DOINGWHATWORKS

SAMPLE MATERIAL

Same Part, Different Wholes: Lesson Plan and Worksheets

Tollgate Elementary School of Expeditionary Learning, Colorado

Topic: Developing Effective Fractions Instruction for K-8

Practice: Initial Fraction Concepts

This fourth-grade lesson plan from Tollgate Elementary School of Expeditionary Learning focuses on finding fractional parts, both of rectangular area and a set of objects, and comparing fractional parts of different-sized wholes. As part of this lesson, the teacher leads a "Number Talk" class discussion, engaging students in thinking about the number relationships they will be using in the lesson, and has them complete worksheets that apply the concepts discussed. The teacher has also developed questions that can be used to support struggling students and extend student thinking throughout the lesson.

Math Whole Group-Lesson Plan

Objective / Big Idea: Fractional parts are equal shares or equal-sized portions of a whole or unit.

Lesson: Same Parts, Different Wholes

Materials: crackers of different sizes, recording sheet of 5 x12 rectangles and 4 x 6 rectangles, anchor chart of basic fraction parts

What should students know and be able to do by the end of the lesson?

LT: I can find fraction parts and compare the fraction parts.

Number Talk: Display 24 oranges in a 4 x 6 array (crate). Pose the problem of giving 1/3 of 24 oranges away. Continue with giving away 2/3 of 24 oranges away. What if you wanted to give away 1/5 of 24 oranges?

Launch	**What will you do to launch the lesson?** • Hook: Show a graham cracker and a smaller cracker. Ask, "If I split both these crackers in ½ to share with ____ and ____, would it be fair? Why or why not?" • Introduce LT and refer back to the work we did on Monday to refresh memories • Ask, "Will ½ of the area of a 5 x12 rectangle be the same size as ½ the area of the 4 x 6 rectangle? Why or why not?" Show models of the rectangles for students to visualize. • Introduce work that students will need to do. Model and think aloud how to find ¼ of a 6 x 4 rectangle and ¼ of a 5 x12 rectangle. • Launch question: What strategies can be used to find fractional parts? What is the same and what is different about finding ½ or a ¼ of different size rectangles?

	What will students do?	**Misconceptions: (What to watch out for)**
Explore	• Find different size fractions on the 4 x 6 rectangle and 5 x12 rectangle to compare fraction parts • Find equivalent fractions	• Students dividing the rectangle incorrectly (ex: to show 1/3 of a 6 x 4 rectangle, they shade in 3 squares to show there are 8 parts altogether) • Students are not counting equal groups to divide the rectangle

	Possible questions to ask struggling students: • How do you know that the part you shaded in is __ (ex 1/5) of the area of the rectangle? Can you show me __ (ex: 2/5) of the area? How many square units is that? Do you see a relationship? • Let's pretend each square is a piece of candy. We want to split them equally among _ people. Would it be fair if each person got this much that you shaded?	**Strategies that could be used:** • Thinking of other fractions that are equivalent of the fraction they are looking for • Dividing the whole by the denominator and then shading in the number of parts in the numerator
	Possible questions to extend student thinking: • Can you show any of these fractions on the 5 x12 rectangle: 1/10, 1/15, 1/30? • Can you show any of these fractions on the 5 x12 rectangle: 7/10, 5/15, 20/30? • For an extra challenge, can you find 1/8 or 5/8 of the 5 x12 rectangle?	

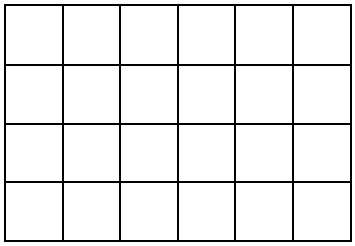
Summary	**How will I summarize?** • What strategies can be used to find fractional parts? • What is the same and what is different about finding ½ or a ¼ of different size rectangles?	**Sharing:**

Name _____

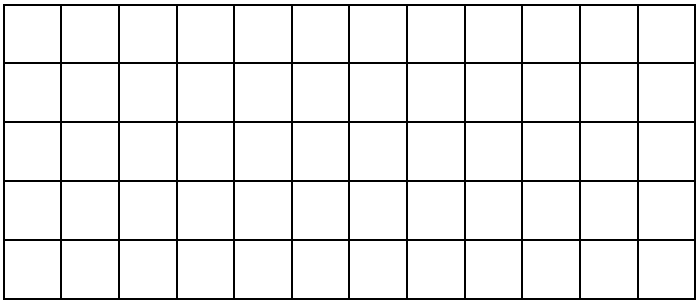
Same Parts, Different Wholes

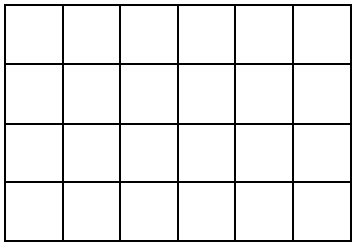
LT: I can find fraction parts and compare fraction parts.

Represent the fractional parts listed below for the 4 x 6 rectangle and the 5 x 12 rectangle. What strategies can be used to find fractional parts?

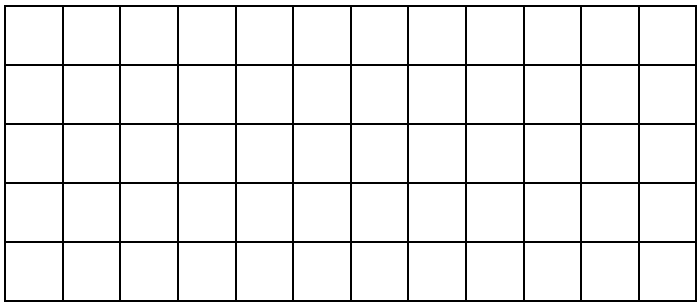


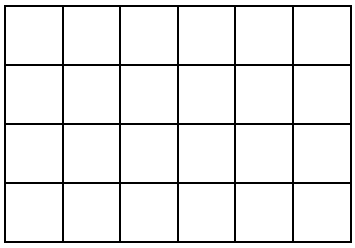
$\frac{1}{3}$



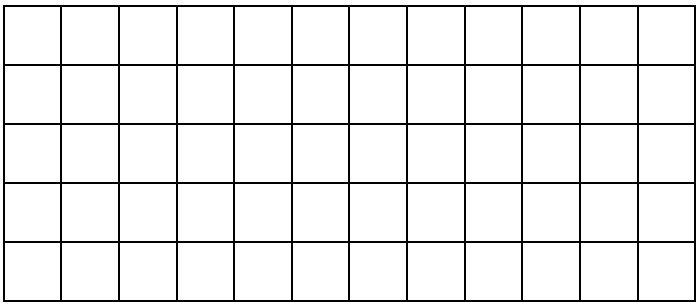


$\frac{1}{6}$





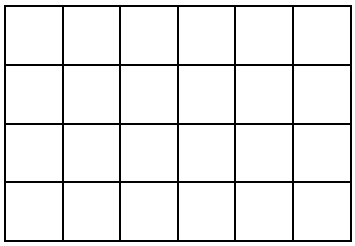
$\frac{1}{12}$



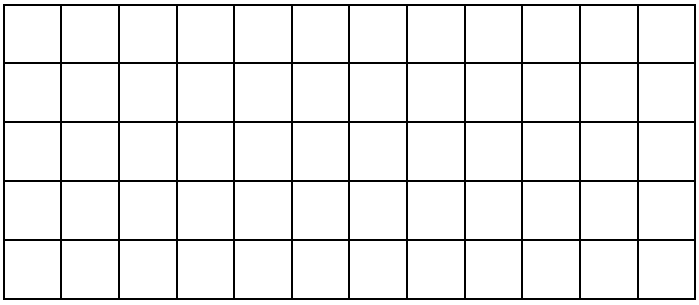
Name _____

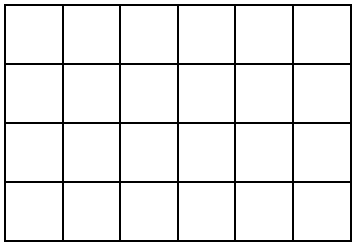
Same Parts, Different Wholes

Represent the fractional parts listed below for the 4 x 6 rectangle and the 5 x 12 rectangle. What strategies can be used to find fractional parts?

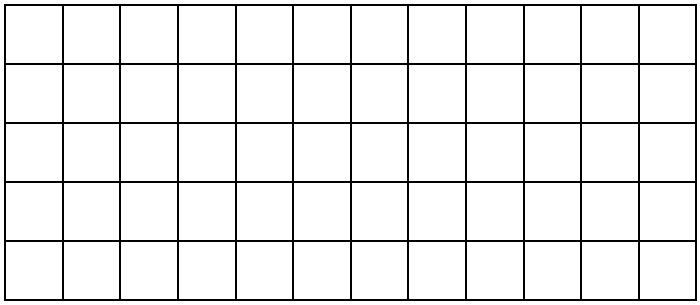


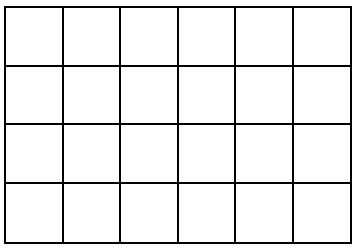
$\frac{2}{3}$



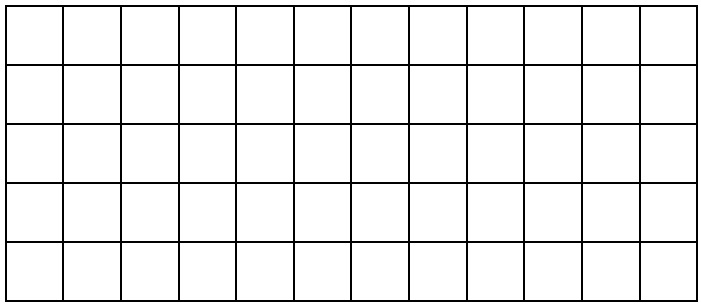


$\frac{4}{6}$





$\frac{8}{12}$



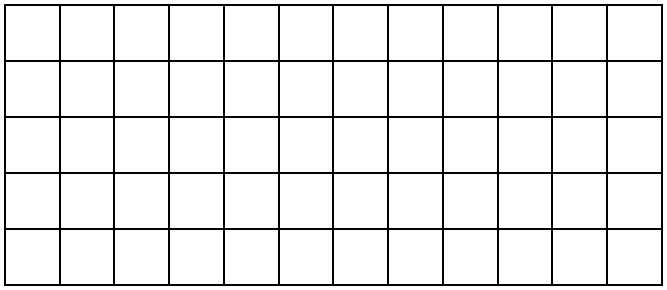
What strategies can be used to find fractional parts?

What do you notice about the size of a fractional part when comparing two different sized rectangles?

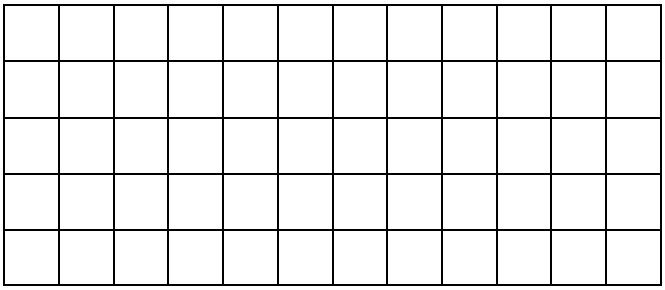
Name _____

Same Parts, Different Wholes

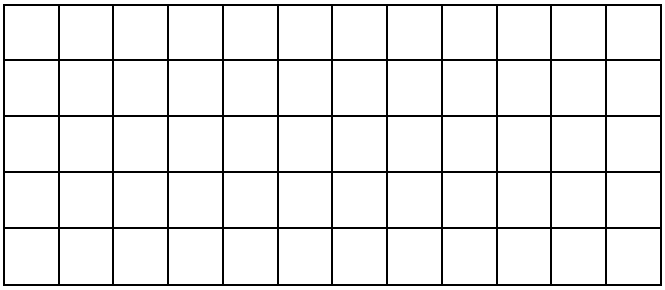
Represent the fractional parts listed below for the 5 x 12 rectangle.



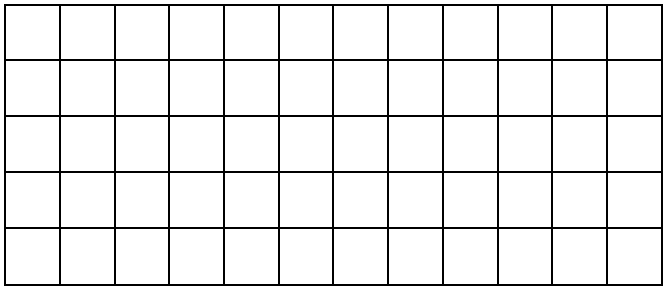
$\frac{3}{10}$



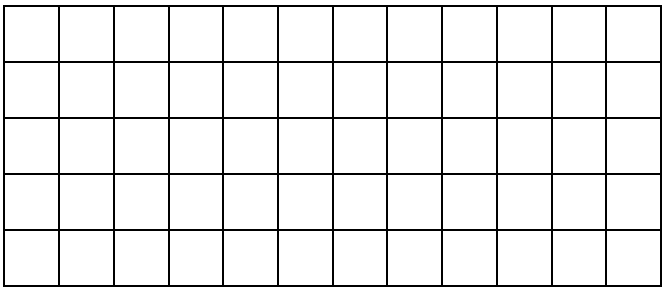
$\frac{6}{10}$



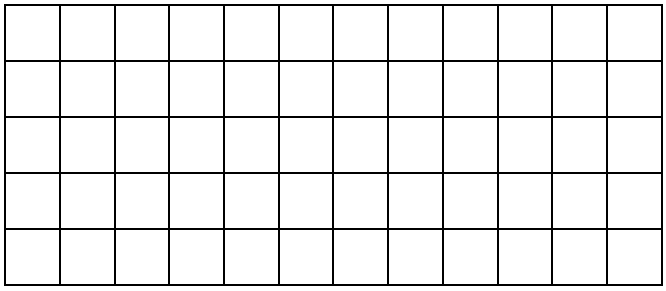
$\frac{5}{15}$



$\frac{9}{15}$



$\frac{10}{30}$



$\frac{18}{30}$

Are there equivalent fractions here? Which are equivalent fractions, and why?