

Comparing and Ordering Fractions Activities

Supplies: Class set of Page 6 sorting boards for students to use in pairs
Class set of Page 5 fractions for students to use in pairs (Give each pair one column strip to cut apart and sort.)
Index cards, one per pair

Objective: Students will use benchmark fractions to compare positive fractions.

Standards: Grade 6 NS 1.0 Students compare and order positive and negative fractions, decimals and mixed numbers.

6.NS.7.b Write, interpret, and explain statements of order for rational numbers in real-world contexts.

Introduction Activity: Hand out sorting mats, index cards and simplified fraction.

“In pairs, you will sort these fractions into two or three categories on your sorting mat. You choose how you want to separate them. Then, write down your categories on the index card and turn it face down.”

Possible student groupings: [greater than $\frac{1}{2}$ verses less than $\frac{1}{2}$, or fractions with an 8 in the denominator verses fractions with different denominators.] Have students rotate to another table to see if they can guess the how another group categorized their fractions. Share out some of the categories chosen.

“All of these categories work. Which one(s) would be helpful for comparing and ordering fractions?” [greater than $\frac{1}{2}$ verses less than $\frac{1}{2}$] If no one uses the categories greater than $\frac{1}{2}$ and less than $\frac{1}{2}$, sort into those categories as a whole group.

I Do (Note-taking): Three methods for comparing fractions:

Method 1: Common Denominators

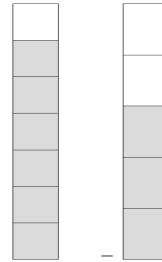
$$\frac{6}{7} ? \frac{3}{5}$$

$$\frac{5}{5} \cdot \frac{6}{7} ? \frac{3}{5} \cdot \frac{7}{7}$$

$$\frac{30}{35} > \frac{21}{35}$$

Method 2: Bar Models

$$\frac{6}{7} > \frac{3}{5}$$



Method 3: Benchmark Fractions $\frac{6}{7} ? \frac{3}{5}$

Close to 0

Close to $\frac{1}{2}$

Close to 1

$\frac{3}{5}$

$\frac{6}{7}$

$\frac{3}{5}$ is a little more than one half and $\frac{6}{7}$ is almost one, $\therefore \frac{6}{7} > \frac{3}{5}$

We Do (Note-taking): Order from least to greatest: $\frac{10}{7}, \frac{4}{5}, \frac{2}{9}, \frac{7}{15}$

Method 1: Common Denominators

$$\frac{10}{7} \cdot \frac{45}{45} = \frac{450}{315}$$

$$\frac{4}{5} \cdot \frac{63}{63} = \frac{252}{315}$$

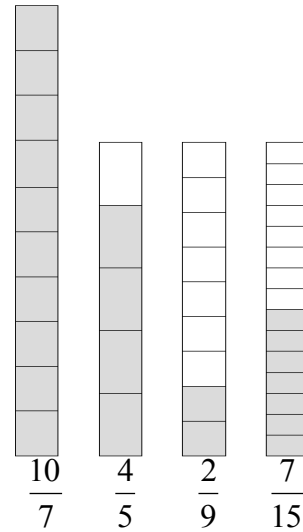
$$\frac{2}{9} \cdot \frac{35}{35} = \frac{70}{315}$$

$$\frac{7}{15} \cdot \frac{21}{21} = \frac{147}{315}$$

$$\frac{70}{315} < \frac{147}{315} < \frac{252}{315} < \frac{450}{315}$$

$$\therefore \frac{2}{9} < \frac{7}{15} < \frac{4}{5} < \frac{10}{7}$$

Method 2: Bar Models



$$\therefore \frac{2}{9} < \frac{7}{15} < \frac{4}{5} < \frac{10}{7}$$

Method 3: Benchmark Fractions

“The first fraction, $\frac{10}{7}$, is bigger than one, so we can put it to the right of the Close to 1 section.”

“ $\frac{4}{5}$ is only $\frac{1}{5}$ away from 1, so which category should we use?” [Close to 1]

“Where should we put $\frac{2}{9}$?” [Close to 0] “Why?” [It’s only 2 out of 9 parts, or other responses]

“Where should we put $\frac{7}{15}$?” [Close to $\frac{1}{2}$] “Why?” [$\frac{7}{15}$ is close to $\frac{7}{14}$, which is $\frac{1}{2}$]

Close to 0

$$\frac{2}{9}$$

Close to $\frac{1}{2}$

$$\frac{7}{15}$$

Close to 1

$$\frac{4}{5}$$

$\frac{10}{7}$

$$\therefore \frac{2}{9} < \frac{7}{15} < \frac{4}{5} < \frac{10}{7}$$

You Do (Partner Activity): You and your partner will now use a sorting board to categorize your fraction cards by benchmarks, Close to 0, Close to $\frac{1}{2}$ and Close to 1. Hand out sorting boards and fraction cards.

<p>Close to 0</p> $\frac{2}{9}$ $\frac{1}{5}$ $\frac{1}{4}$	<p>Close to $\frac{1}{2}$</p> $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$	<p>Close to 1</p> $\frac{3}{4}$ $\frac{5}{6}$
	$\frac{2}{3}$	4

We Do: “We can tell the order of most of these fractions just by looking at the benchmark categories. In the Close to 0 group, how can we compare the three fractions?” [Common denominators, Bar models]

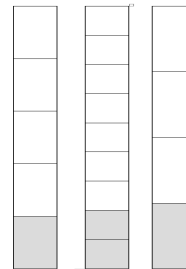
Common Denominators

$$\frac{1}{5} \cdot \frac{36}{36} = \frac{36}{180}$$

$$\frac{2}{9} \cdot \frac{20}{20} = \frac{40}{180}$$

$$\frac{1}{4} \cdot \frac{45}{45} = \frac{45}{180}$$

Bar Models



$$\frac{1}{5} < \frac{2}{9} < \frac{1}{4}$$

$$\therefore \frac{1}{5} < \frac{2}{9} < \frac{1}{4} < \frac{3}{8} < \frac{1}{2} < \frac{5}{8} < \frac{2}{3} < \frac{3}{4} < \frac{5}{6} < 4$$

You Do (Exit Ticket): Order from greatest to least: $\frac{5}{11}, \frac{2}{7}, \frac{6}{5}, \frac{9}{10}$ Explain in writing how you decided the order.

FRACTION CARDS: One strip per group, cut into individual pieces

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$
$\frac{2}{9}$	$\frac{2}{9}$	$\frac{2}{9}$	$\frac{2}{9}$	$\frac{2}{9}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
$\frac{5}{6}$	$\frac{5}{6}$	$\frac{5}{6}$	$\frac{5}{6}$	$\frac{5}{6}$
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$

