3 Develop the Concept: Visual

ELL STRATEGY Visual Learning

Visual Learning

Adding Fractions with Unlike Denominators

How can you add fractions with unlike denominators?

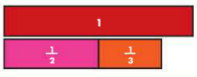
Alex rode his scooter from his house to the park. Later, he rode from the park to baseball practice. How far did Alex ride?

Choose an Operation Add to find the total distance Alex rode his scooter.

How does the map help you solve the problem? [It shows each distance Alex rides.] *How do you know this is an addition problem?* [Because the question asks how far Alex rode and addition is used to combine his two rides.]

Step 1

Change the fractions to equivalent fractions with a common, or like, denominator.



The least common denominator (LCD) of two fractions is the least common multiple of the denominators.

Multiples of 2: 2, 4, 6, 8, 10, 12, . . .

Multiples of 3: 3, 6, 9, 12, . . .

The LCM is 6, so the LCD is 6.

1 Visual Learning

Set the Purpose Call students' attention to the **Visual Learning Bridge** at the top of the page. *In this lesson, you will learn how to add fractions with unlike denominators.*

DIGITAL **Animated Glossary** Students can see highlighted words defined in the Online Student Edition.

least common denominator (LCD)

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2 Guided Practice

Formative Assessment

Remind students to find the LCD to use for the common denominators.

Exercise 5

Error Intervention

If students are having trouble understanding why 12 is a common denominator of $\frac{1}{2}$ and $\frac{1}{3}$,

then ask: *Do 2 and 3 both go into 12 evenly?* [Yes] *Do 2 and 3 both go into 18 evenly?* [Yes] *Are 12 and 18 also common denominators?* [Yes]

Common Multiples of 2 and 3

6, 12, 18, 24, 30, 36, 42, 48, 54, 60. . .

Reteaching In the example above, solve the problem by using 12 as a common denominator. For another example and more practice, assign **Reteaching** Set C on p. 274.

3 Independent Practice

Remind students that only one fraction may need to be rewritten. Use Exercise 11 as an example. *What is the LCD of $\frac{2}{9}$ and $\frac{2}{3}$?* [9] *Does $\frac{2}{9}$ need to be rewritten?* [No]

Lesson 10-3

Understand It! To add fractions with unlike denominators, find equivalent fractions with the least common denominator, then add.

Adding Fractions with Unlike Denominators

How can you add fractions with unlike denominators?

Alex rode his scooter from his house to the park. Later, he rode from the park to baseball practice. How far did Alex ride?

Choose an Operation Add to find the total distance Alex rode his scooter.

Guided Practice*

Do you know HOW?

In **1** through **4**, find each sum. Simplify, if necessary.

1. $\frac{1}{2} = \frac{9}{18}$ **13/18**
   $+ \frac{2}{9} = \frac{4}{18}$
2. $\frac{2}{6} = \frac{8}{24}$ **17/24**
   $+ \frac{3}{8} = \frac{9}{24}$
3. $\frac{3}{4} + \frac{7}{10}$ **$1\frac{9}{20}$**
4. $\frac{5}{12} + \frac{1}{8}$ **13/24**

Do you UNDERSTAND?

5. **Writing to Explain** In the example above, would you get the same sum if you used 12 as the common denominator? **See margin.**
6. In the example above, if the park was $\frac{4}{5}$ mile from baseball practice, how far would Alex ride his scooter? **$1\frac{3}{10}$ miles**

Independent Practice

Leveled Practice In **7** through **22**, find each sum. Simplify, if necessary.

7. $\frac{1}{9} = \frac{\square}{18}$ **2**
   $+ \frac{5}{6} = \frac{\square}{18}$ **15; 17/18**
8. $\frac{1}{12} = \frac{\square}{12}$ **1**
   $+ \frac{2}{3} = \frac{\square}{12}$ **8; 3/4**
9. $\frac{1}{3} = \frac{\square}{15}$ **5**
   $+ \frac{1}{5} = \frac{\square}{15}$ **3; 8/15**
10. $\frac{1}{8} = \frac{\square}{56}$ **7**
    $+ \frac{3}{7} = \frac{\square}{56}$ **24; 31/56**
11. $\frac{2}{9} + \frac{2}{3}$ **8/9**
12. $\frac{5}{8} + \frac{1}{6}$ **19/24**
13. $\frac{3}{4} + \frac{2}{5}$ **$1\frac{3}{20}$**
14. $\frac{1}{6} + \frac{3}{10}$ **7/15**
15. $\frac{7}{8} + \frac{1}{12}$ **23/24**
16. $\frac{11}{16} + \frac{1}{2}$ **$1\frac{3}{16}$**
17. $\frac{5}{6} + \frac{3}{4}$ **$1\frac{7}{12}$**
18. $\frac{7}{12} + \frac{9}{16}$ **$1\frac{7}{48}$**
19. $\frac{1}{2} + \frac{1}{8} + \frac{1}{4}$ **7/8**
20. $\frac{1}{3} + \frac{5}{6} + \frac{4}{9}$ **$1\frac{11}{18}$**
21. $\frac{1}{2} + \frac{1}{3} + \frac{1}{4}$ **$1\frac{1}{12}$**
22. $\frac{1}{2} + \frac{3}{4} + \frac{3}{5}$ **$1\frac{17}{20}$**

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262 *For another example, see Set C on page 274.

5. Yes, the sums would be equivalent, but you would have to simplify the sum to get the same answer.