



## Compare Fractions When the Denominators Are the Same



**Purpose** In this activity, students compare fractions that have the same denominator. The activity is an interactive narrated PowerPoint that can be shown to the whole class, done in small groups, or at centers. The Setting Up For Instruction is written for students to work in small groups.

- |                                                   |                                         |                                                     |                                                           |
|---------------------------------------------------|-----------------------------------------|-----------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Introduction             | <input type="checkbox"/> Addition       | <input checked="" type="checkbox"/> Manipulatives   | <input checked="" type="checkbox"/> Teacher-Facilitated   |
| <input checked="" type="checkbox"/> Investigation | <input type="checkbox"/> Subtraction    | <input checked="" type="checkbox"/> Pictorial Model | <input checked="" type="checkbox"/> Tutoring/Intervention |
| <input checked="" type="checkbox"/> Practice      | <input type="checkbox"/> Multiplication | <input type="checkbox"/> Properties of Operations   | <input checked="" type="checkbox"/> Small group           |
| <input type="checkbox"/> Posttest                 | <input type="checkbox"/> Division       | <input type="checkbox"/> Choose a Method            | <input checked="" type="checkbox"/> Centers               |
|                                                   |                                         |                                                     | <input type="checkbox"/> Challenge!                       |



### Setting Up For Instruction

- Decide how you will pair students.
- Make 1 copy of **Which Is It? Directions** so that each pair of students can have a copy.
- Make 1 copy of **Which Is It?** for each student.
- Gather 1 **device** for each pair of students.
- Gather 1 set of **fraction manipulatives** for each student.
- Gather 1 set of **markers** or **colored pencils** for each pair of students.
- Open the video **Which Is It? Video** on each device from [TeachTransform.com/3f28](https://www.teachtransform.com/3f28).



### How-To Guide

1. Give each pair of students:
  - **Device** with video cued up
  - 1 copy of **Which Is It? Directions**
  - 2 copies of **Which Is It?**
  - 2 sets of **fraction manipulatives**
  - 1 set of **markers** or **colored pencils**
2. Have students play the video, starting it and stopping as directed in the video. They will use their fraction manipulatives to explore fraction comparisons when the denominators are the same and record their work on **Which Is It?**.



### Thought Extenders

- What are the denominators of the fractions in the problem? Are they the same or different?
- Which fractional parts are larger?
- Do the two fractions have the same numerator or same denominator?
- If they have the same numerator, how can you use the denominator to help you find which is greater?
- If they have the same denominator, how can you use the numerator to help you find which is greater?
- How might you use a number line to tell which fraction is greater or less than the other?
- How might you use the fraction manipulatives to tell which fraction is greater or less?



### Comparing Fractions That Have the Same Denominator

Go to [TeachTransform.com/3f28](https://www.teachtransform.com/3f28) to access the script for this video. Use these scripts to help you understand how to compare fractions when the numerators are the same. The scripts may be printed for students who need extra support with the concept.





## **+** The Problem with Tricks and Gimmicks for Comparing Fractions

### Issue #1

Look at the problems below. What is the difference between them?

$$\frac{4}{8} + \frac{2}{6} \quad \frac{4}{8} - \frac{2}{6} \quad \frac{4}{8} \times \frac{2}{6} \quad \frac{4}{8} \div \frac{2}{6} \quad \frac{4}{8} > \frac{2}{6} \quad \frac{4}{8} = \frac{2}{x}$$

The only difference between these problems or expressions is the symbol between the  $\frac{4}{8}$  and the  $\frac{2}{6}$ . When students look at these problems, they see the fractions and miss the symbol, which carries the “doing” part of the problem. The “doing” part gets lost between the fractions. When students learn to compare fractions, sometimes they are taught shortcuts like “look to the sky and multiply.” This shortcut actually works. But the problem is that students transfer it to ALL the problems or expressions listed above, especially those that multiply or divide fractions.

### Issue #2

The other issue is that students, and many teachers, don’t know where the shortcut originates or why it works. Here’s a quick explanation. If you wanted to add  $\frac{4}{8}$  and  $\frac{2}{6}$ , you would find a common denominator (CD). Hopefully your students would find the least common denominator (LCD) of 24. But another way to find a common denominator is to multiply the denominators which, in this case, gives a denominator of 48. Note that this isn’t the LCD, but it is a CD.

Below the fractions are changed to have a common denominator of 48.

$$\frac{4}{8} = \frac{24}{48} \quad \frac{2}{6} = \frac{16}{48}$$

Look at the numerators. They are the same numbers you get when “you look to the sky and multiply.” That’s where the shortcut comes from. The shortcut itself isn’t the problem. The problem is teaching it devoid of why it works.

### Solution

Instead of using this shortcut, teach students to reason through telling which fraction is larger or smaller. Often the magnitude of a fraction becomes clear when students use mental math. Then as a last resort, they can use the shortcut.



## WHICH IS IT? DIRECTIONS

### Comparing Fractions When the Denominators Are the Same

#### Directions:

1. Hand out the materials
2. Open the manipulatives so that you can reach them easily.
3. Play the video. Be sure to stop the video and do the work it asks you to do.
4. When the video is over, work the practice problems together.
5. When you have completed the practice problems, raise your hands to get the answers from your teacher.
6. If you finish early, make up problems for each other to practice using the strategy.



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### Comparing Fractions When the Denominators Are the Same

#### Directions:

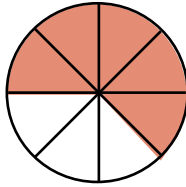
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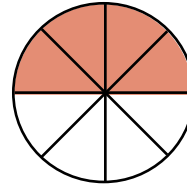
# WHICH IS IT? ANSWER KEY (PG. 1 OF 2)

## Comparing Fractions When the Denominators Are the Same

### Part 1: Understanding How to Compare Fractions When the Denominators Are the Same



$$\frac{5}{8}$$



$$\frac{4}{8}$$

### Part 2: Writing the Comparisons

Use  $<$  or  $>$  to compare the fractions. Use the Word Bank to fill in the blanks two different ways.

$\frac{5}{8} > \frac{4}{8}$ <p><math>\frac{5}{8}</math> is <u>greater than</u> <math>\frac{4}{8}</math>.</p>	$\frac{4}{8} < \frac{5}{8}$ <p><math>\frac{4}{8}</math> is <u>less than</u> <math>\frac{5}{8}</math>.</p>
<p>When the numerators are different and denominators are the same, the fraction with the <u>smaller/larger</u> numerator is <u>less/greater</u> than the fraction with the <u>larger/smaller</u> numerator.</p> <p style="text-align: center;">OR</p> <p>When the numerators are different and denominators are the same, the fraction with the <u>larger/smaller</u> numerator is <u>greater/less</u> than the fraction with the <u>smaller/larger</u> numerator.</p>	

#### Word Bank

- less than
- less
- smaller
- greater than
- greater
- larger



# WHICH IS IT? ANSWER KEY (PG. 2 OF 2)

## Part 3: Practice

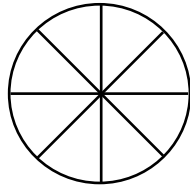
Use  $>$  or  $<$  to compare the fractions.

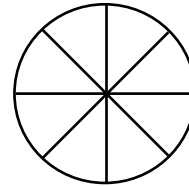
<p>1</p> $\frac{2}{4} < \frac{3}{4}$ $\frac{3}{4} > \frac{2}{4}$	<p>5</p> $\frac{1}{6} < \frac{3}{6}$ $\frac{3}{6} > \frac{1}{6}$
<p>2</p> $\frac{2}{3} > \frac{1}{3}$ $\frac{1}{3} < \frac{2}{3}$	<p>6</p> $\frac{4}{8} > \frac{2}{8}$ $\frac{2}{8} < \frac{4}{8}$
<p>3</p> $\frac{3}{6} < \frac{5}{6}$ $\frac{5}{6} > \frac{3}{6}$	<p>7</p> $\frac{1}{4} < \frac{4}{4}$ $\frac{4}{4} > \frac{1}{4}$
<p>4</p> $\frac{3}{8} < \frac{7}{8}$ $\frac{7}{8} > \frac{3}{8}$	<p>8</p> $\frac{8}{8} > \frac{1}{8}$ $\frac{1}{8} < \frac{8}{8}$



## Comparing Fractions When the Denominators Are the Same

### Part 1: Understanding How to Compare Fractions When the Denominators Are the Same




### Part 2: Writing the Comparisons

Use  $<$  or  $>$  to compare the fractions. Use the Word Bank to fill in the blanks two different ways.

$\frac{5}{8} \quad \bigcirc \quad \frac{4}{8}$	$\frac{4}{8} \quad \bigcirc \quad \frac{5}{8}$
$\frac{5}{8}$ is _____ $\frac{4}{8}$ .	$\frac{4}{8}$ is _____ $\frac{5}{8}$ .
<p>When the numerators are different and denominators are the same, the fraction with the _____ numerator is _____ than the fraction with the _____ numerator.</p> <p style="text-align: center;">OR</p> <p>When the numerators are different and denominators are the same, the fraction with the _____ numerator is _____ than the fraction with the _____ numerator.</p>	

#### Word Bank

less than

less

smaller

greater than

greater

larger



## Part 3: Practice

Use > or < to compare the fractions.

<p><b>1</b></p> $\frac{2}{4} \bigcirc \frac{3}{4}$ $\frac{3}{4} \bigcirc \frac{2}{4}$	<p><b>5</b></p> $\frac{1}{6} \bigcirc \frac{3}{6}$ $\frac{3}{6} \bigcirc \frac{1}{6}$
<p><b>2</b></p> $\frac{2}{3} \bigcirc \frac{1}{3}$ $\frac{1}{3} \bigcirc \frac{2}{3}$	<p><b>6</b></p> $\frac{4}{8} \bigcirc \frac{2}{8}$ $\frac{2}{8} \bigcirc \frac{4}{8}$
<p><b>3</b></p> $\frac{3}{6} \bigcirc \frac{5}{6}$ $\frac{5}{6} \bigcirc \frac{3}{6}$	<p><b>7</b></p> $\frac{1}{4} \bigcirc \frac{4}{4}$ $\frac{4}{4} \bigcirc \frac{1}{4}$
<p><b>4</b></p> $\frac{3}{8} \bigcirc \frac{7}{8}$ $\frac{7}{8} \bigcirc \frac{3}{8}$	<p><b>8</b></p> $\frac{8}{8} \bigcirc \frac{1}{8}$ $\frac{1}{8} \bigcirc \frac{8}{8}$