Today's Materials

- calculator
- pencil
- notebook
- glue

Scaling and Area

(optional lesson)

Lesson 6

CCSS Standards: Building on	• 6.G.A.1
CCSS Standards: Addressing	• 7.G.A.1 • 7.G.B.6
CCSS Standards: Building towards	• 7.G.B.4 • 7.G.B.6 • 7.RP.A.2.a

Let’s build scaled shapes and investigate their areas!

Today's Goals

- ❑ I can describe how the area of a scaled copy is related to the area of the original figure and the scale factor that was used.

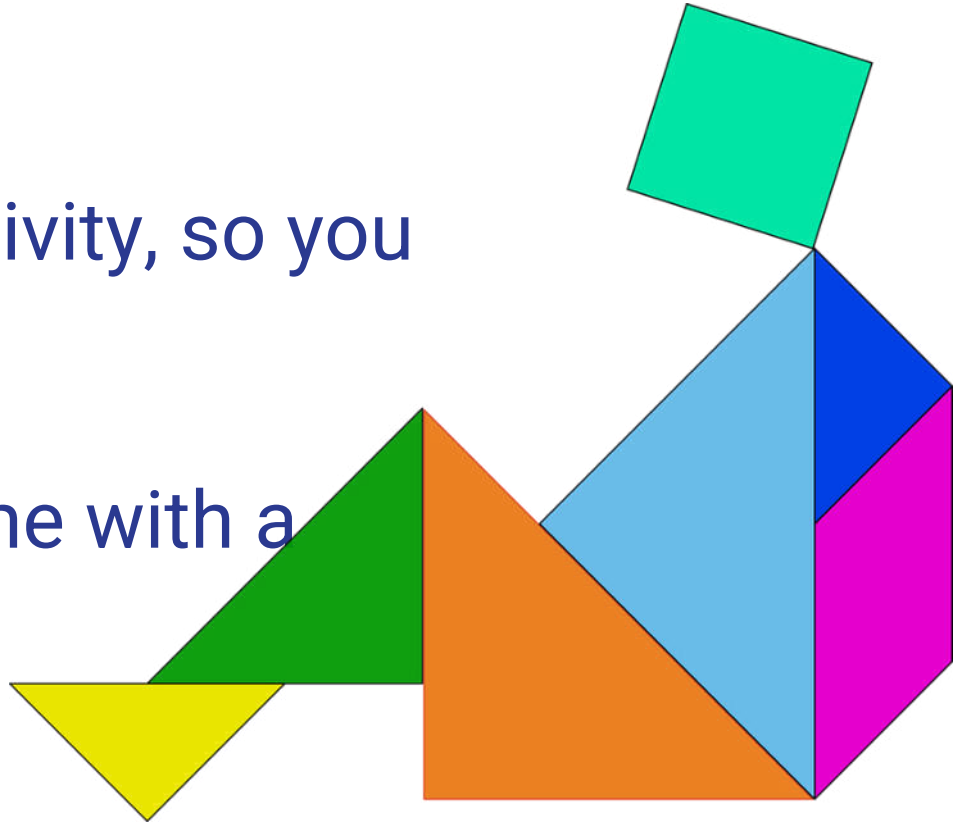
Scaling a Pattern Block

Warm Up

Today, we'll use pattern blocks to build scaled copies as described in the task.

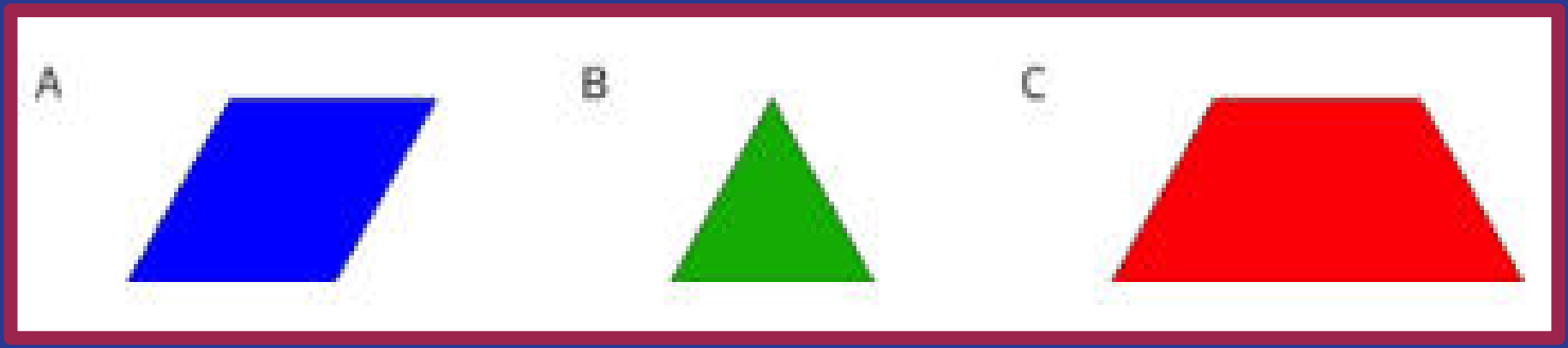
This is a collaborative activity, so you will be working in teams.

We will follow up work time with a whole class discussion.



Math Tools vs. Math Toys

Work with your team to collaborate on this activity. (8 min.)



scale factor	number of blocks to build Figure A	number of blocks to build Figure B	number of blocks to build Figure C
1			
2			
3			
4			
5			
10			
s			
$\frac{1}{2}$			

Scaling More Pattern Blocks

(optional)

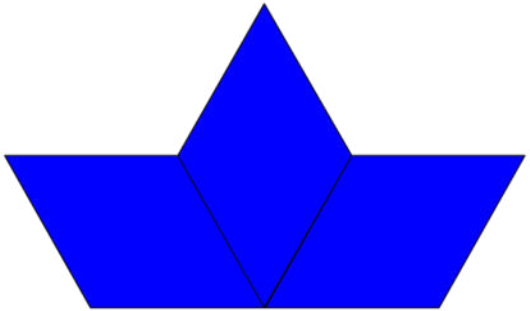
Activity 6.2

- 5 Practices

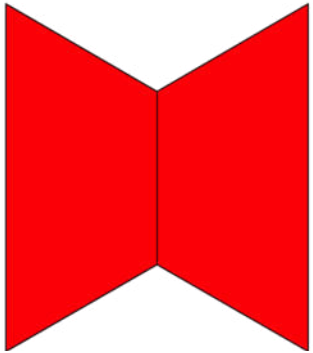
Scaling More Pattern Blocks

- Each group will be assigned a figure, each made with original-sized pattern blocks.

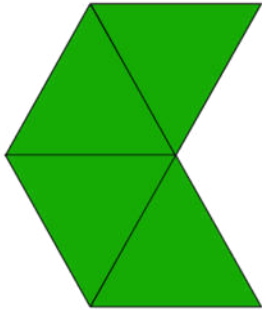
D

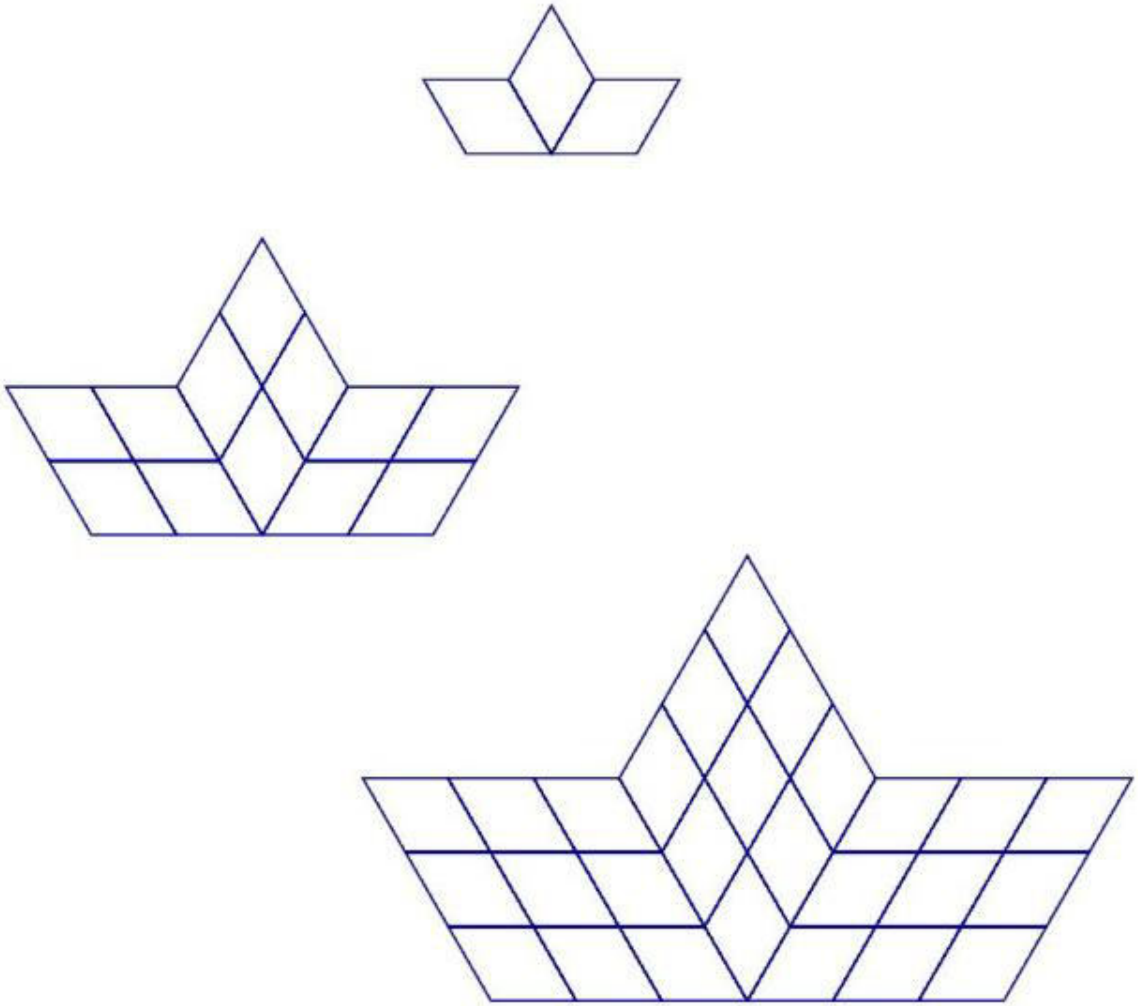


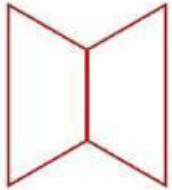
E

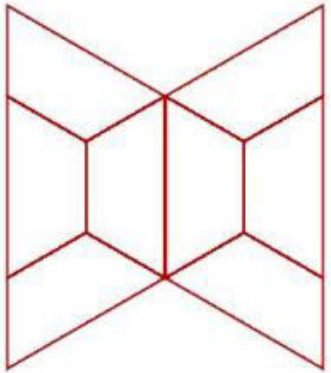


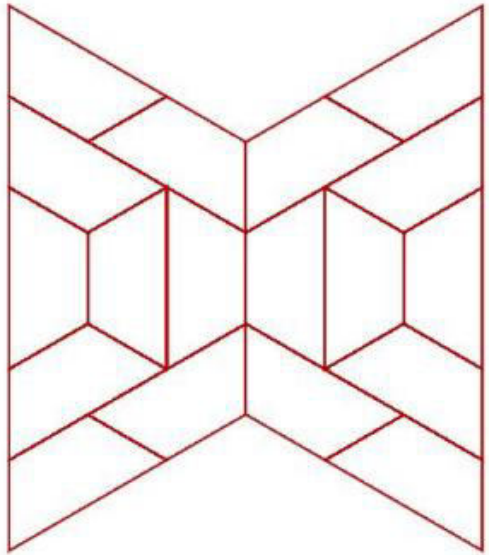
F

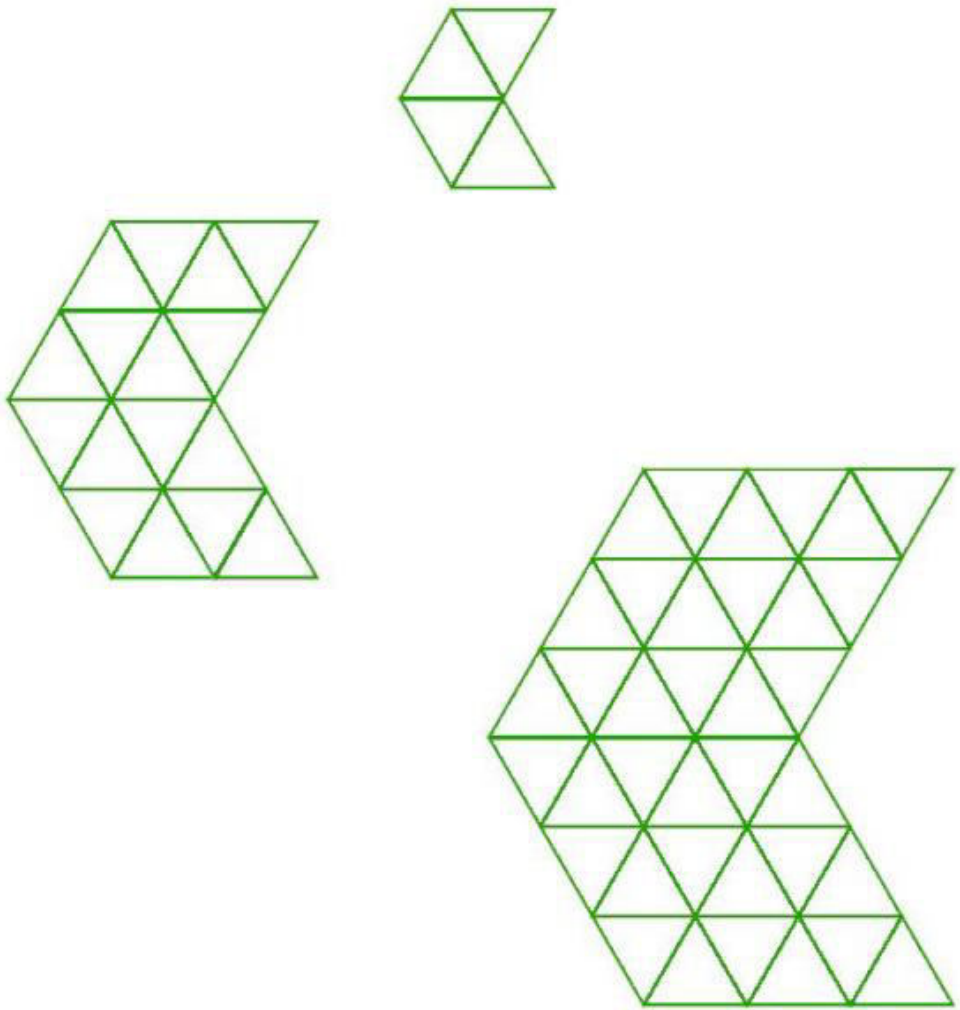












scale factor	number of blocks to build Figure D	number of blocks to build Figure E	number of blocks to build Figure F
1	3	2	4
2			
3			
4			
5			
6			
s			

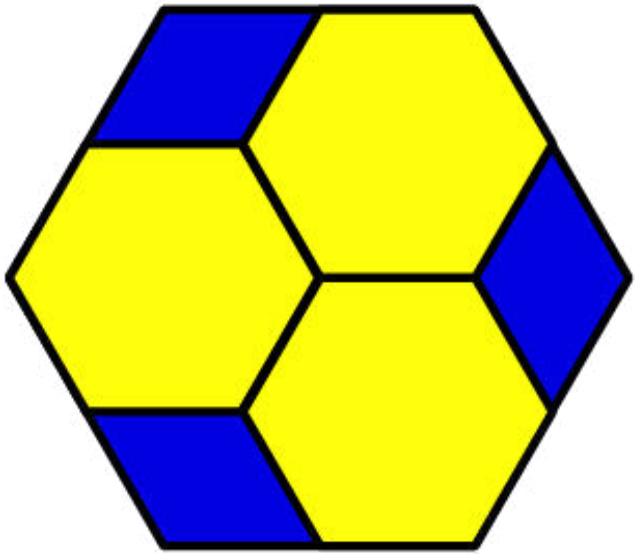
How does the pattern for the number of blocks in this activity compare to the pattern in the previous activity?

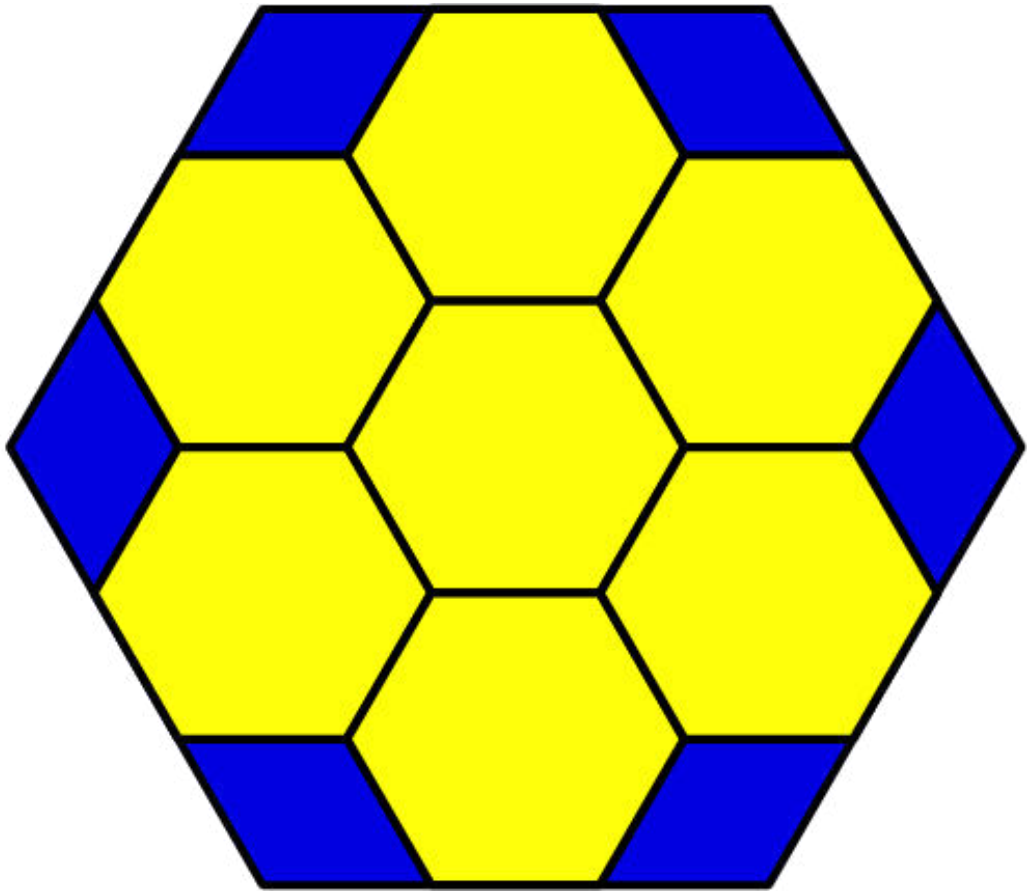
Are they related? How?

For each figure, how many blocks does it take to build a copy using any scale factor *s*?

“Are you ready for more?”

1. How many blocks do you think it would take to build a scaled copy of one yellow hexagon where each side is twice as long? Three times as long?
2. Figure out a way to build these scaled copies.
3. Do you see a pattern for the number of blocks used to build these scaled copies? Explain your reasoning.

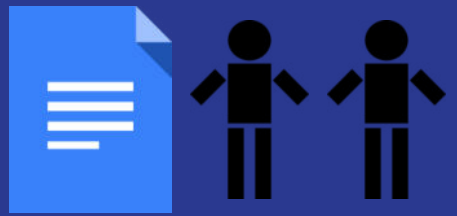




Area of Scaled Parallelograms and Triangles

Activity 6.3

- 5 Practices
- Think Pair Share



Area of Scaled Polygons

➔For your parallelogram or triangle…

- What is the area? How do you know? (on your own)

Work with your partner to draw scaled copies of your figure, using each scale factor in the table. Complete the table with the measurements of your scaled copies.

scale factor	base (cm)	height (cm)	area (cm^2)
1			
2			
3			
$\frac{1}{2}$			
$\frac{1}{3}$			

Compare your results with a group that worked with a different figure.

- What is the same about your answers?
- What is different?

If you drew scaled copies of your figure with the following scale factors, what would their areas be?

scale factor	area (cm^2)
5	
$\frac{3}{5}$	

When we multiply the base and height each by the scale factor and then multiply the results, we are multiplying the original lengths by the scale factor two times.

The effect of this process is the same as multiplying the original area by (scale factor)^2!

If all the dimensions of a scaled copy are twice as long as in the original shape, will the area of the scaled copy be twice as large? Why/why not?

If the scale factor is 5, how many times larger will the scaled copy’s area be?

Enlarged Areas

Cool Down