Eureka Math

4th Grade
Module 5
Lesson 29

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

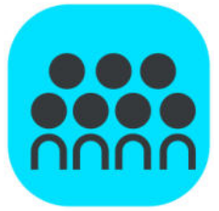
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

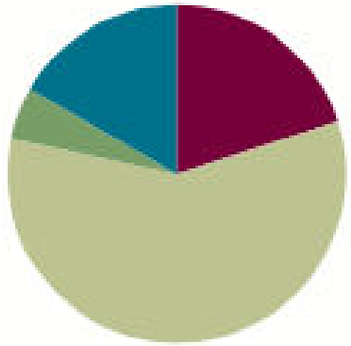
Small Group Time

Lesson 29

Objective: Estimate sums and differences using benchmark numbers.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(3 minutes)
Concept Development	(35 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Estimate sums and differences using benchmark numbers.

+ fractions

5/10 + 3/10 + 1/10 =

⅔ + ⅓ + ⅔=

What did you get?

Can we leave it this way?

What must we do?!?!

Change to mixed numbers

11/6, use a number bond to change to a mixed number

17/6,

29/8

RDW

Application Problem

Both Allison and Jennifer jogged on Sunday. When asked about their distances, Allison said, "I ran $2\frac{7}{8}$ miles this morning and $3\frac{3}{8}$ miles this afternoon. So, I ran a total of about 6 miles," and Jennifer said, "I ran $3\frac{1}{10}$ miles this morning and $3\frac{3}{10}$ miles this evening. I ran a total of $6\frac{4}{10}$ miles."

How do their answers differ? Discuss with your partner.

Estimating sums

What does it mean to estimate?
3 ⅕ + 4 8/9, let's estimate the sum.
Round 3 ⅕. What would round 3 ⅕ to?
I know ⅕ is closer to 3 than 4 so I would round it to 3.
What about 4 8/9?

Now that we rounded our numbers to 3 and 5 we add them and we get 8.
That means 3 ⅕+4 8/9 is ABOUT 8.

Estimating sums

8 9/10 + 2 4/8
In the last problem we round the nearest whole number because that is what the fractions were close to.
Let's take a look at these numbers. What would you round 8 9/10 to? Why
Let's now take a closer look at 2 4/8. I know that 2 4/8 is 2 ½. I will keep it that way because I know that the ½ are a benchmark number.
So I will add 9 + 2 ½ and get 11 ½!!
So that means 8 9/10 + 2 4/8 is ABOUT 11 ½!

Estimating sums

15/4 + 22/7

When looking at these numbers it is hard to estimate since I can't see the whole numbers. Let's change them to mixed numbers.

15/4= 3 ¾

22/7= 3 1/7

We can now round these numbers.

15/4 is about 4 or 3/12

22/7 is about 3

Why can we round 3 ¾ to 4 or 3 ½

Add those together and I get 7 OR 7 ½.

Estimating sums

18 7/12 + 17 ⅜

Work through this problem with your partner.

Add unit fractions with related denominators w/ a number line

½ + ⅞
Will the sum be greater than 1?
Draw a number line with endpoints of 0 and 2
Split the number line to halves and plot ½.
Can we easily add ⅞?
What do we need to do the number line?
Now can we add ⅞ easily?
What answer did you get after you added ⅞?

11/8

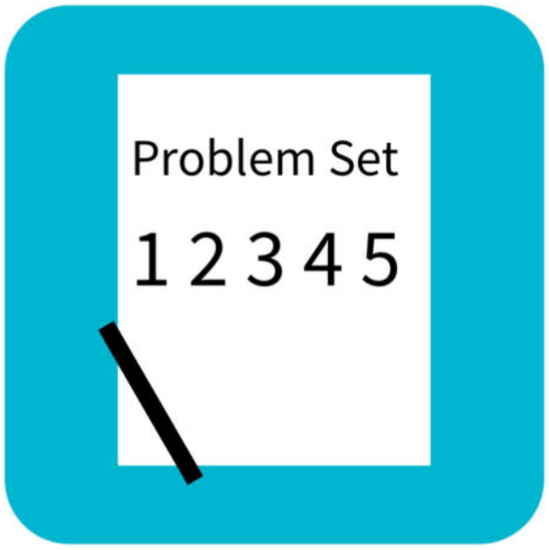
Can we leave it that way?
What must we do??

Add unit fractions with related denominators w/ multiplication

¾ + 6/8

Which unit are we going to rename fourths or eighths?
Let's use multiplication to rename fourths as eighths.
¾ x 2/2 = 6/8.
Now that they are in the same unit, let's add them
What did you get?

12/8
Can we leave it this way?
What must we do!?!?!?



Problem Set

Name _____ Date _____

1. Estimate each sum or difference to the nearest half or whole number by rounding. Explain your estimate using words or a number line.

   a. $2\frac{1}{12} + 1\frac{7}{8} \approx$ _____

Debrief

- If one of the two fractions in Problem 1(a) was rounded down to half, the estimate would be more accurate than rounding both to the nearest one. How do you decide which fraction rounds up and which one rounds down?
- Did your partner have the same estimates as you in Problem 2? Why or why not? Whose estimates are closer to the actual answers?
- Think about Problem 3. When would estimates need to be very close to the actual answer? When might estimates be acceptable if the numbers were rounded to the closest whole number?
- Some students estimated 45 or $44\frac{3}{4}$ for Problem 4(a). Some students estimated 9 or $9\frac{1}{2}$ for Problem 4(c). Which answer for each problem is more reasonable? How does someone determine how accurate the answer is?
- What prior knowledge about fractions did you use as you completed the problems in the Problem Set?
- What tools did you use to help you estimate?

Exit Ticket

Name _____ Date _____

Estimate each sum or difference to the nearest half or whole number by rounding. Explain your estimate using words or a number line.

1. $2\frac{9}{10} + 2\frac{1}{4} \approx$ _____