

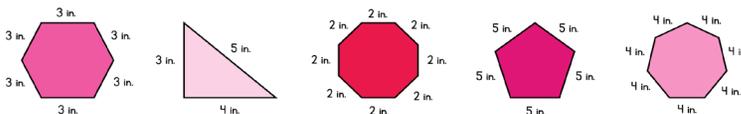
BE MY VALENTINE

Geometry Project Based Learning

3rd Grade
Print & Digital

CLASSROOM VALENTINES

6. You cut the polygon Valentines out of colored paper and are ready to decorate them! You have 5 scraps of ribbon of different lengths you want to put all around the edge of each Valentine. Which ribbon will fit best around each Valentine? Determine the perimeters of each Valentine. Then, drag your ribbon choice to each. Show your work in the boxes.



Five empty rectangular boxes for showing work, each corresponding to one of the polygons above.

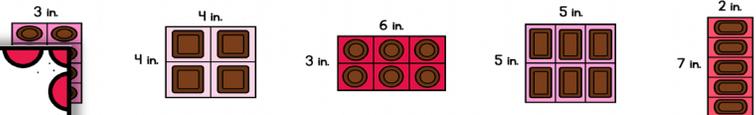
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VALENTINE CHOCOLATES

You go to the store to buy a box of chocolates to give to your friend Taylor for Valentine's Day. Answer the questions below.

1. As you're browsing the display of Valentines chocolates, you knock some boxes to the floor and the lids fall off. You know the length and width of each box and the area of each lid. Drag each lid to the box of chocolates with the same area. Use the textboxes to show that the boxes and lids have the same area.



Four empty rectangular boxes for matching lids to boxes.

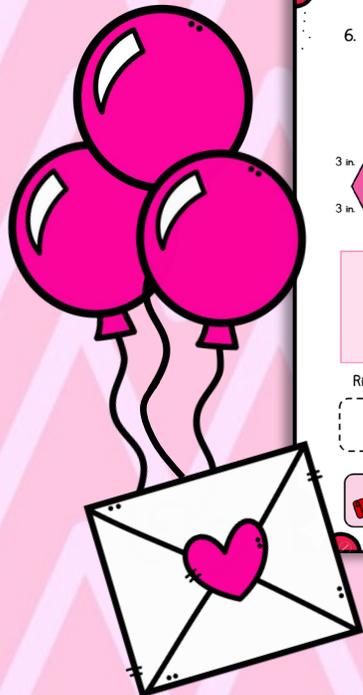
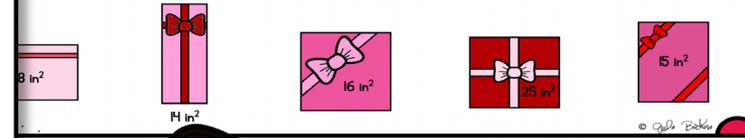


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FOR THE TEACHER

BE MY VALENTINE is a project-based learning task that involves using third-grade math standards to celebrate Valentine's Day. It was created for students in third grade. The following standards are addressed:

- 3.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.
- 3.MD.C.6 Measure area by counting unit squares.
- 3.MD.C.7 Relate area to the operations of multiplication and addition.
- 3.MD.D.8 Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
- 3.G.A.1 Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category. Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
- 3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

DIRECTIONS:

1. Assign students to work alone or in small groups.
2. Preview the activity with your students.
3. Allow students class time to complete the activity. This can span several days.
4. Allow students an opportunity to complete extra challenge activities. (Optional)
5. Allow students to complete the self-reflection and evaluation rubric.
6. Allow students an opportunity to share their completed projects.



BE MY VALENTINE

Valentine's Day is here! On this day meant to celebrate those you love, you want to make valentines to give to your classmates, friends, and family!

Here are your tasks:

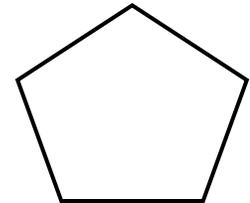
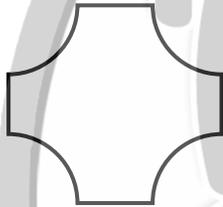
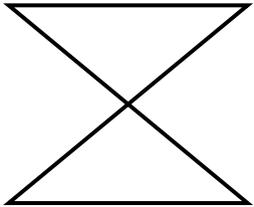
- Read through the entire packet before beginning.
- Identify characteristics of polygons to make valentines for your classmates for your class Valentine's Day party
- Calculate the area and perimeter of your polygon valentines
- Partition sweet treats to share with your classmates at the Valentine's Day party
- Identify and describe quadrilaterals to make Valentine's Day cards for your family
- Use geometry, area, and perimeter to choose boxes of chocolates for your loved ones
- Complete the challenge pages. (Optional)
- Complete the self-reflection and evaluation rubric.



CLASSROOM VALENTINES

Your teacher gives you time in class to make valentines for each of your classmates. You want to use a variety of shapes for your valentines. Answer the questions below.

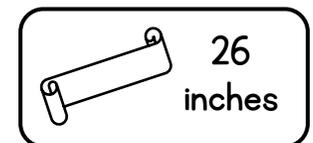
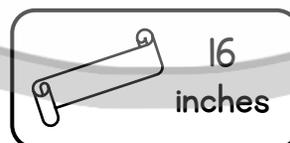
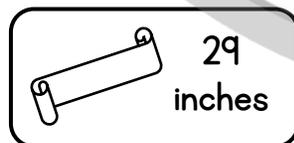
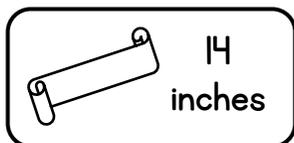
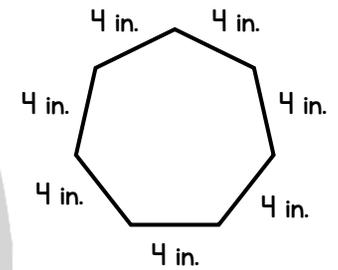
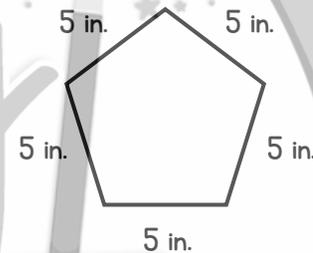
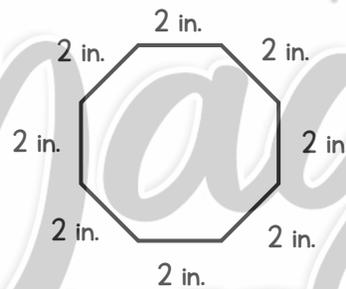
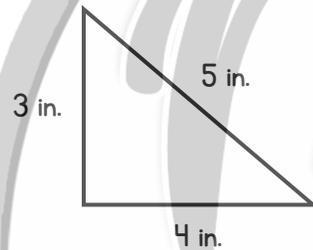
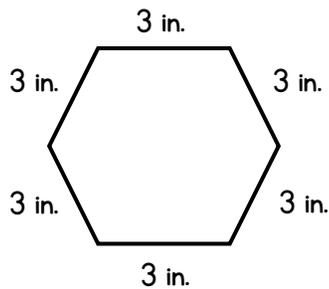
1. To get your creative juices flowing, you sketch out a few ideas on a piece of paper. You remember that your teacher said that every valentine must be a polygon. Draw a checkmark or an X on each shape below to indicate if it is a polygon. If it's not a polygon, explain why not in the space below.



2. Draw 3 more polygons you could use for your valentines. Be sure your polygons are different from the shapes shown above.

CLASSROOM VALENTINES

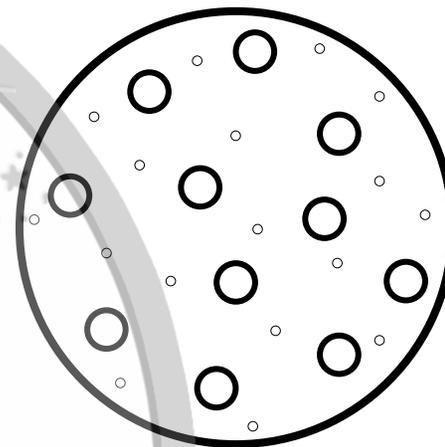
6. You cut the polygon valentines out of colored paper and are ready to decorate them! You have 5 scraps of ribbon of different lengths you want to put all around the edge of each valentine. Which ribbon will fit best around each valentine? Determine the perimeters of each valentine. Then, draw a line to match each shape to your ribbon choice. Show your work.



SWEET TREATS

After you and your classmates exchange valentines, it's time for the class Valentine's Day party! You and your classmates have brought yummy treats to share. Answer the questions below.

1. Your classmate Ines brought in a giant chocolate chip cookie. There are 8 students who say they would like a piece. Draw lines to partition the cookie into 8 equal pieces.



2. Each piece of cookie is of the whole cookie.

3. Your teacher, Ms. O'Connelly, brought in bars of chocolate. She gives one bar of chocolate to each table to share. There are 4 students at your table. Draw lines to show 2 different ways your table can evenly divide the chocolate bar on the diagrams to the right.



4. Each piece of the chocolate bar is of the area of the whole.



QUADRILATERAL CARDS

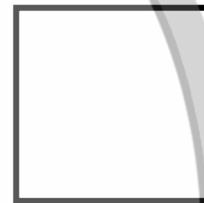
You want to make 5 valentines for your parents, brother, sister, and grandmother. Your first step in making your valentines is cutting out the cards. You want to make a variety of different shaped cards. Answer the following questions.

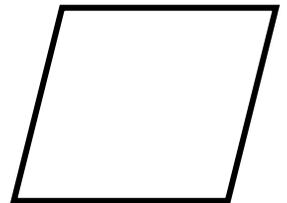
1. You want each card for your family members to be in the shape of a different quadrilateral. Below are the shapes you cut out for each card. Write the name of each quadrilateral.



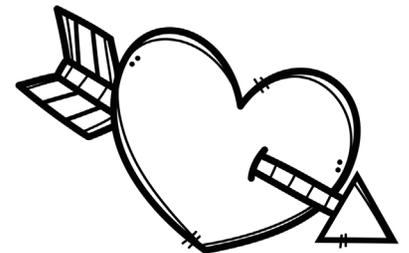






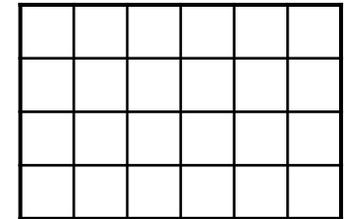


2. Name two characteristics all 5 quadrilaterals above share.
3. Pick two quadrilaterals. Name the shapes you chose and explain their differences.
4. Draw a quadrilateral not pictured above.



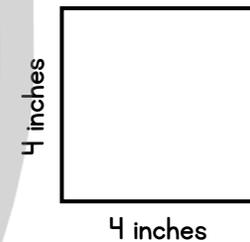
QUADRILATERAL CARDS

10. You want to cover the rectangle card with glitter. The bottle of glitter says there is enough to cover 25 square inches. To determine the area of the rectangle card, you tile it as shown. Each unit square is one square inch. What is the area of the rectangle card?



11. Do you have enough glitter for the rectangle card? Explain.

12. You want to cover the square card with some fancy lace. The dimensions of the square card are shown here. Use multiplication to determine how many square inches of lace you need.



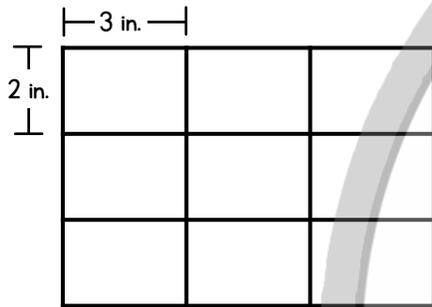
13. You have 40 inches of red ribbon. You want to run the ribbon around the edges of both the rectangle and the square card. Do you need to know the area or the perimeter of the shapes to determine if you have enough ribbon? Explain.

14. Is there enough ribbon in question 13? Explain.



VALENTINE CHOCOLATES

2. You decide to buy Taylor the box of chocolates pictured below. The box is divided into 9 equal compartments for each piece of chocolate. The dimensions of the compartments are shown below. Write and solve a repeated addition equation to find the total area of the box.



3. There is a special Valentine's Day offer where you can get a second box of chocolates for free. You decide to get another box of chocolates for your teacher. You know you want to buy her a box of chocolates that has an area of 24 sq. inches. Draw diagrams of two possible boxes that each have an area of 24 sq. inches but have different perimeters. Label the dimensions of the boxes.

CHALLENGE #1: WORD PROBLEMS

1. Your mom gave you a Valentine's Day card with an area of 24 square inches. The card is a rectangle that is 2 inches longer than it is wide. What are the dimensions of the card?
2. The card your mom gave you was inside an envelope. The envelope was one inch wider and one inch longer than the card. What is the perimeter of the envelope?
3. The card you got from your brother, Jayden, is a square with an area of 36 square inches. What are the dimensions of the card from Jayden?
4. Your sister, Sheila, made you a card out of a piece of paper that is 8 inches long and 6 inches wide. In the middle, she cut out a square that is 2 inches by 2 inches. How many square inches of paper are left in the card?



CHALLENGE #1: WORD PROBLEMS

6. Find the perimeter of each card you drew in question #5.



Martina's Card:



Vincent's Card:

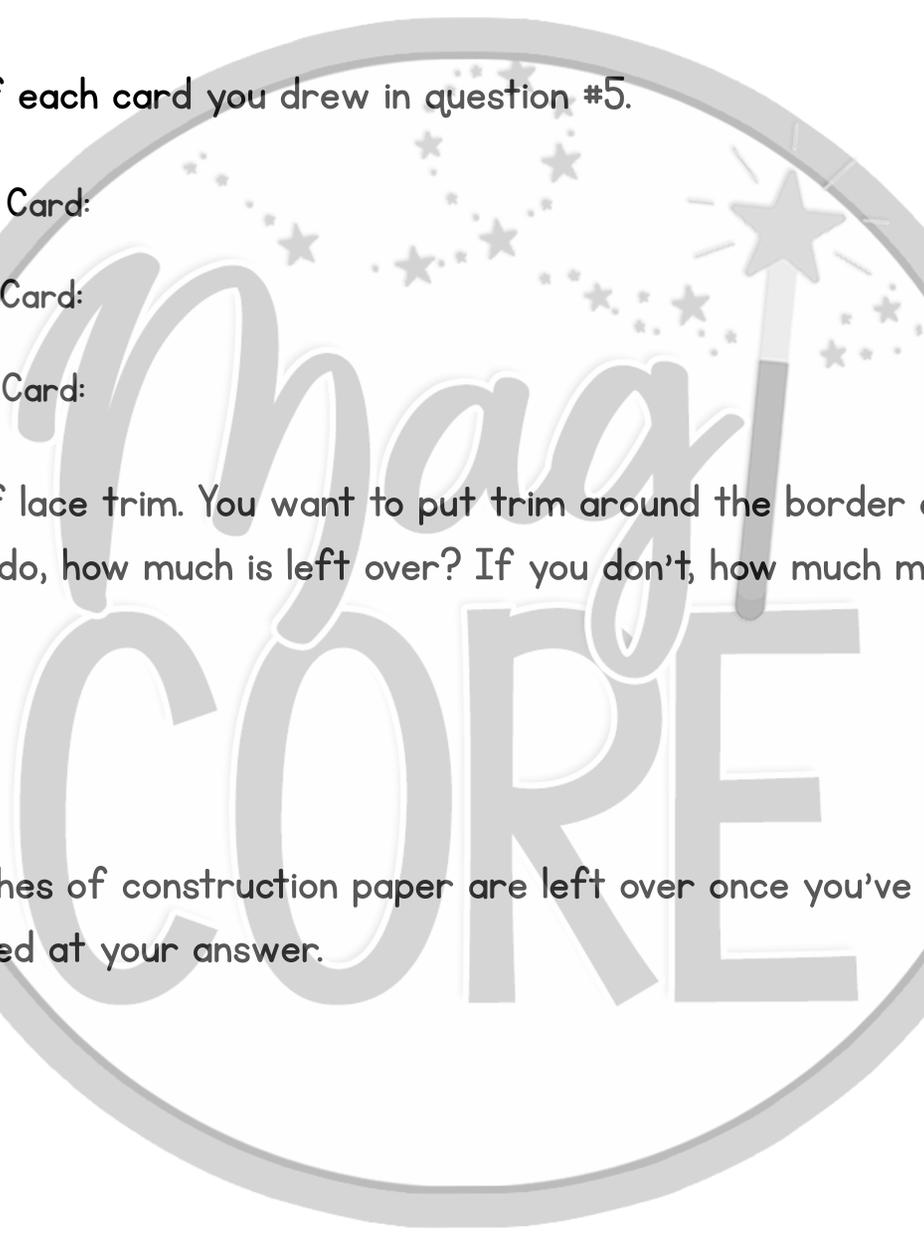


Kassidy's Card:



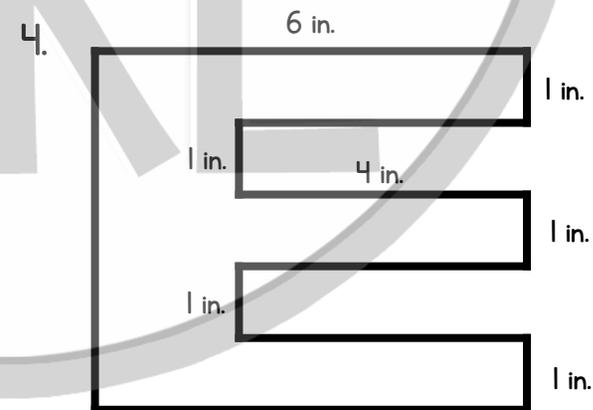
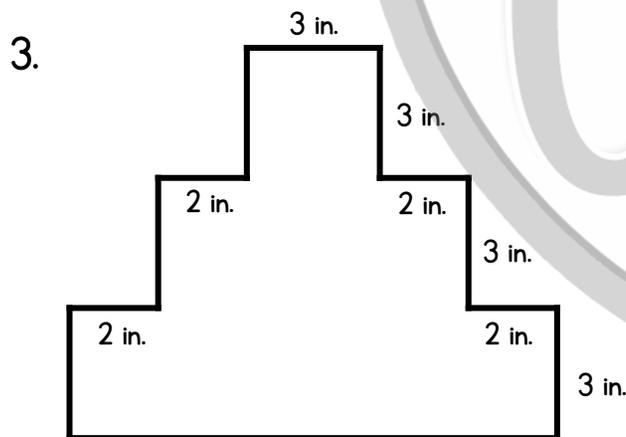
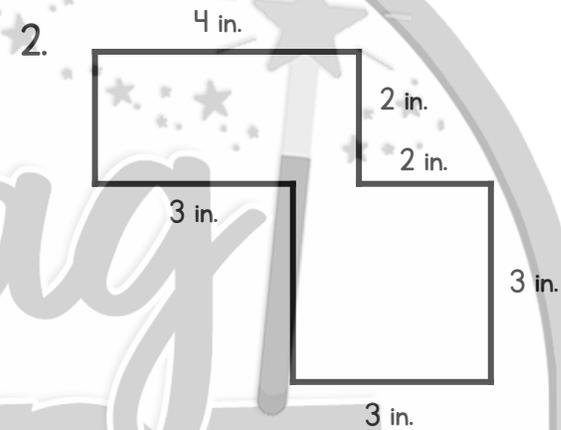
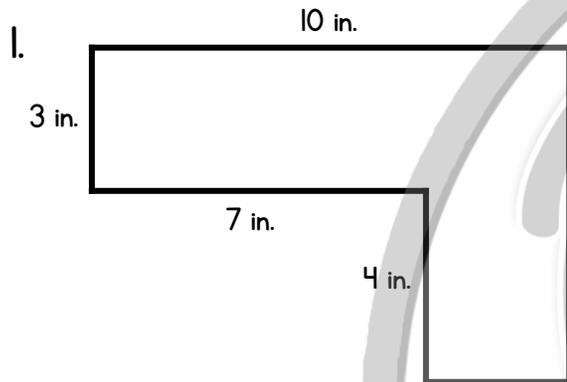
7. You have 50 inches of lace trim. You want to put trim around the border of all three cards. Do you have enough? If you do, how much is left over? If you don't, how much more do you need?

8. How many square inches of construction paper are left over once you've made all your cards? Explain how you arrived at your answer.



CHALLENGE #2: IRREGULAR SHAPES

You are sorting through the valentines you received from your classmates, and some are irregularly shaped. Find the area of each irregularly shaped valentine below.



SELF-REFLECTION

Write a reflection of your experience with this project. How did you feel about the math problems and activities? Explain what you found easy to do and any difficulties you had while working on this project. Did you enjoy this activity? Why or why not?



RATE THIS PROJECT

Circle the statement you most agree with.

I am ready for something harder.

This was just right.

I found this very challenging.

SELF-EVALUATION

Circle one box per row on the rubric that expresses how you rate yourself on this Project-Based Learning Activity.

+	✓	-
I felt very confident about the math in this project.	I felt pretty good about my ability to complete the math in this project.	I felt a lot of the math in this project was too hard for me to do alone.
I understood all of the math and did not need help to complete the problems.	I understood most of the math but needed a little help to solve some of the problems.	I understood some of the math but needed help to complete most of the problems.
I easily used many strategies to solve the math problems efficiently.	I needed some help to use the best strategies for solving the math problems.	I had trouble understanding the best way to solve many of the math problems.
I feel I am ready for a harder math project.	I feel I would like to spend more time practicing similar math problems.	I feel I need assistance to work on similar math problems.

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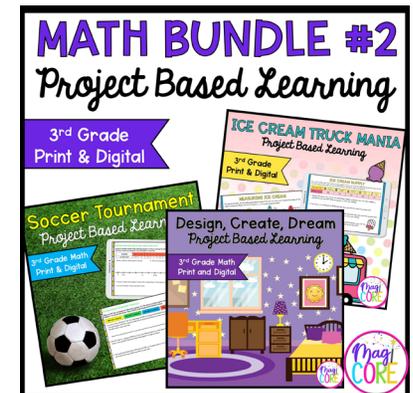
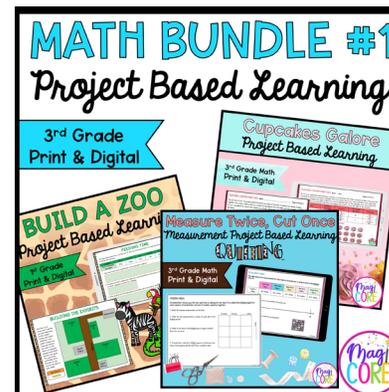
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