3 **Develop the Concept: Visual**

ELL STRATEGY Visual Learning

Visual Learning

Subtracting Fractions with Unlike Denominators

How can you subtract fractions with unlike denominators?

Linda used $\frac{1}{4}$ yard of the fabric she bought for a sewing project.

How much fabric did she have left?

Choose an Operation Subtract to find how much fabric was left.

$\frac{2}{3}$ yard

What information from the diagram do you need to use to solve the problem? [The amount of fabric Linda started with] **How do you know this is a subtraction problem?** [Because the problem asks how much fabric is left from an original length after some is used]

Step 1

Change the fractions to equivalent fractions with a common denominator.

Find the LCM of the denominators

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

Multiples of 4:
4, 8, 12, . . .

The LCM is 12, so the LCD is 12.

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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 subtract fractions with unlike denominators.*

2 **Guided Practice** — Formative Assessment

Remind students to simplify their answers whenever possible.

Exercise 6
Error Intervention

If students have trouble finding an equivalent fraction for 1,

then ask: *How can the number 1 be written as a fraction?* [By using the same number for the numerator and denominator] *How should 1 be written as a fraction in Exercise 6?* [$\frac{8}{8}$]

Reteaching How much fabric would Linda have if she started with $\frac{5}{6}$ yard and used $\frac{5}{8}$ yard? [$\frac{5}{24}$ yard] For another example and more practice, assign **Reteaching** Set C on p. 274.
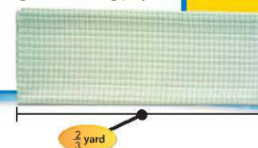

Lesson 10-4

Subtracting Fractions with Unlike Denominators

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

How can you subtract fractions with unlike denominators?

Linda used $\frac{1}{4}$ yard of the fabric she bought for a sewing project.
How much fabric did she have left?

Choose an Operation Subtract to find how much fabric was left.

$\frac{2}{3}$ yard

Guided Practice*

Do you know HOW?

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

1. $\frac{5}{6} = \frac{5}{6}$ $\frac{1}{3}$
   $-\frac{1}{2} = \frac{3}{6}$

2. $\frac{4}{7} = \frac{12}{21}$ $\frac{5}{21}$
   $-\frac{1}{3} = \frac{7}{21}$

3. $\frac{1}{2} - \frac{3}{10}$ $\frac{1}{5}$

4. $\frac{7}{8} - \frac{1}{3}$ $\frac{13}{24}$

Do you UNDERSTAND?

5. In the example above, is it possible to use a common denominator greater than 12 and get the correct answer? Why or why not?
   Yes, any common multiple will work.

6. In the example above, if Linda had started with one yard of fabric and used $\frac{5}{8}$ of a yard, how much fabric would be left?
   See margin.

Independent Practice

Leveled Practice In **7** through **24**, find each difference. Simplify, if necessary.

7. $\frac{1}{3} = \frac{\blacksquare}{6}$ $\frac{2}{6}$
   $-\frac{1}{6} = \frac{\blacksquare}{6}$ $\frac{1}{6}$; $\frac{1}{6}$

8. $\frac{2}{3} = \frac{\blacksquare}{12}$ $\frac{8}{12}$
   $-\frac{5}{12} = \frac{\blacksquare}{12}$ $\frac{5}{12}$; $\frac{1}{4}$

9. $\frac{3}{5} = \frac{\blacksquare}{15}$ $\frac{9}{15}$
   $-\frac{1}{3} = \frac{\blacksquare}{15}$ $\frac{5}{15}$; $\frac{4}{15}$

10. $\frac{2}{9} = \frac{\blacksquare}{72}$ $\frac{16}{72}$
    $-\frac{1}{8} = \frac{\blacksquare}{72}$ $\frac{9}{72}$; $\frac{7}{72}$

11. $\frac{1}{4} = \frac{\blacksquare}{8}$ $\frac{2}{8}$
    $-\frac{1}{8} = \frac{\blacksquare}{8}$ $\frac{1}{8}$; $\frac{1}{8}$

12. $\frac{2}{3} = \frac{\blacksquare}{6}$ $\frac{4}{6}$
    $-\frac{1}{2} = \frac{\blacksquare}{6}$ $\frac{3}{6}$; $\frac{1}{6}$

13. $\frac{3}{4} = \frac{\blacksquare}{8}$ $\frac{6}{8}$
    $-\frac{3}{8} = \frac{\blacksquare}{8}$ $\frac{3}{8}$; $\frac{3}{8}$

14. $\frac{5}{6} = \frac{\blacksquare}{6}$ $\frac{5}{6}$
    $-\frac{1}{3} = \frac{\blacksquare}{6}$ $\frac{2}{6}$; $\frac{1}{2}$

15. $\frac{5}{8} - \frac{1}{4}$ $\frac{3}{8}$

16. $\frac{9}{16} - \frac{3}{8}$ $\frac{3}{16}$

17. $\frac{1}{5} - \frac{1}{7}$ $\frac{2}{35}$

18. $\frac{7}{10} - \frac{2}{4}$ $\frac{1}{5}$

19. $\frac{5}{6} - \frac{3}{4}$ $\frac{1}{12}$

20. $\frac{2}{3} - \frac{5}{9}$ $\frac{1}{9}$

21. $\frac{4}{5} - \frac{1}{4}$ $\frac{11}{20}$

22. $\frac{5}{8} - \frac{7}{12}$ $\frac{1}{24}$

23. $\frac{6}{7} - \frac{1}{2}$ $\frac{5}{14}$

24. $\frac{5}{12} - \frac{4}{16}$ $\frac{1}{6}$

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

6. $\frac{8}{8} - \frac{5}{8} = \frac{3}{8}$; $\frac{3}{8}$ of a yard would be left

264 Topic 10