Eureka Math

3rd Grade
Module 7
Lesson 9

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Directions for customizing presentations are available on the next slide.

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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.
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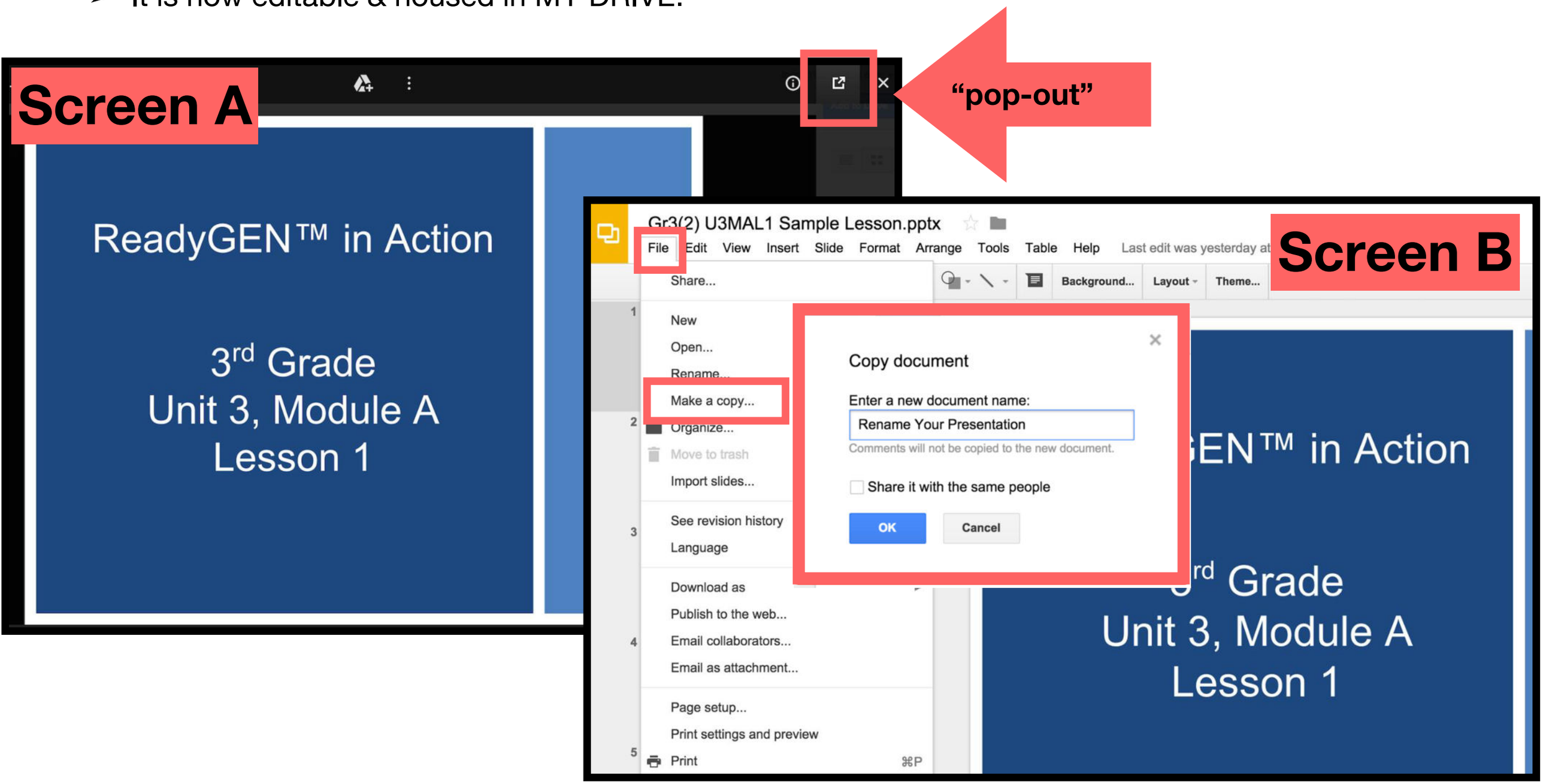
- ➢ The view now looks like Screen B.
- ➢ Within Google Slides (not Chrome), choose FILE.
- ➢ Choose MAKE A COPY and rename your presentation.
- ➢ Google Slides will open your renamed presentation.
- ➢ It is now editable & housed in MY DRIVE.

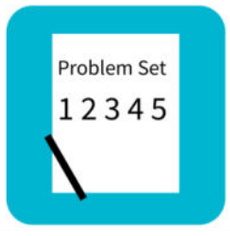


Icons

Read, Draw, Write

Learning Target

Personal White Board

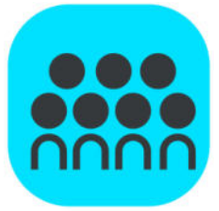


Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

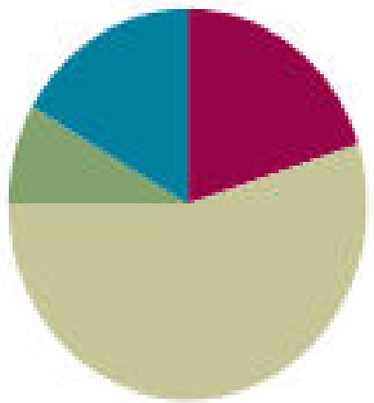
Small Group Time

Lesson 9

Objective: Reason about composing and decomposing polygons using tangrams.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(33 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



I can reason about composing and decomposing polygons using tangrams.

Fluency Practice

Time students for 2 minutes

A STORY OF UNITS | Lesson 9 Pattern Sheet | 3•7

Multiply.

6 x 1 = _____	6 x 2 = _____	6 x 3 = _____	6 x 4 = _____
6 x 5 = _____	6 x 6 = _____	6 x 7 = _____	6 x 8 = _____
6 x 9 = _____	6 x 10 = _____	6 x 5 = _____	6 x 6 = _____
6 x 5 = _____	6 x 7 = _____	6 x 5 = _____	6 x 8 = _____
6 x 5 = _____	6 x 9 = _____	6 x 5 = _____	6 x 10 = _____
6 x 6 = _____	6 x 5 = _____	6 x 6 = _____	6 x 7 = _____
6 x 6 = _____	6 x 8 = _____	6 x 6 = _____	6 x 9 = _____
6 x 6 = _____	6 x 7 = _____	6 x 6 = _____	6 x 7 = _____
6 x 8 = _____	6 x 7 = _____	6 x 9 = _____	6 x 7 = _____
6 x 8 = _____	6 x 6 = _____	6 x 8 = _____	6 x 7 = _____

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 nines.

1 nine, 2 nines, 3 nines, 4 nines, 5 nines, 6 nines, 8 nines, 9 nines, 10 nines

Count by eights to 90

Alternate between units of 8 and the number

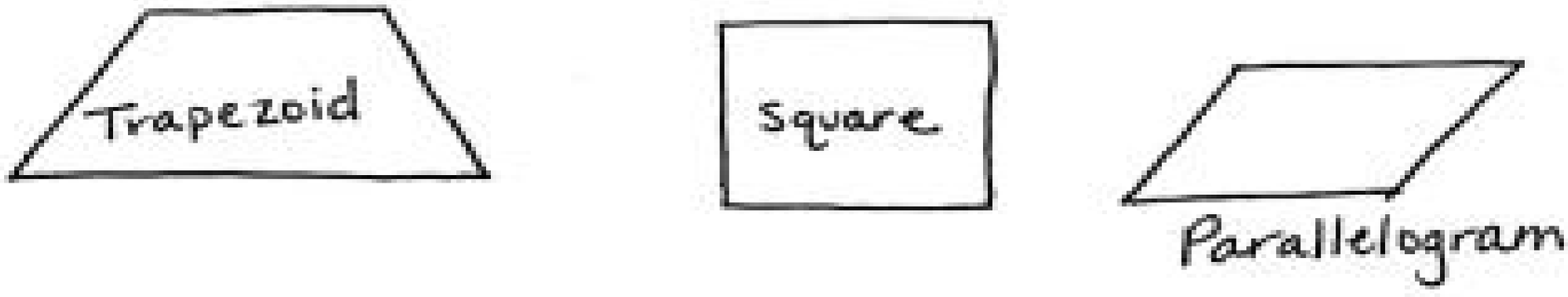
Fluency Practice

Equivalent Counting with Units of 9 (4 minutes)

1	2	3	4	5	6	7	8	9	10
1 nine	2 nines	3 nines	4 nines	5 nines	6 nines	7 nines	8 nines	9 nines	10 nines
9	18	27	36	45	54	63	72	81	90
1 nine	18	3 nines	36	5 nines	54	7 nines	72	9 nines	90
9	2 nines	27	4 nines	45	6 nines	63	8 nines	81	10 nines

Application Problem

(5 minutes)



Name at least two attributes that a trapezoid, a square and a parallelogram all have in common. Draw a diagram to support your ideas.

Application Problem

(5 minutes)

All of these have one or more sets of parallel lines. They are also all quadrilaterals. They could all have right angles too:

Concept Development

(35 minutes)

Materials: (S) Tangram pieces from previous lesson, blank piece of paper and **Problem Set**

Use **at least two tangram pieces** to make and draw **two of each of the following shapes.** Draw lines to show where the tangram pieces meet:

a. A rectangle that does not have all equal sides.

Ex: Use the square and the two small triangles to make a rectangle. Draw your rectangle in Problem 1(a). Draw lines to show where the triangles and square meet to make the rectangle. Now make another rectangle...

Concept Development

(35 minutes)

Use **at least two tangram pieces** to make and draw **two of each of the following shapes.** Draw lines to show where the tangram pieces meet:

Problem 1b. A triangle.

- Compare your triangle with a partner. Discuss how they are similar and different.

Concept Development

(35 minutes)

Use **at least two tangram pieces** to make and draw **two of each of the following shapes.** Draw lines to show where the tangram pieces meet:

Problem 1c. A parallelogram.(that is **not** a rectangle)

- Compare your parallelogram with a partner. Discuss how they are similar and different.

Concept Development

(35 minutes)

Use **at least two tangram pieces** to make and draw **two of each of the following shapes.** Draw lines to show where the tangram pieces meet:

Problem 1d. A trapezoid.(that is **not** a rectangle)

- Compare your trapezoid with a partner. Discuss how they are similar and different.

Concept Development

(35 minutes)

Problem 2: Use your two smallest triangles to create a square, a parallelogram, and a triangle.

- Use the two small triangles to make a square. Draw your square in Problem 2. Draw lines to show where the triangles meet to make the square.

- Now, use the two small triangles to make a parallelogram. Draw your parallelogram in Problem 2. Draw lines to show where the triangles meet to make the parallelogram.

Concept Development

(35 minutes)

Problem 2: Use your two smallest triangles to create a square, a parallelogram, and a triangle.

- Finally, use the two small triangles to make a new triangle. Draw your triangle in Problem 2. Draw lines to show where the small triangles meet to make the new triangle.

- Talk to a partner: Compare the size of the parallelogram and the new triangle that you made to the size of the square tangram piece.

They're all equal!

Concept Development

(35 minutes)

Problem 3: Create your own shape on a separate sheet of paper using all seven pieces. **Trace only the outline.** Describe the attributes of your shape in your problem set.

Concept Development

(35 minutes)

Problem 4: Trade your outline with a partner to see if you can recreate their shape using your tangram pieces. Then write about what was easy and what was challenging in your problem set.

Debrief

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

- Which shape was the most challenging for you to make in Problem 1? Why?
- Could you make the same shapes you made in Problem 2 with the large triangles? Why or why not?
- What can you say about the areas of the shapes you made in Problem 2? How about the areas of these shapes compared to the area of the square tangram piece?
- Compare your answer to Problem 3 with a partner's answer. What attributes do your shapes have in common? What attributes are different?
- Share your answers to Problem 4. Was something easy for you but challenging for others? Likewise, was something easy for others but challenging for you? Why?

Exit Ticket (3 minutes)

Student need tangram pieces to complete this.

Name _____ Date _____

Nancy uses her tangram pieces to make a trapezoid without using the square piece. Below, sketch how she might have created her trapezoid.