Eureka Math

3rd Grade
Module 7
Lesson 8

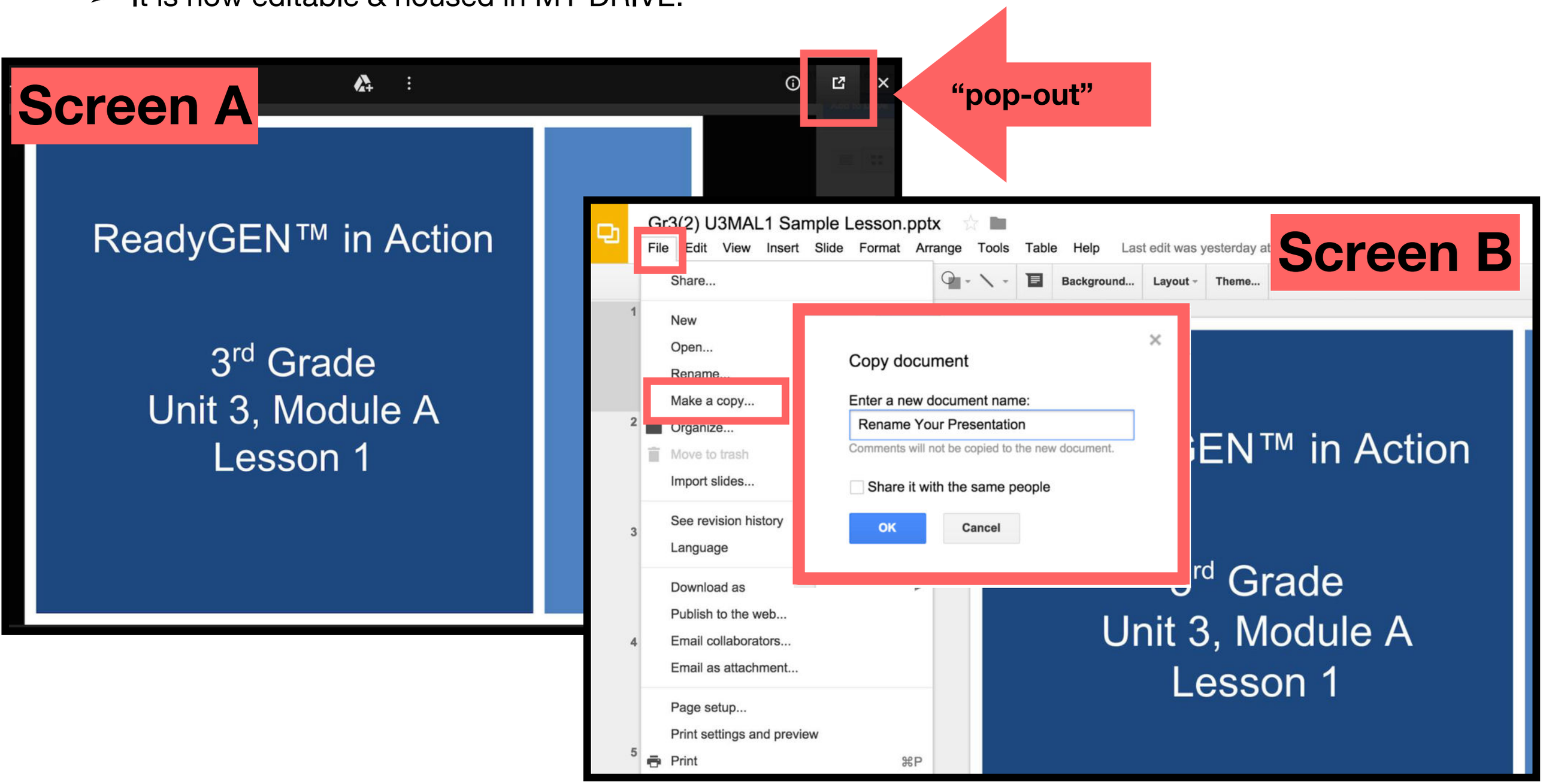
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.

Customize this Slideshow

Reflecting your Teaching Style and Learning Needs of Your Students

- ➢ When the Google Slides presentation is opened, it will look like Screen A.
- ➢ Click on the “pop-out” button in the upper right hand corner to change the view.
- ➢ The view now looks like Screen B.
- ➢ Within Google Slides (not Chrome), choose FILE.
- ➢ Choose MAKE A COPY and rename your presentation.
- ➢ Google Slides will open your renamed presentation.
- ➢ It is now editable & housed in MY DRIVE.

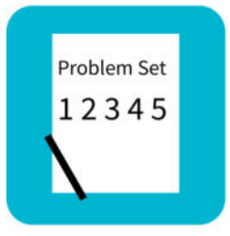


Icons

Read, Draw, Write

Learning Target

Personal White Board

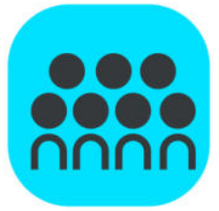


Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

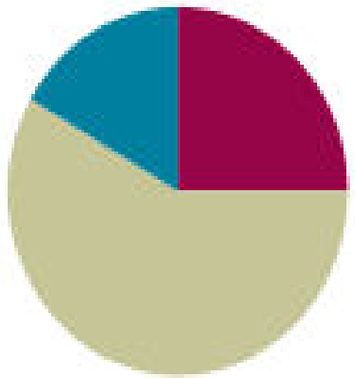
Small Group Time

Lesson 8

Objective: Create a tangram puzzle and observe relationships among the shapes.

Suggested Lesson Structure

Fluency Practice	(15 minutes)
Concept Development	(35 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



I can create a tangram puzzle and observe the relationships among the shapes.

Fluency Practice

Time students for 2 minutes

Multiply.

6 x 1 = _____	6 x 2 = _____	6 x 3 = _____	6 x 4 = _____
6 x 5 = _____	6 x 1 = _____	6 x 2 = _____	6 x 1 = _____
6 x 3 = _____	6 x 1 = _____	6 x 4 = _____	6 x 1 = _____
6 x 5 = _____	6 x 1 = _____	6 x 2 = _____	6 x 3 = _____
6 x 2 = _____	6 x 4 = _____	6 x 2 = _____	6 x 5 = _____
6 x 2 = _____	6 x 1 = _____	6 x 2 = _____	6 x 3 = _____
6 x 1 = _____	6 x 3 = _____	6 x 2 = _____	6 x 3 = _____
6 x 4 = _____	6 x 3 = _____	6 x 5 = _____	6 x 3 = _____
6 x 4 = _____	6 x 1 = _____	6 x 4 = _____	6 x 2 = _____

Fluency Practice

Equivalent Counting with Units of 8 (4 minutes)

Count to 10 as I write. Please do not count faster than I can write.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Count to 10 sevens.

1 eight, 2 eights, 3 eights, 4 eights, 5 eights, 6 eights, 8 eights, 9 eights, 10 eights

Count by eights to 80

Alternate between units of 8 and the number

Fluency Practice

Equivalent Counting with Units of 8 (4 minutes)

1	2	3	4	5	6	7	8	9	10
1 eight	2 eights	3 eights	4 eights	5 eights	6 eights	7 eights	8 eights	9 eights	10 eights
8	16	24	32	40	48	56	64	72	80
1 eight	16	3 eights	32	5 eights	48	7 eights	64	9 eights	80
8	2 eights	24	4 eights	40	6 eights	56	8 eights	72	10 eights

Fluency Practice

Rectangles of Equal Areas (4 minutes)

Materials: (S) Personal white board with grid paper

*On your grid paper, shade a rectangle with the area given:

1. Shade a rectangle with an area of 6 sq. units with one row.

2. Shade a rectangle with the same area using two rows.

3. Shade a rectangle with different side lengths but the same area.

**** Repeat with 12 sq. units if time allows.**

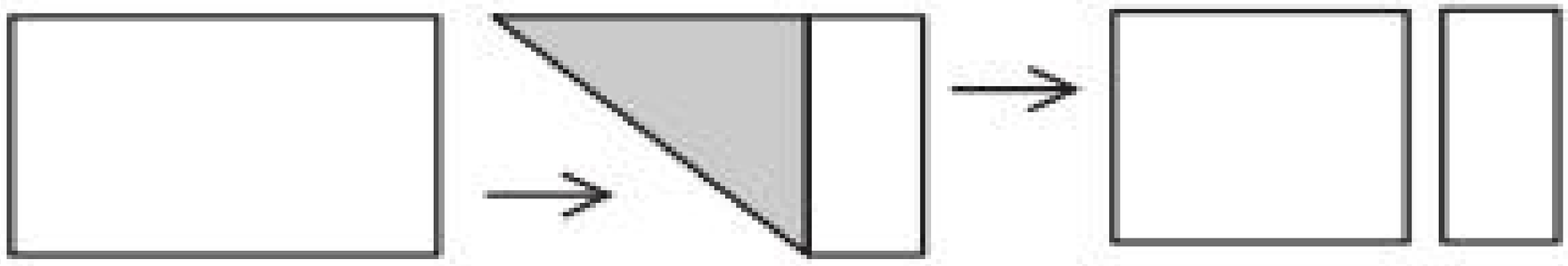
Concept Development

(35 minutes)

Materials: (S) 8 ½“ x 11” sheet of paper, scissors and **Problem Set**

- Today, we will cut out different shapes from this one large shape. What is the shape?

- First, we need to make a square. Fold your paper so that a shorter side lies along a longer side. Cut off the extra strip of paper. Unfold the remaining paper.

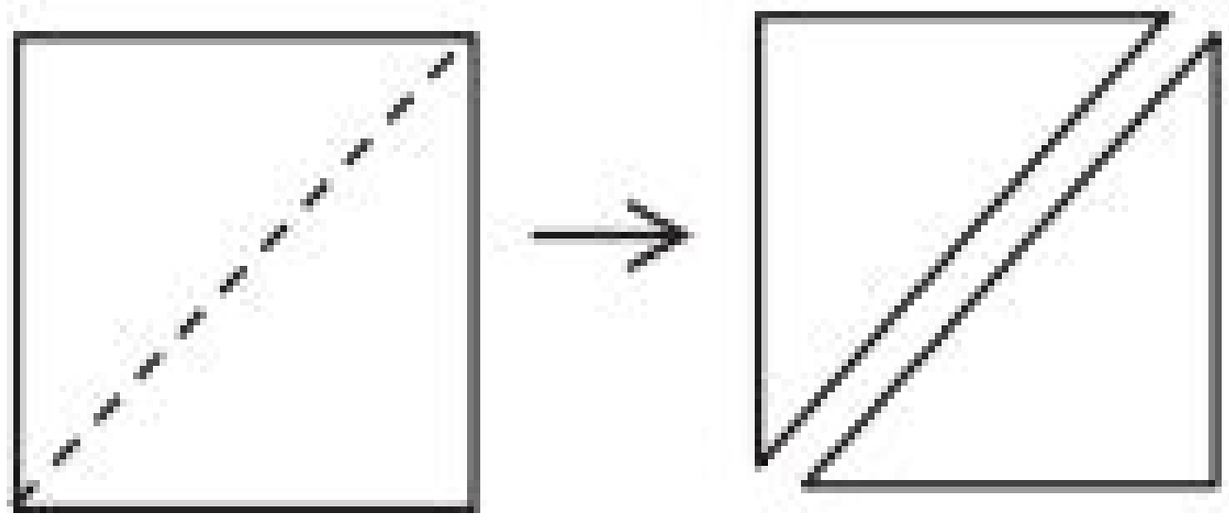


Concept Development

(35 minutes)

- If we draw a diagonal inside the quadrilaterals and discovered they can be decomposed into what two shapes?

- Fold your square on the diagonal, then unfold and cut.
- Problem 1 on the problem set: draw and label the shapes.

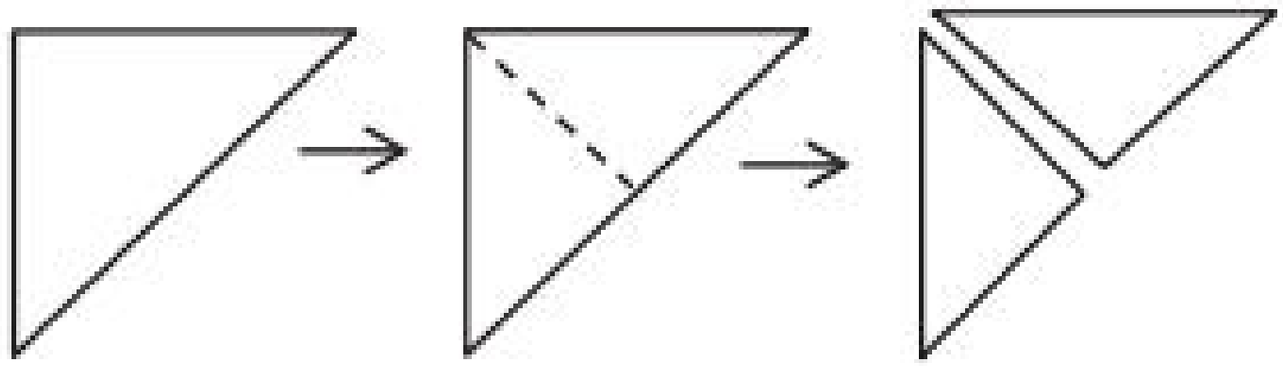


Concept Development

(35 minutes)

Problem 2:

- Take one of your triangles. Fold it in half to make two equal sides. Open and cut on the fold.
- Which smaller shapes is the big triangle composed of?
- Draw and label these two new shapes in Problem 2.



Concept Development

(35 minutes)

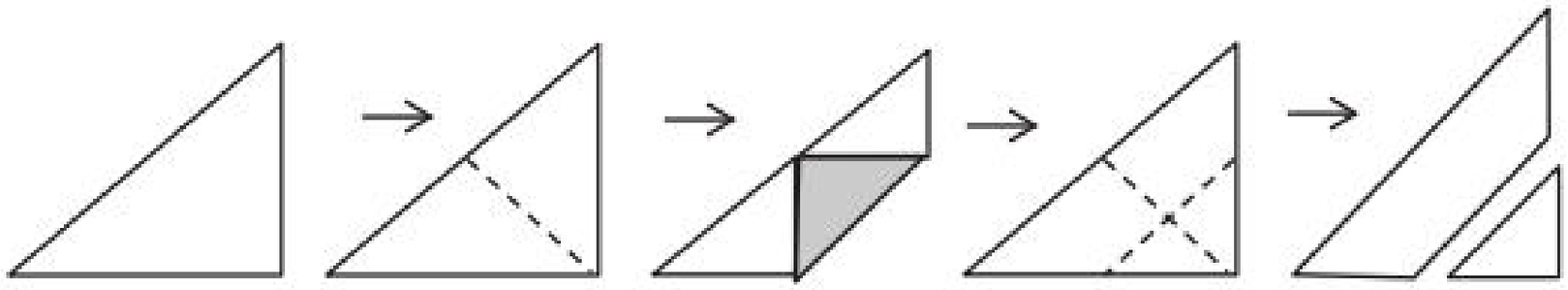
Problem 3:

- Take the remaining big triangle. Fold it in half to make our two triangles. Then, open the paper and fold the tip of the triangle down to meet the bottom side of the triangle in the middle. Make a crease, open it, and cut.

- What shapes did we make?

A trapezoid and triangle

- Draw and label these two new shapes in Problem 3.



Concept Development

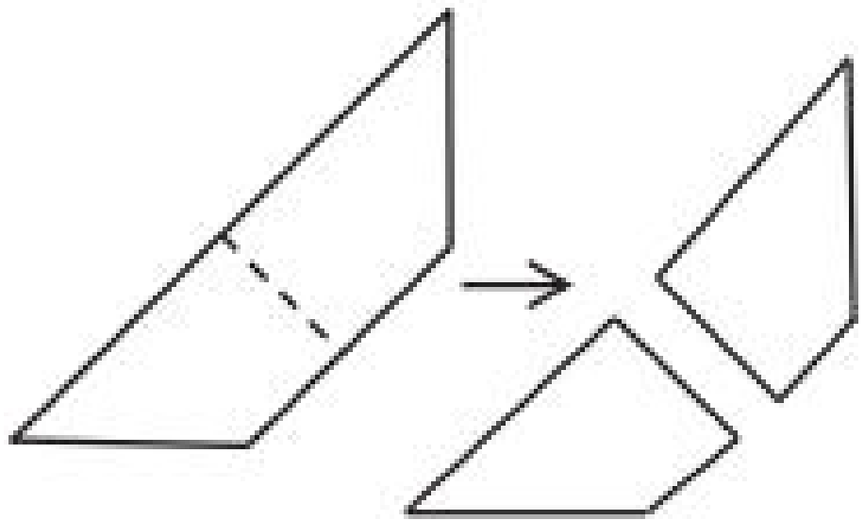
(35 minutes)

Problem 4:

- Take the trapezoid. Fold it in half and cut on the fold. Now you have two of what type of shape?

- What shapes did we make?

- Draw and label these two new shapes in Problem 4.



Concept Development

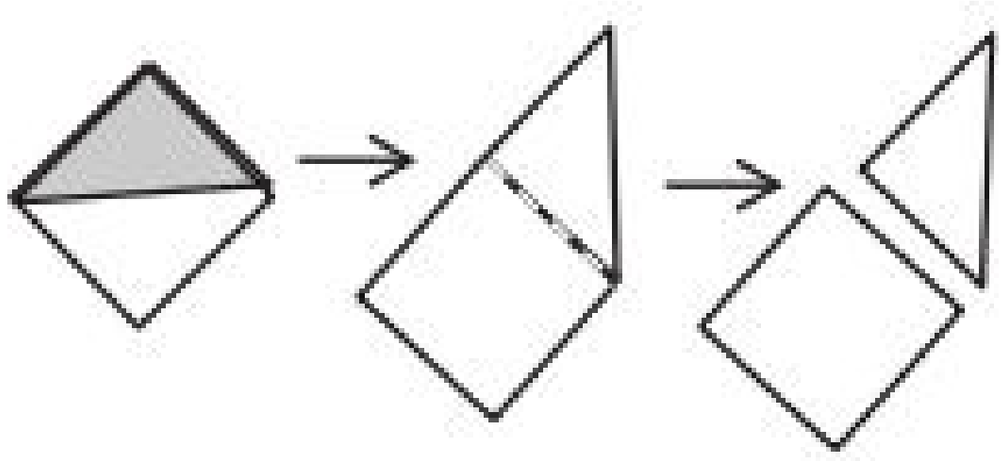
(35 minutes)

Problem 5:

- Take one of the trapezoids, and fold the longest point in. Make a long oint meet the opposite corner, and create it. Open and cut on the fold.

- What shapes did we make?

- Draw and label these two new shapes in Problem 5.



Concept Development

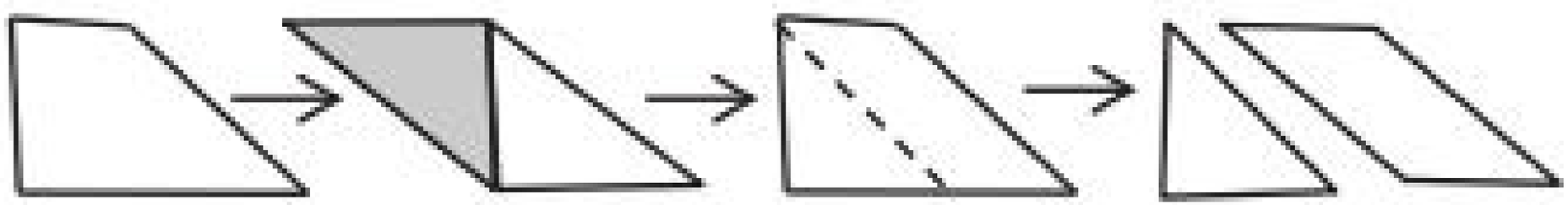
(35 minutes)

Problem 6:

- Use the last trapezoid. Put the longest side at the bottom, with the right angle to the left. Fold the bottom left angle up to meet the diagonal corner, and crease it. Open and cut on the fold.

- What shapes did we make?

- Draw and label these two new shapes in Problem 6



Concept Development

(35 minutes)

- We have made 7 pieces. Now take them and try to put them back together to form the original large square we started with.

- If you finish, shuffle, and make a new shape.

- These 7 pieces that form a large square are called a **tangram!**

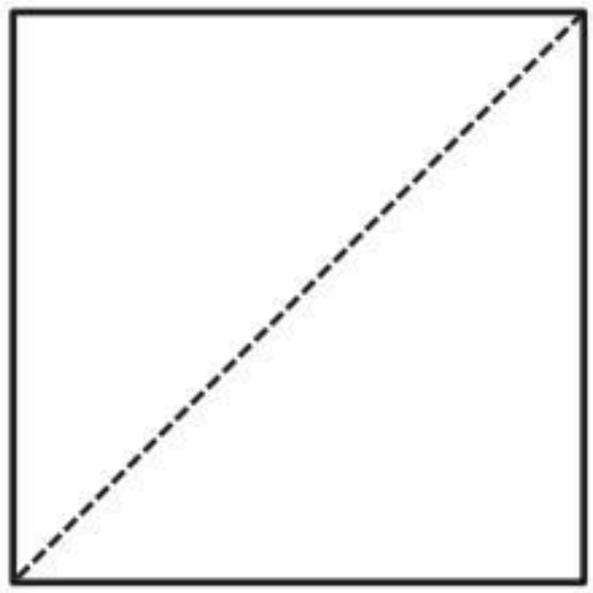
****You can make many different and interesting shapes by combingin some or all of the parts.**

Problem Set

*Students complete 7a and 7b

7. Reconstruct the original square using the seven shapes.

   a. Draw lines inside the square below to show how the shapes go together to form the square. The first one has been done for you.



   b. Describe the process of forming the square. What was easy, and what was challenging?

Debrief

Any combination of the questions below may be used to lead the discussion.

- How do you know the triangles in Problem 1 have right angles without having to check with your tool?
- What do you notice about the size and shape of the triangles in Problem 2? Are they equal in size? How do you know? Are they regular polygons?
- Out of the seven **tangram** pieces, how many shapes are triangles? How many shapes are quadrilaterals? Are any of the shapes regular polygons?
- Explain to your partner the steps you took to recompose the seven shapes to a square.
- Share your answers to Problem 7(b). What was challenging? What are some strategies you used to recompose the square?

Exit Ticket (3 minutes)

Name _____ Date _____

Choose three shapes from your tangram puzzle. Trace them below. Label the name of each shape, and describe *at least* one attribute that they have in common.