⏱ 10–15 min **Interactive Learning**

Overview Students use fraction strips and equivalent fractions to compare and order fractions.

⚡ Essential Question How can you use equivalent fractions to compare and order fractions?

California Content Standard NS 1.5 Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalence of fractions.

**Materials** Fraction Models: Strips (or Teaching Tool 22)

Engage

Set the Purpose *You have already learned how to find equivalent fractions. Today you will learn how to use equivalent fractions to compare and order fractions.*

Connect *What does it mean for two fractions to be equivalent?* [They are different names for the same amount.]

Pose the Problem Give students fraction strips and have them work in pairs to solve this problem. *Max skated $\frac{2}{5}$ mile, Carlos skated $\frac{3}{5}$ mile, and Pedro skated $\frac{1}{2}$ mile. Write these distances in order from least to greatest. You can use fraction strips or number sense to decide.* Have students solve the problem and then share their different solution methods. Listen for students who use $\frac{1}{2}$ as a benchmark.

Model/ Demonstrate *Can you use the benchmark fraction $\frac{1}{2}$ to compare and order these fractions? Explain.* [Yes, half of 5 is more than 2 but less than 3; $\frac{2}{5} < \frac{1}{2}$ since 2 is less than $\frac{1}{2}$ of 5; $\frac{3}{5} > \frac{1}{2}$ since 3 is greater than $\frac{1}{2}$ of 5.] *Can you use fraction strips to compare and order these? Explain.* [Yes; see student work.] *Another way to compare and order fractions is to use equivalent fractions with the same denominator. You know that if two fractions have the same denominator, the one with the greater numerator is the greater fraction. What common denominator might you use for $\frac{1}{2}$ and $\frac{2}{5}$?* [10 because 10 is a multiple of 2 and 5.] *Use fraction strips to show students how to find fractions with a denominator of 10 equivalent to the ones given. How can you order these fractions?* [$\frac{2}{5} < \frac{1}{2} < \frac{3}{5}$]

Small-Group Interaction *Write $\frac{4}{6}, \frac{3}{4},$ and $\frac{1}{2}$ in order from least to greatest. Use fraction strips to help.* [$\frac{1}{2}, \frac{4}{6}, \frac{3}{4}$]
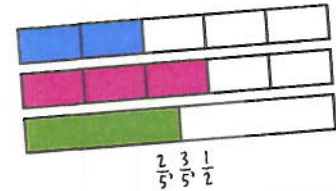
$\frac{2}{5}, \frac{3}{5}, \frac{1}{2}$

$\frac{2}{5} = \frac{4}{10}$

$\frac{3}{5} = \frac{6}{10}$

$\frac{1}{2} = \frac{5}{10}$

$\frac{4}{10} < \frac{5}{10} < \frac{6}{10},$ so: $\frac{2}{5}, \frac{1}{2}, \frac{3}{5}$

Extend *Place these fractions in order from least to greatest by thinking about $\frac{1}{2}$ as a benchmark: $\frac{11}{12}, \frac{3}{8}, \frac{6}{10}$.* [$\frac{3}{8} < \frac{6}{10} < \frac{11}{12}$]

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Interactive Learning

🕙 10–15 min

Overview Students use fraction strips and the benchmark fraction $\frac{1}{2}$ to compare fractions.

Essential Question How can you use benchmark fractions to compare fractions?

California Content Standard NS 1.5 Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalence of fractions.

Materials Fraction Models: Strips (or Teaching Tool 22) *(per group)*

Engage

Set the Purpose *You have already learned to use fraction strips to compare fractions. Today you will learn to use benchmark fractions to compare fractions.*

Connect Draw a long rectangle on the board and shade just less than half of it. *About how much of the rectangle is shaded? Use a benchmark fraction.* [About $\frac{1}{2}$] *Is more than $\frac{1}{2}$ or less than $\frac{1}{2}$ shaded?* [Less than $\frac{1}{2}$]

Pose the Problem *Juan read for $\frac{5}{6}$ of an hour. Larissa read for $\frac{1}{3}$ of an hour. Who read for a longer period of time? Use benchmark fractions to solve this problem.* Have students work in pairs to complete the problem. Then have them share their work with the class. **WA1 EL1.0**

$\frac{5}{6}$ is a little more than the benchmark fraction $\frac{1}{2}$. So, $\frac{5}{6} > \frac{1}{2}$.
$\frac{1}{2} > \frac{1}{3}$, So $\frac{5}{6} > \frac{1}{3}$.
Juan read for a longer period of time.

Model/ Demonstrate Distribute fraction strips to pairs of students. *What must you do to solve this problem?* [Compare $\frac{5}{6}$ and $\frac{1}{3}$] *How can you use the benchmark fraction $\frac{1}{2}$ to help you compare these fractions?* [Compare each of the fractions to $\frac{1}{2}$. Then use that to compare the fractions to one another.] *Is $\frac{5}{6}$ greater than or less than $\frac{1}{2}$? How do you know?* [Greater than; the fraction strip for $\frac{5}{6}$ is longer than the strip for $\frac{1}{2}$.] *Is $\frac{1}{3}$ greater than or less than $\frac{1}{2}$? How do you know?* [Less than; the fraction strip for $\frac{1}{3}$ is shorter than the strip for $\frac{1}{2}$.] Write $\frac{1}{3} < \frac{1}{2}$ and $\frac{5}{6} > \frac{1}{2}$. *Is $\frac{5}{6}$ greater than or less than $\frac{1}{3}$? How do you know?* [Greater than; since $\frac{5}{6} > \frac{1}{2}$ and $\frac{1}{3} < \frac{1}{2}$, then $\frac{5}{6} > \frac{1}{3}$.] Write $\frac{5}{6} > \frac{1}{3}$ below the other inequalities. *Did Juan or Larissa read for a longer period of time?* [Juan] **LSB2 EL1.0**

$\frac{5}{6} > \frac{1}{2}$ and $\frac{1}{3} > \frac{1}{2}$
So $\frac{5}{6} > \frac{1}{3}$.
Juan read for a longer period of time.

Small-Group Interaction On the board, write $\frac{3}{8} \bigcirc \frac{8}{10}$; $\frac{1}{3} \bigcirc \frac{3}{4}$; $\frac{5}{8} \bigcirc \frac{2}{6}$. *Use the benchmark fraction $\frac{1}{2}$ to compare each set of numbers.* [$\frac{3}{8} < \frac{8}{10}$; $\frac{1}{3} < \frac{3}{4}$; $\frac{5}{8} > \frac{2}{6}$]

Extend

What do you notice about the relationship between the numerator and denominator of the fractions that are less than $\frac{1}{2}$? [The denominator is more than twice the numerator.]

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