Investigate the sum of the interior angles of polygons
- Review geometric terms with Geometry Big Square

*Counting on Frank*

- Investigate volume using Popcorn Prisms and Popcorn Cylinders

Geometry and Measurement Scavenger Hunt

- Investigate geometry in newspapers

## References

Burns, M., & Silveria, G. (1994). *The Greedy Triangle*. New York, NY: Scholastic Inc.

Chaikin, J. *Popcorn, Anyone?* Retrieved from

<http://illuminations.nctm.org/Lesson.aspx?id=2927>

Clement, R. (1991). *Counting on Frank*. Milwaukee, WI: Gareth Stevens Publishing.

Tompert, A. (1990). *Grandfather Tang's Story*. New York, NY: Crown Publishers.

# GEOMETRY

in

## Names

Write your name in capital letters across a large sheet of paper.

Identify the geometry terms or shapes located in your name.

Possible vocabulary words that can be used:

Parallel lines

Perpendicular lines

Triangle

Congruent

Square

Rectangle

Trapezoid

Translation

Obtuse angle

Acute angle

Right angle

Supplementary angles

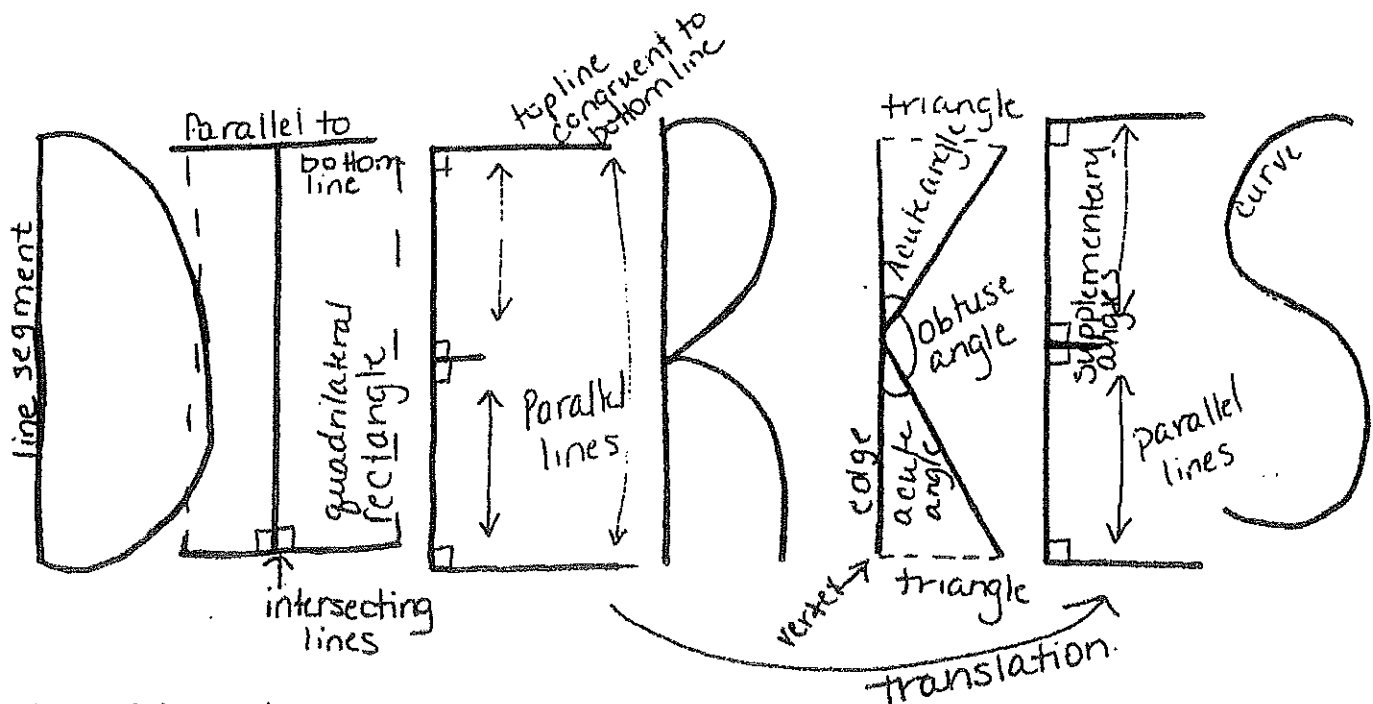
Circle

Line segment

Edges

Vertices

EXAMPLE:



# Triangles

I know that the sum of the interior angles of a triangle is \_\_\_\_\_

because \_\_\_\_\_

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# Quadrilaterals

I know that the sum of the interior angles of a quadrilateral is \_\_\_\_\_

because \_\_\_\_\_

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# Pentagons

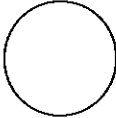

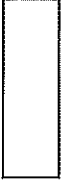







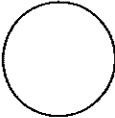

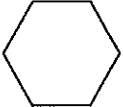
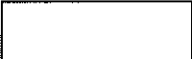


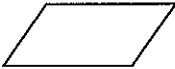

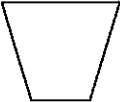


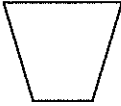



I know that the sum of the interior angles of a pentagon is \_\_\_\_\_

because \_\_\_\_\_

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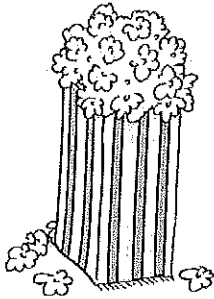
## Geometry Big Square Puzzle

 Square	 Octagon Rectangle	  Pentagon	 Hexagon
Circle  	 Rectangle  Pentagon	Parallelogram  Rhombus  	 Decagon 
Triangle  Hexagon	Square   Octagon	Circle  Pentagon Trapezoid	Rectangle  Triangle
 	Parallelogram  Decagon	  Trapezoid	 Rhombus

These squares will be cut apart. Students will match the picture with the correct term to form a big square that is 4 squares across and 4 squares down.

# Popcorn Prisms Anyone?

NAME \_\_\_\_\_

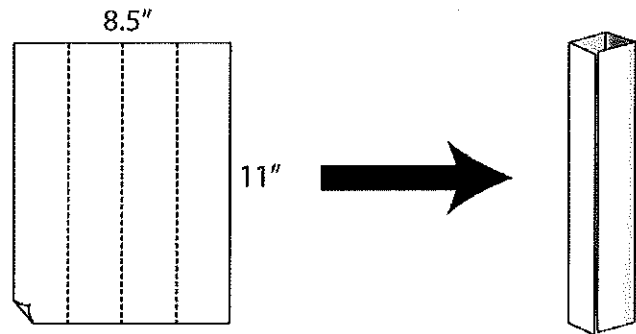


For this activity you will be comparing the volume of 2 prisms created using the same sheet of paper. You will be determining which can hold more popcorn. To do this, you will have to find a pattern for the dimensions for containers.

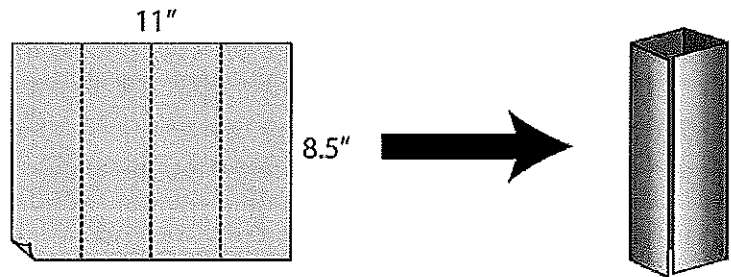
**Materials:**

- 8.5×11 in. white paper
- 8.5×11 in. colored paper
- Tape
- Popcorn
- Plate
- Cup
- Ruler

Take the white paper and fold it in half the long way. Do this a 2<sup>nd</sup> time. You are forming a baseless rectangular prism that is tall and narrow. Do not overlap the sides. Tape along the edge. Measure the length, width, and height of each dimension with a ruler. Record your data below and on the rectangular prism. Label it Prism A.



Take the colored paper and fold it in half the wide way. Do this a 2<sup>nd</sup> time. You are forming a baseless rectangular prism that is short and stout. Do not overlap the sides. Tape along the edge. Measure the length, width, and height of each dimension with a ruler. Record your data below and on the rectangular prism. Label it Prism B.



1.

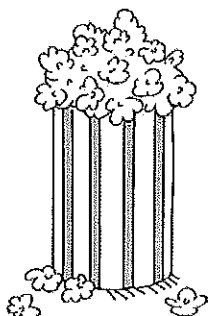
DIMENSION	PRISM A	PRISM B
LENGTH (in.)		
WIDTH (in.)		
HEIGHT (in.)		

2. Do you think the two prisms will hold the same amount? Do you think one will hold more than the other? Which one? Why?



# Popcorn Cylinders Anyone?

NAME \_\_\_\_\_

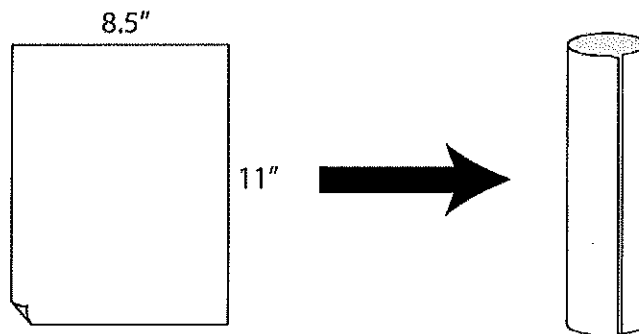


For this activity you will be comparing the volume of 2 cylinders created using the same sheet of paper. You will be determining which can hold more popcorn. To do this, you will have to find a pattern for the dimensions for containers.

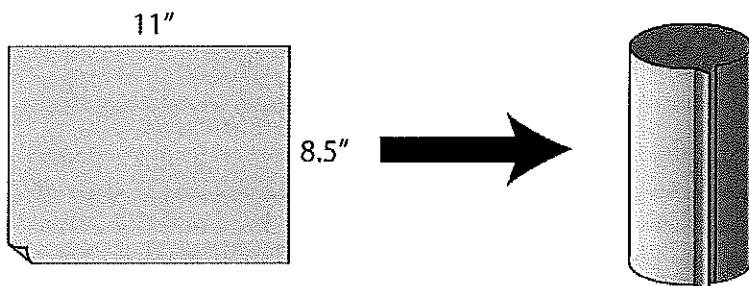
**Materials:**

- 8.5×11 in. white paper
- 8.5×11 in. colored paper
- Tape
- Popcorn
- Plate
- Cup
- Ruler

Take the white paper and roll it up along the longest side to form a baseless cylinder that is tall and narrow. Do not overlap the sides. Tape along the edges. Measure the dimensions with a ruler and record your data below and on the cylinder. Label it Cylinder A.



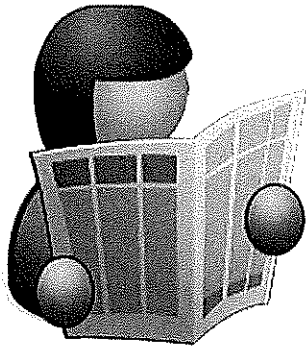
Take the colored paper and roll it up along the shorter side to form a baseless cylinder that is short and stout. Do not overlap the sides. Tape along the edge. Measure the height and diameter with a ruler and record your data below and on the cylinder. Label it Cylinder B.



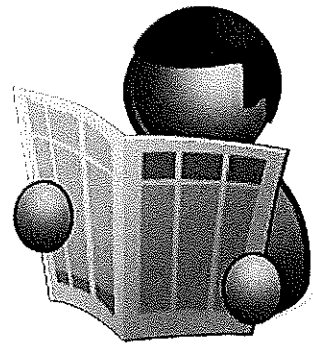
1.

DIMENSION	CYLINDER A	CYLINDER B
HEIGHT (in.)		
DIAMETER (in.)		
RADIUS (in.)		

2. Do you think the two cylinders will hold the same amount? Do you think one will hold more than the other? Which one? Why?



# Geometry and Measurement Scavenger Hunt



- Divide a large sheet of paper or poster board into four sections and label each section as shown below.
- Look through a newspaper or magazine and find different items for each group listed.
- Cut out the items found and tape them in the correct section of the paper. Label each item with the correct name or measurements.
- Your goal is to find as many different items as possible within the time limit.

<p style="text-align: center;"><b>Geometric Terms/Figures</b></p> <p><i>Examples:</i></p> <p><i>Line segment</i> <i>Ray</i> <i>Acute angle</i> <i>Obtuse angle</i> <i>Right angle</i> <i>Parallel lines</i> <i>Perpendicular lines</i> <i>Transversal</i></p>	<p style="text-align: center;"><b>Two-dimensional figures</b></p> <p><i>Examples:</i></p> <table><tbody><tr><td><i>Circle</i></td><td><i>Pentagon</i></td></tr><tr><td><i>Triangle</i></td><td><i>Hexagon</i></td></tr><tr><td><i>Quadrilateral</i></td><td><i>Heptagon</i></td></tr><tr><td><i>Square</i></td><td><i>Octagon</i></td></tr><tr><td><i>Rectangle</i></td><td><i>Nonagon</i></td></tr><tr><td><i>Parallelogram</i></td><td><i>Decagon</i></td></tr><tr><td><i>Trapezoid</i></td><td></td></tr></tbody></table>	<i>Circle</i>	<i>Pentagon</i>	<i>Triangle</i>	<i>Hexagon</i>	<i>Quadrilateral</i>	<i>Heptagon</i>	<i>Square</i>	<i>Octagon</i>	<i>Rectangle</i>	<i>Nonagon</i>	<i>Parallelogram</i>	<i>Decagon</i>	<i>Trapezoid</i>	
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<i>Parallelogram</i>	<i>Decagon</i>														
<i>Trapezoid</i>															
<p style="text-align: center;"><b>Three-dimensional figures</b></p> <p><i>Examples:</i></p> <p><i>Cube</i> <i>Rectangular prism</i> <i>Triangular prism</i> <i>Prisms</i> <i>Pyramids</i> <i>Cylinder</i> <i>Cone</i></p>	<p style="text-align: center;"><b>Comparing Perimeter and Area</b></p> <p><i>Examples:</i></p> <p><i>Perimeter = Area</i></p> <p><i>Perimeter &gt; Area</i></p> <p><i>Perimeter &lt; Area</i></p>														