Eureka Math

4th Grade
Module 5
Lesson 41

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.

Icons

Read, Draw, Write

Learning Target

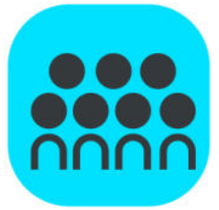
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

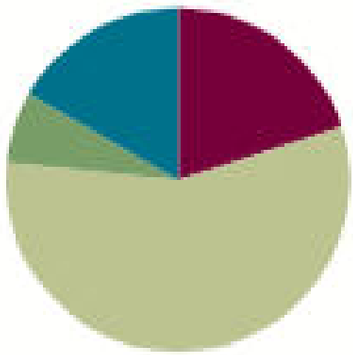
Small Group Time

Lesson 41

Objective: Find and use a pattern to calculate the sum of all fractional parts between 0 and 1. Share and critique peer strategies.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(4 minutes)
Concept Development	(34 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



I find and use a pattern to calculate the sum of fractional parts between 0 and 1.

+/-

643 thousands 857 ones + 247 thousands 728 ones

400 thousands - 346 thousands 286 ones

Multiplying mixed numbers

3 x 5 ¾

5 x 2 ⅞

Make a one

¾, how many more till one?

⅔, how many more till one?

⅓, how many more till one?

⅙, how many more till one?

Application Problem

Jackie's paper chain was 5 times as long as Sammy's, which measured $2\frac{75}{100}$ meters. What was the total length of both their chains?

Explore patterns

Each person in your group will make a set of number cards from 0-1 for a given unit.

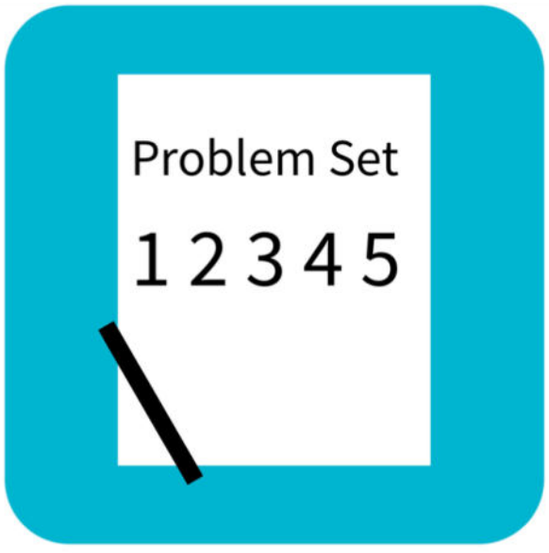
Example thirds would ⅓ ⅔ and 3/3 on each card

Solve for the sum of the fractional unit

Who wants to share how they found the sum?

Apply the pattern rule

1) Each group will choose a large EVEN denominator above 20 and find the sum of all the fractions.
2) Each group will choose a large ODD denominator above 20 and find the sum of all the fractions.
3) Each group will share their results and look for patterns in their sums. Make sure you are able to describe a way to find the sum of any set of fractions.



Problem Set

Name _____ Date _____

1. Find the sums.

a. $\frac{0}{3} + \frac{1}{3} + \frac{2}{3} + \frac{3}{3}$

b. $\frac{0}{4} + \frac{1}{4} + \frac{2}{4} + \frac{3}{4} + \frac{4}{4}$

Debrief

- Discuss the difference in the sums between even and odd denominators. Why is this?
- How did the pattern found in Problem 2 work for solving in Problem 4? In what ways did your pattern need revision?
- Is it necessary to test your answer for Problem 6? Why or why not?
- How might you find the sum of all the whole numbers up to 10 using an array?

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

$$\frac{10 \times 11}{2}$$

- Can you find a shortcut to calculate the sum of all the whole numbers from 0 to 50? To 100? Explain how. (An explanation of one method is found in the Notes in the box above.)

Exit Ticket

Name _____ Date _____

Find the sums.

1. $\frac{0}{20} + \frac{1}{20} + \frac{2}{20} + \cdots + \frac{20}{20}$

2. $\frac{0}{200} + \frac{1}{200} + \frac{2}{200} + \cdots + \frac{200}{200}$