3 Develop the Concept: Visual

ELL STRATEGY Visual Learning

Visual Learning

Comparing and Ordering Fractions and Mixed Numbers

How can you compare fractions?

Shawna and Tom walked two different paths in Trout Park. Shawna walked $\frac{5}{6}$ mile. Tom walked $\frac{3}{4}$ mile. Which is greater, $\frac{5}{6}$ or $\frac{3}{4}$?

Write $\frac{2}{7}$ and $\frac{4}{7}$ on the board.
How would you compare these two fractions?
[Compare the numerators.]
Can you compare the numerators of $\frac{3}{4}$ and $\frac{5}{6}$ to compare the fractions?
[No: the denominators are different.]

One Way

To compare fractions, find a common denominator by writing the multiples of each denominator.

4: 4, 8, (12), 16, 20, . . .

6: 6, (12), 18, 24, . . .

Use 12 as the common denominator.

$\frac{5}{6} \times \frac{2}{2} = \frac{10}{12}$ $\frac{3}{4} \times \frac{3}{3} = \frac{9}{12}$

$\frac{10}{12} > \frac{9}{12}$, so, $\frac{5}{6} > \frac{3}{4}$.

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 compare fractions and mixed numbers and to order them from greatest to least and from least to greatest.***

Another Example

How do you compare whole numbers? [Look for numbers that are greater or lesser than others.] ***Can you compare two mixed numbers by looking only at the whole number?*** [Yes, unless the whole numbers are the same. The greater of the two numbers indicates the greater mixed number.] ***How can you compare a group of mixed numbers when the whole number is the same?*** [You compare the fractions in the mixed numbers.] ***How can you compare a group of mixed numbers when the whole number is NOT the same?*** [Look at the whole numbers, then look at the fractions.]

2 Guided Practice

Formative Assessment

Students may have difficulty comparing and ordering three or more fractions. Remind students to find a common denominator for all of the fractions. This method might take longer, but it will always let them write equivalent fractions that are easier to compare with each other.

Exercise 5

Error Intervention

If students compare only the numerators without looking at the denominators,

then have them find equivalent fractions and then compare the numerators using a number line.

Reteaching For another example and more practice, assign **Reteaching** Set E on p. 251.

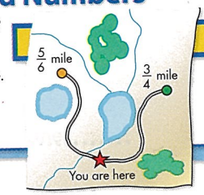
Lesson 9-5

Understand It! There are different ways to compare and order fractions and mixed numbers.

Comparing and Ordering Fractions and Mixed Numbers

How can you compare fractions?

Shawna and Tom walked two different paths in Trout Park. Shawna walked $\frac{5}{6}$ mile. Tom walked $\frac{3}{4}$ mile. Which is greater, $\frac{5}{6}$ or $\frac{3}{4}$?



Another Example **How can you order fractions and mixed numbers?**

Write $2\frac{5}{12}, \frac{11}{12}, 3\frac{1}{6}$, and $2\frac{1}{3}$ in order from greatest to least.

You know that $\frac{11}{12} < 1$ and all the mixed numbers are greater than 1.
So, $\frac{11}{12}$ is the least number.

When comparing mixed numbers, look at the whole number parts.
Since $3 > 2$, you know that $3\frac{1}{6}$ is greater than both $2\frac{1}{3}$ and $2\frac{5}{12}$.

Next, compare $2\frac{1}{3}$ and $2\frac{5}{12}$.
Since the whole numbers are the same, compare the fractions.

Compare $\frac{1}{3}$ and $\frac{5}{12}$. Change $\frac{1}{3}$ to $\frac{4}{12}$. $\frac{4}{12} < \frac{5}{12}$.

So, $2\frac{1}{3} < 2\frac{5}{12}$.

From greatest to least, the numbers are $3\frac{1}{6}, 2\frac{5}{12}, 2\frac{1}{3}, \frac{11}{12}$.

Guided Practice*

Do you know HOW?

Compare. Write >, <, or = for each ◯.

1. $\frac{3}{5} \lessgtr \frac{4}{5}$
2. $\frac{1}{4} \lessgtr \frac{2}{3}$

Order the numbers from least to greatest.

3. $\frac{2}{3}, \frac{1}{4}, \frac{9}{10}$ — $\frac{1}{4}, \frac{2}{3}, \frac{9}{10}$
4. $1\frac{2}{3}, 2\frac{1}{4}, 1\frac{9}{10}$ — $1\frac{2}{3}, 1\frac{9}{10}, 2\frac{1}{4}$

Do you UNDERSTAND?

5. How do you know that $\frac{5}{12}$ is less than $\frac{1}{2}$?
$\frac{1}{2} = \frac{6}{12}$ and $\frac{6}{12} > \frac{5}{12}$
6. How do you know that $5\frac{1}{12} > 4\frac{1}{2}$ without finding a common denominator for both fraction parts?
Since $5 > 4$, you know $5\frac{1}{12} > 4\frac{1}{2}$

*For another example, see Set E on page 251.