CONSTRUCTING TASK: PATTERN BLOCK GRAPHING

Images used from http://www.kellyskindergarten.com/math/math_activities.htm

STANDARDS FOR MATHEMATICAL CONTENT

MCC3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

STANDARDS FOR MATHEMATICAL PRACTICES

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND

Throughout each unit, students should continue to develop their understanding of collecting and representing data. In this task, students will use pattern blocks to create pictures and then collect data from their picture. Afterwards, they will represent this data in a picture and bar graph.

ESSENTIAL QUESTIONS

- In what ways can I represent data from a picture?
- How can I show what materials were used to create a picture?
- What type of intervals can be used in a picture or bar graph?

MATERIALS

- Pattern Block Pictures
- Isometric paper to represent their picture once created http://www.ablongman.com/vandewalleseries/Vol_1_BLM_PDFs/BLM30-36.pdf (page 5)

GROUPING

Individual or Partner

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Students will use the pattern block pictures to recreate a picture. You may use these examples or pattern block puzzles available from numerous resources including pattern books and the internet. This activity will help students to continue to develop their spatial sense. Students will not be able to use the picture to recreate the pattern block picture because it is not to scale. If you have students that need the pictures to scale, please visit http://www.kellyskindergarten.com/math/math_activities.htm to locate the pictures.

Once students create the pictures, they will use that information to create a scaled bar graph and picture graph to represent their data. Have students create questions that classmates can answer about their data. For example, how many more rhombi are used than triangles? Are there more hexagons or small rhombi used in my graph? Allow students time to analyze and interpret the data of their classmates.

FORMATIVE ASSESSMENT QUESTIONS

- Did you find it difficult to recreate the picture?
- Why did you decide to use ___ (2, 5, or 10) as the scale for your graphs? Was that your first choice? Was there a better number to use?
- Were classmates able to analyze and interpret your data?

DIFFERENTIATION

Extensions

- Students may want to create their own pictures with the pattern blocks.

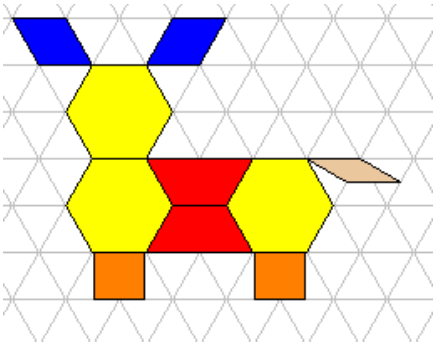
Interventions

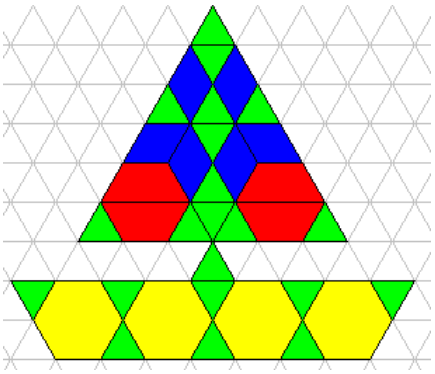
- Students might struggle with this activity for several reasons. If a student struggles with recreating one of the pattern block pictures, print out the picture from http://www.kellyskindergarten.com/math/math_activities.htm. If the student struggles with assigning a scale, have students make a tally chart to show how many of each shape. Based on that information, a student can usually see a number that would be good to use. While five is a good benchmark, students should experience different intervals. For students that struggle, 2 is a better scale interval to show ½ of a number.

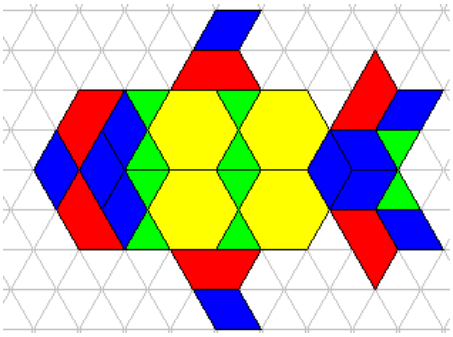
TECHNOLOGY CONNECTIONS

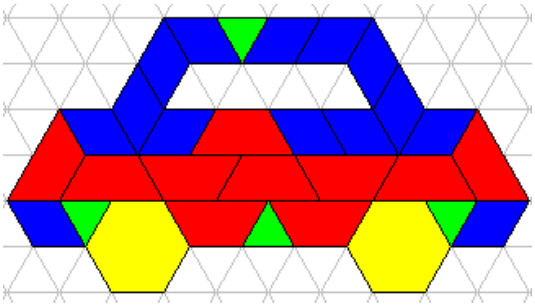
- http://nces.ed.gov/nceskids/createagraph/ - Create a bar graph online.
- http://www.softschools.com/math/data_analysis/pictograph/make_your_own_pictograph/ Create a Picture Graph

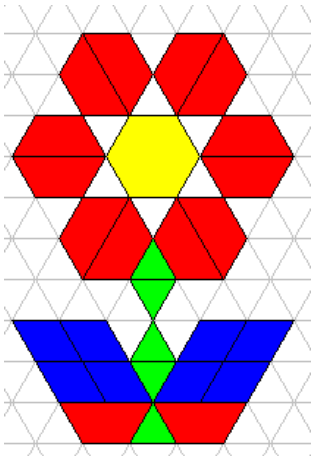
Samples of Pattern Block Pictures

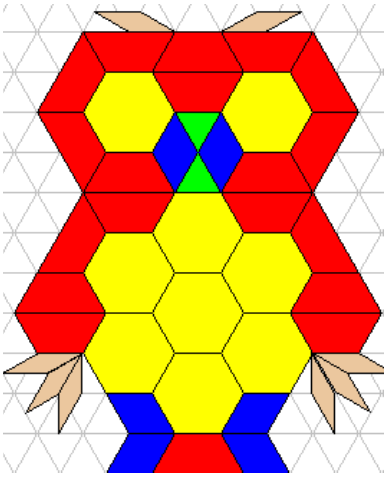












Name _____ Date _____

Pattern Block Picture Data

Use your pattern block picture to fill in the picture graph. Remember to complete the key. Use a scale interval of 2, 5, or 10. Make sure you think about your scale before beginning to complete your graph.

Title:_____	
Hexagon	
Rhombus	
Trapezoid	
Square	
Small Rhombus	
Triangle	
Key  = _____ Pattern Blocks	

Cut apart and Use these pictures in your picture graph