Welcome and Good Morning!

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LA Tier 1 Rated K-5 Program
The sum of $\frac{1}{12}$ and $\frac{7}{8}$ is closest to

A. $20$
B. $8$
C. $\frac{1}{2}$
D. $1$

Explain your answer.
Tier 1 Rated 
K-5 Math Program
Instruction
Ready Classroom Instructional Resources

- i-Ready Diagnostic
  - Adaptive Assessment & Progress Monitoring
- Ready Classroom Instruction
  - Personalized Learning & Intervention
- Ready Mathematics Instruction
K-8 Subscription-Based Program
Ready Mathematics
Teacher Components

Teacher Resource Book

Teacher Toolbox
only approved math program grades K-8 using an adapted IMET rubric gives a perfect score of 66 of 66 using the IMET criteria overall highest rated K-8 math program
Currently comparing K-8 Math Reviews for Focus & Coherence
Click buttons below to compare K-8 math reviews for our gateways: 1) Focus & Coherence, 2) Rigor & Mathematical Practices, and 3) Usability.

<table>
<thead>
<tr>
<th>Title (29)</th>
<th>Kindergarten</th>
<th>1st Grade</th>
<th>2nd Grade</th>
<th>3rd Grade</th>
<th>4th Grade</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready</td>
<td></td>
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<td>Curriculum Associates</td>
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</table>

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<table>
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</tbody>
</table>

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<th>1st Grade</th>
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<th>3rd Grade</th>
<th>4th Grade</th>
<th>5th Grade</th>
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</thead>
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<tr>
<td>Ready</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Show Reports

Highest rated K-8 math program
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Standards</th>
<th>Embedded SMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4.NF.B.3a, 4.NF.B.3d</td>
<td>1, 2, 4, 5, 6, 7, 8</td>
</tr>
<tr>
<td>17</td>
<td>4.NF.B.3b, 4.NF.B.3c, 4.NF.B.3d</td>
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</tr>
<tr>
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<td>4.NF.B.4.a, 4.NF.B.4b</td>
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<tr>
<td>19</td>
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</tr>
</tbody>
</table>
Ready® Mathematics

Coherence with the Louisiana Student Standards

**Unit 4: Number and Operations—Fractions**

**Lesson 13: Understand Equivalent Fractions**

- Grade 3, Lesson 17: Find Equivalent Fractions
  - 3.NF.A.3b, 3.NF.A.3c

- Grade 5, Lesson 10: Add and Subtract Fractions
  - 5.NF.A.1

**Which lessons are students preparing for?**

- Grade 5, Lesson 10: Add and Subtract Fractions
  - 5.NF.A.1

**Unit 4 Overview**

- Grade 3, Lesson 14: Understand What a Fraction Is
  - 3.NF.A.1

- Grade 4, Lesson 15: Understand Fraction Multiplication
  - 4.NF.B.4a, 4.NF.B.4b

- Grade 6, Lesson 16: Fractions as Tenths and Hundredths
  - 4.ME.3
Teaching with Coherence with the Louisiana Student Standards

Lesson 16: Add and Subtract Fractions

LESSON OVERVIEW

LSSM Focus

Domain: Number and Operations — Fractions

Cluster:
1. Understand and use the key mathematical terms add, subtract, equal parts, fraction, numerator, and denominator when reasoning and arguing about fraction addition and subtraction.
2. Write and solve equations to represent word problems involving fraction addition or subtraction.

Content Objectives:
- Add fractions with like denominators.
- Subtract fractions with like denominators.
- Use fraction models, number lines, and equations to represent word problems.

Prerequisite Skills:
- Understand addition as joining parts.
- Understand subtraction as separating parts.
- Know addition and subtraction basic facts.
- Understand the meaning of fractions.
- Identify numerators and denominators.
- Write whole numbers as fractions.
- Compose and decompose fractions.

Language Objectives:
- Draw pictures or diagrams to represent word problems involving fraction addition and subtraction.
- Use fraction vocabulary, including numerator and denominator, to explain how to add and subtract fractions with like denominators.
- Orally define and use the key mathematical terms add, subtract, equal parts, fraction, numerator, and denominator when reasoning and arguing about fraction addition and subtraction.

Lesson Vocabulary:
- numerator: the top number in a fraction; it tells the number of equal parts that are being described.
- denominator: the bottom number in a fraction; it tells the total number of equal parts in the whole.

Learning Progression:

In the previous lesson, students begin developing an understanding of adding and subtracting fractions with like denominators. They develop an understanding of adding fractions as combining parts referring to the same whole. This lesson extends students’ understanding of fraction addition and subtraction. Here students begin to deal with addition and subtraction in the abstract. Students use visual models to represent word problems involving the addition and subtraction of fractions with the same whole. Students also use equations to solve word problems.

In the next lesson, students will add and subtract mixed numbers with like denominators. The focus in Grade 4 is on adding and subtracting fractions with like denominators. In Grade 5, students begin to add and subtract fractions with unlike denominators.
Multi-day Lessons

Introduction

Modeled and Guided Instruction

Modeled and Guided Instruction

Guided Practice

Independent Practice
In Lesson 15, you learned that adding fractions is a lot like adding whole numbers. Take a look at this problem.

Lynn, Paco, and Todd split a pack of 12 baseball cards. Lynn gets 4 cards, Paco gets 3 cards, and Todd gets the rest of the cards. What fraction of the pack does Todd get?
Fractions in real life can also describe the equal parts of a single object, such as a pizza cut into 8 equal slices. The pizza is the “whole,” and all the slices of pizza are equal parts of the same whole. Since there are 8 equal-sized slices, each slice is $\frac{1}{8}$ of the pizza. Even if a person takes away one or more slices, the “whole” is still the same 8 slices.

**Reflect**

1. Give another example of a “whole” object with equal parts that can be described by fractions.
Dear Family,

This week your child is learning how to add and subtract like fractions.

Like fractions: $\frac{1}{4}$ and $\frac{3}{4}$  
Unlike fractions: $\frac{1}{2}$ and $\frac{3}{8}$

To find the sum of like fractions, understand that you are just adding like units. Just as 3 apples plus 2 apples is 5 apples, 3 eighths plus 2 eighths is 5 eighths. Similarly, when you take away, or subtract, 2 eighths from 5 eighths, you have 3 eighths left.

$\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$

You can also use a number line to understand adding and subtracting like fractions.

Remember that the denominator just names the units in the same way as "apples" names units. So,
• to add two fractions with the same denominator, the sum of the numerators tells how many of those units you have.
• to subtract two fractions with like denominators, the difference of the numerators tells how many of those units you have.

Invite your child to share what he or she knows about adding and subtracting fractions by doing the following activity together.

Recipe for Creamy Spread

Ingredients:
- $\frac{5}{8}$ cup peanut butter
- $\frac{1}{2}$ cup cream cheese
- Crackers or veggies

Directions:
Mix the peanut butter and cream cheese together in a medium size bowl. Serve immediately with crackers or sliced fresh veggies. Enjoy!
Practice and Problem Solving  
Day 1

1. Label the number line to show eighths.

3. Divide the rectangle to show eighths.

2. Use

4. Use

7. What is the fraction addition problem shown by this area model? _______________
Ready to Learn
Looking at Ready...through a student’s eyes
Mathematical Practices—the “how” of math

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments & critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning
The discourse of a classroom—the ways of representing, thinking, talking, agreeing, and disagreeing—is central to what and how students learn mathematics.

Mathematical discussion is viewed as “a primary mechanism for developing conceptual understanding and meaningful learning of mathematics.”

National Council of Teachers of Mathematics
Mathematical Discourse

1. How could you use fractions to label 0 and 1 on the number line?

   Listen for responses that include the phrase “equal parts of a whole.”

English Language Learners

Write fraction words.

- Write the word *tenths* on the board. Circle the letters that spell *ten* in the word and write the number 10 below it.
- Repeat using the word *eighths*.
- Have students write *tenths* and *eighths* on a piece of paper. Next to the words, have them write fractions associated with the words.
- *If time allows, repeat with other fraction words.*
Modeled and Guided: Ready Mathematics SE

Lesson 16: Modeled and Guided Instruction
Learn About: Subtracting Fractions

Read the problem. Then explore different ways to understand subtracting fractions.

Alberto's 1-liter water bottle had $\frac{5}{6}$ of a liter of water in it. He drank $\frac{2}{3}$ of a liter. What fraction of a liter of water is left in the bottle?

Picture It: You can use a picture to help understand the problem.
The following model shows the water bottle divided into 6 equal parts. Five shaded parts show how much water was in the bottle.

Each part is $\frac{1}{6}$ of a liter.

Alberto drank 4 sixths of a liter, so take away 4 shaded parts. The 1 shaded part that is left shows the fraction of a liter that is left.

5 sixths

4 sixths

1 sixth

Model It: You can also use a number line to help understand the problem.
The number line below is divided into sixths, with a point at $\frac{5}{6}$.

Start at $\frac{5}{6}$ and count back 4 sixths to subtract $\frac{4}{6}$.

Connect It: Now you will solve the problem from the previous page using equations.
8. In Picture It, why does $\frac{1}{6}$ represent 1 of the equal parts of the bottle?

10. What do the numerators, 5 and 4, tell you?

12. How many sixths of a liter are left in the bottle after Alberto drank 4 sixths?

14. Complete the equations to show what fraction of a liter is left in the bottle.

Use words:

$\frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

Use fractions:

$\frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

16. Explain how you subtract fractions with the same denominator.

Try It: Use what you just learned to solve these problems. Show your work on a separate sheet of paper.

18. Mrs. Kirk had $\frac{3}{4}$ of a carton of eggs. She used $\frac{2}{3}$ of the carton to make breakfast. What fraction of the carton of eggs does Mrs. Kirk have left?

19. Carmen had $\frac{4}{5}$ of the lawn to mow. She mowed $\frac{3}{5}$ of the lawn. Now what fraction of the lawn is left to mow?
**Visual Model**

Help students connect the picture and the number line.

- Draw the number line on the board. Then, draw the \( \frac{5}{6} \)-full water bottle on its side above the number line, making sure the bottom of the bottle is aligned with 0 and each part of the bottle with a tickmark.
- Point out that \( \frac{5}{6} \) on the number line lines up with the amount of water in the bottle.
- Then, cross out (or erase) 4 parts of the bottle one part at a time, moving from right to left along the number line, to show the water Alberto drank. Point out to students that the remaining water is lined up with the \( \frac{1}{6} \)-mark on the number line.
SMP TIP Attend to Precision
Discuss with students how important it is to communicate clearly and precisely by reviewing the meanings of numerator (the number of equal parts you’re talking about) and denominator (the total number of equal parts in the whole).
Ask: If Alberto’s water bottle was divided into 3 equal parts, what fraction would represent 1 of those parts? \( \frac{1}{3} \) (SMP 6)

Hands-On Activity
Use paper plates to subtract fractions.

Materials: paper plates, markers, scissors
- Distribute paper plates, markers, and scissors to each student. Model how to divide the plate into 8 equal sections by folding the plate on top of itself three times.
- Direct students to color \( \frac{5}{8} \) of the plate and then cut out that fraction of the plate. Ask students to name the fraction of the plate they have. \( \frac{5}{8} \)
- Tell students to subtract 2 eighths from the 5 eighths. Guide students to cut 2 sections from the color portion of the plate they are holding.
- Ask students to name the fraction of the plate they are left with. \( \frac{3}{8} \)
- Write \( \frac{5}{8} - \frac{2}{8} = \frac{3}{8} \) on the board.
- If time allows, repeat for other subtraction problems.
Practice and Problem Solving

Lesson 16

Subtract Fractions

Study the example showing one way to subtract fractions. Then solve problems 1–7.

Example
Ali bought a carton of eggs. He used $\frac{3}{12}$ of the eggs to cook breakfast. He used another $\frac{2}{12}$ to make a dessert for dinner. What fraction of the carton is left?

\[
\frac{12}{12} - \frac{3}{12} = \frac{9}{12}
\]
\[
\frac{9}{12} - \frac{2}{12} = \frac{7}{12}
\]
So, $\frac{7}{12}$ of the carton is left.

Keisha is going to her friend’s house $\frac{8}{10}$ mile from home. Her mother drives her partway, then she walks the last $\frac{3}{10}$ mile.

1. Divide the number line below to show tenths. Then label each tick mark.

2. Use arrows to show the problem on the number line you drew in problem 1.

3. How far did Keisha’s mother drive her?

4. Write an equation for this problem that includes your answer.

Solve.

5. Anna made a quilt by sewing together green, white, and yellow fabric. When she was done, $\frac{2}{6}$ of the quilt was green and $\frac{1}{6}$ was yellow. The rest was white. What fraction of the quilt was white?

Show your work.

Solution:

6. What is $\frac{5}{6} - \frac{5}{6}$?

Use a number line or an area model to show your thinking.

Solution:

7. Shanice had 1 whole pizza. After eating some of it, she had $\frac{3}{5}$ of the pizza left. What fraction of the pizza did she eat?

Show your work.

Solution:
Lesson 16  Guided Practice

Practice  Adding and Subtracting Fractions

Study the example below. Then solve problems 16–18.

Example

Jessica hiked \( \frac{3}{5} \) of a mile on a trail before she stopped to get a drink of water. After her drink, Jessica hiked another \( \frac{2}{5} \) of a mile.

How far did Jessica hike in all?

Look at how you could show your work using a number line.

Solution

Jessica hiked \( \frac{5}{5} \) of a mile.

Pair/Share

How else could you solve this problem?

12. Mr. Chang has a bunch of balloons. \( \frac{3}{10} \) of the balloons are red. \( \frac{2}{10} \) of the balloons are blue. What fraction of the balloons are neither red nor blue?

Show your work.

I think that there are at least two different steps to solve this problem.

13. Emily ate \( \frac{1}{6} \) of a bag of carrots. Nick ate \( \frac{2}{6} \) of the bag of carrots. What fraction of the bag of carrots did Emily and Nick eat altogether? Circle the letter of the correct answer.

A \( \frac{1}{6} \)
B \( \frac{1}{3} \)
C \( \frac{3}{6} \)
D \( \frac{3}{12} \)

Solution

To find the fraction of the bag Emily and Nick ate altogether, should you add or subtract?

Rob chose D as the correct answer. How did he get that answer?

Does Rob’s answer make sense?
17 Mr. Chang has a bunch of balloons. \( \frac{3}{10} \) of the balloons are red. \( \frac{2}{10} \) of the balloons are blue. What fraction of the balloons are neither red nor blue?

Show your work.

I think that there are at least two different steps to solve this problem.

Pair/Share
How is this problem different from the others you’ve seen in this lesson?
Carrie has 2 meters of ribbon. She cuts off pieces of ribbon that are $\frac{5}{10}$ meter, $\frac{1}{10}$ meter, and $\frac{7}{10}$ meter. How long is the remaining piece of ribbon?

Lee chose D as the correct answer. How did she get that answer?
Lesson 16 - Independent Practice

Practice: Adding and Subtracting Fractions

1. Liang bought some cloth. He used \( \frac{3}{8} \) of a yard for a school project. He has \( \frac{5}{8} \) of a yard left. How much cloth did Liang buy?
   A. \( \frac{3}{8} \) of a yard
   B. \( \frac{7}{16} \) of a yard
   C. \( \frac{7}{8} \) of a yard
   D. \( \frac{9}{8} \) of a yard

2. Carmela cut a cake into 12 equal-sized pieces. She ate \( \frac{5}{12} \) of the cake, and her brother ate \( \frac{1}{3} \) of the cake. What fraction of the cake is left?
   A. \( \frac{1}{12} \)
   B. \( \frac{5}{12} \)
   C. \( \frac{7}{12} \)
   D. \( \frac{12}{12} \)

3. Lee's muffin mix calls for \( \frac{3}{4} \) cup of milk and \( \frac{1}{4} \) cup of oil. How much more milk than oil does she need for the muffin mix?

4. Put It Together: Lucy and Melody are painting a room. They divided the room into 8 equal sections. Lucy painted 2 sections and Melody painted 4 sections. Which model can be used to find the total fraction of the room they painted? Circle the letters of all that apply.
   A
   B
   C
   D

5. In all, Cole and Max picked \( \frac{2}{5} \) of a bucket of blueberries. Cole picked \( \frac{3}{10} \) of a bucket of blueberries. What fraction of a bucket of blueberries did Max pick?
   Show your work.

   Answer: Max picked \( \frac{\text{_____}}{\text{_____}} \) of a bucket of blueberries.

   A melon is cut into 8 equal slices. Together, Regan and Juanita will eat \( \frac{3}{8} \) of the melon.
   What is one way the girls could eat that fraction of the melon?
   Show your work. Write an equation to represent your answer.

   Answer: Regan could eat \( \frac{\text{_____}}{\text{_____}} \) of the melon, and
   
   Juanita could eat \( \frac{\text{_____}}{\text{_____}} \) of the melon.

   Equation:

   ✔ Self Check: Go back and see what you can check off on the Self Check on page 143.
Put It Together  Lucy and Melody are painting a room. They divided the room into 8 equal sections. Lucy painted 2 sections and Melody painted 4 sections. Which model can be used to find the total fraction of the room they painted? Circle the letters of all that apply.

A

B

C

D
A melon is cut into 8 equal slices. Together, Regan and Juanita will eat $\frac{5}{8}$ of the melon. What is one way the girls could eat that fraction of the melon?

**Show your work. Write an equation to represent your answer.**

**Answer** Regan could eat __________ of the melon, and Juanita could eat __________ of the melon.

**Equation** __________
Teaching with Ready Teacher Resource Book

Quick Check and Remediation

- Ask students to find $\frac{4}{10} + \frac{2}{10} \cdot \frac{6}{10}$ or $\frac{3}{5}$
- For students who are still struggling, use the chart to guide remediation.
- After providing remediation, check students’ understanding. Ask students to explain their thinking while finding $\frac{2}{5} + \frac{3}{5} \cdot \frac{5}{5}$ or 1.
- If a student is still having difficulty, use Ready Instruction, Grade 4, Lesson 15.

If the error is... | Students may... | To remediate...
---|---|---
$\frac{6}{20}$ | have added both the numerators and the denominators. | Remind students that the denominator tells the kind of parts you are adding. Explain that just as 4 apples + 2 apples = 6 apples, 4 tenths + 2 tenths = 6 tenths.
$\frac{3}{10}$ | have added numerators, added denominators, and then simplified. | Remind students that the denominator tells the kind of parts you are adding. Explain that just as 4 apples + 2 apples = 6 apples, 4 tenths + 2 tenths = 6 tenths.
$\frac{2}{10}$ | have subtracted the fractions. | Remind students to read the problem carefully to be sure they’re using the correct operation.
$\frac{1}{5}$ | have subtracted the fractions and simplified. | Remind students to read the problem carefully to be sure they’re using the correct operation.

Solutions

4. Solution
B; The model shows $\frac{2}{8}$ shaded in light blue for Lucy’s sections and $\frac{4}{8}$ shaded in dark blue for Melody’s sections. The total shaded sections represent the total fraction of the room they painted.
D; The number line starts at Melody’s fraction $\frac{4}{8}$ and adds $\frac{2}{8}$ for Lucy’s fraction, for a total of $\frac{6}{8}$.
DOK 2

5. Solution
$\frac{6}{10}$; Possible student work using an equation: $\frac{9}{10} - \frac{3}{10} = \frac{6}{10}$
DOK 2

6. Solution
Possible student work using equations:
$$\frac{5}{8} + \frac{3}{8} = \frac{8}{8} \text{ and } \frac{2}{8} + \frac{5}{8} = \frac{8}{8} \text{ and } \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$$
DOK 2
Practice and Problem Solving
Fluency Practice

**Fluency Table of Contents**

**Fraction Addition—Skills Practice**

<table>
<thead>
<tr>
<th>Add fractions.</th>
<th>Form A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 $\frac{1}{4} + \frac{1}{4} = ____$</td>
<td>2 $\frac{1}{6} + \frac{1}{6} = ____$</td>
</tr>
<tr>
<td>4 $\frac{1}{10} + \frac{2}{10} = ____$</td>
<td>5 $\frac{1}{5} + \frac{3}{5} = ____$</td>
</tr>
<tr>
<td>7 $\frac{3}{12} + \frac{5}{12} = ____$</td>
<td>8 $\frac{5}{100} + \frac{5}{100} = ____$</td>
</tr>
<tr>
<td>10 $\frac{4}{3} + \frac{1}{3} = ____$</td>
<td>11 $\frac{4}{8} + \frac{5}{8} = ____$</td>
</tr>
<tr>
<td>13 $\frac{2}{6} + \frac{5}{6} = ____$</td>
<td>14 $\frac{3}{12} + \frac{7}{12} = ____$</td>
</tr>
<tr>
<td>16 $\frac{1}{1} + \frac{4}{1} = ____$</td>
<td>17 $\frac{3}{5} + \frac{5}{2} = ____$</td>
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End of Unit Assessments
Ready Mathematics SE

Unit 4 Assessment
Interim Assessment

Solve the problems.

1. There are 6 plates on a table. Each plate has \( \frac{1}{2} \) of an apple on it. Which equation does NOT show how many whole apples there are altogether?
   - A \( 6 \times \frac{1}{2} = 3 \)
   - B \( 6 \times \frac{1}{2} = 6 \)
   - C \( \frac{1}{2} \times 6 = \frac{3}{1} \)
   - D \( \frac{1}{2} \times 6 = \frac{3}{6} \)

2. Three sections of a fence need to be painted. Each section of the fence is made of 4 equal-sized boards. Alex paints \( \frac{1}{6} \) of the fence. Bobby paints twice as much as Alex. Charles paints only 1 board. David paints the rest.
   Who paints the largest part of the fence?
   What fraction of the fence did he paint?

3. Emily made this table to show the number of pets owned by each of the 12 students in her dance class.

<table>
<thead>
<tr>
<th>Student</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Pets</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>8</td>
<td>4</td>
<td>3</td>
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</table>

What fraction of the students own 3 or more pets?

Performance Task

Answer the questions and show all your work on separate paper.

The fourth-grade classes in Hannah's school are making a quilt as a gift to the senior center in their community. The quilt is going to be made up of squares that students and teachers design and sew. The final quilt will be 8 squares by 12 squares.

24 of the squares will be made by teachers and will be white. The students will make the remaining squares. Each class has chosen a different color for their squares. Below is Hannah's plan for dividing the work.

- \( \frac{1}{4} \) of the student squares will be made by the red class.
- \( \frac{1}{3} \) of the student squares will be made by the blue class.
- \( \frac{2}{3} \) of the student squares will be made by the green class.
- \( \frac{1}{2} \) of the student squares will be made by the yellow class.

Hannah's teacher says Hannah's plan won't work. Explain what is wrong with Hannah's plan. Make a better plan and describe it using fractions as well as a diagram.

Reflect

Use Mathematical Practices
After you complete the task, choose one of the following questions to answer.

- Reason Mathematically: What information did you need to find before deciding how to split up the student squares?
- Argue and Critique: There are 5 groups making squares for this quilt: teachers and four classes. Could Hannah divide the work so that each group makes \( \frac{1}{2} \) of the total number of squares? Explain your answer.
Ready Mathematics Teacher Toolbox
Quick view of kindergarten
Thank you!

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