

Ready[®] TNCore



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CCSS

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Lesson 18 Part 1: Introduction CCSS
3.NF.A.3d**Understand** Comparing Fractions**How do we compare fractions?**

When you compare fractions, you figure out which is smaller, which is larger, or if they are the same size.

You can use models or number lines to help you compare two fractions.



Both of these show that $\frac{1}{4}$ is less than $\frac{2}{4}$.

The size of the wholes must be the same to compare fractions.

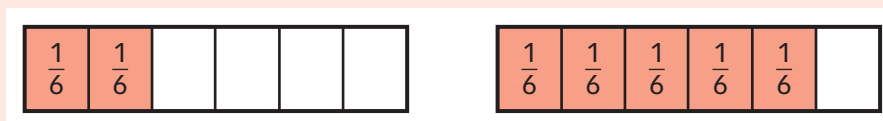
If not, it might look like $\frac{1}{4}$ is greater than $\frac{2}{4}$.



Think Sometimes when you compare fractions, the denominators are the same.

The models below show two wholes that are the same size divided into sixths.

Think about how many unit fractions it takes to make each fraction you are comparing.



It takes two $\frac{1}{6}$ s to make $\frac{2}{6}$.

It takes five $\frac{1}{6}$ s to make $\frac{5}{6}$.

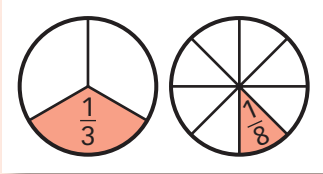
$\frac{2}{6}$ is made of fewer unit fractions than $\frac{5}{6}$. So, $\frac{2}{6}$ is less than $\frac{5}{6}$.

Circle the model of the fraction that is less.



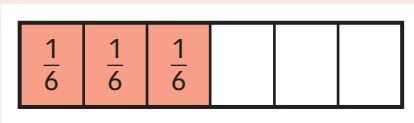
Think You can compare fractions with like numerators and different denominators.

Think about two different unit fractions from the same whole, such as $\frac{1}{3}$ and $\frac{1}{8}$.

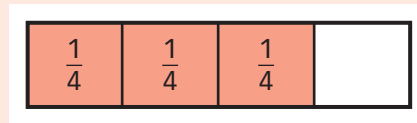


Compare the denominators of $\frac{1}{3}$ and $\frac{1}{8}$. 3 is less than 8, so the whole is divided into fewer parts. Since there are fewer parts, each part is bigger. So, the unit fraction $\frac{1}{3}$ is greater than $\frac{1}{8}$.

Here's another example:



The unit fractions used to make $\frac{3}{6}$ are smaller.



The unit fractions used to make $\frac{3}{4}$ are bigger.

3 smaller parts are less than 3 bigger parts. So, $\frac{3}{6}$ is less than $\frac{3}{4}$.

It's like cutting up a piece of paper. The more pieces you cut the paper into, the smaller each piece is.



Reflect

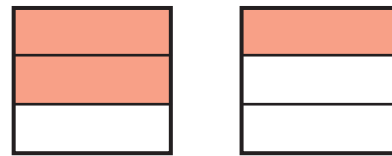
- 1 Explain how you can use unit fractions to help you compare fractions.



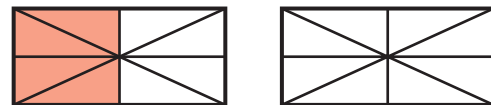
Explore It

Use the models to help you compare fractions with the same denominator.

- 2 Write the fraction shaded below each model. Circle the fraction that is greater.

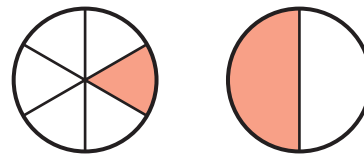


- 3 Write the fraction shaded below the first model. Shade the second model to show a greater fraction. Write the greater fraction.

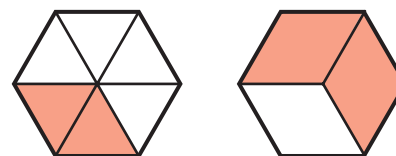


Use the models to help you compare fractions with the same numerator.

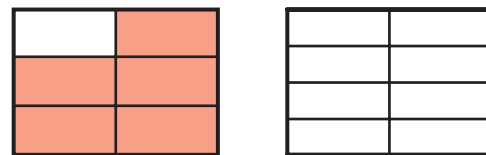
- 4 Write the fraction shaded below each model. Circle the fraction that is greater.



- 5 Write the fraction shaded below each model. Circle the fraction that is less.



- 6 Write the fraction shaded below the first model. Shade the second model to show a fraction that is less but has the same numerator.



Explain how you know the fraction is less. _____



Talk About It

Solve the problems below as a group.

7 Look at your answers to problems 2 and 3. Explain how to use unit fractions to compare fractions with the same denominator. _____

8 Look at your answers to problems 4–6. What is different about the numerators and denominators in these fractions than the fractions in problems 2 and 3?

Explain how to use unit fractions to compare the fractions with the same numerator. _____

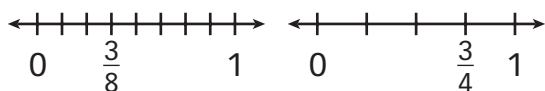
9 Isaiah is comparing $\frac{3}{8}$ and $\frac{3}{6}$. Both fractions have a numerator of 3. How can he tell which fraction is less? _____



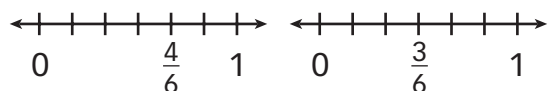
Try It Another Way

Work with your group to use the number lines to compare fractions.

10 Look at the fractions on the number lines. Circle the fraction that is less.



11 Look at the fractions on the number lines. Circle the fraction that is greater.





Connect It

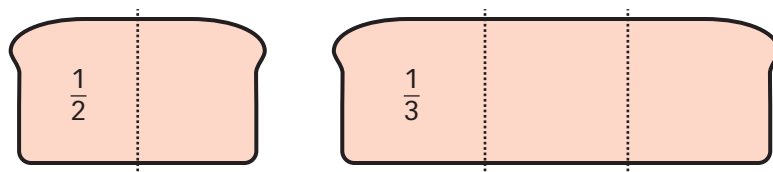
Talk through these problem as a class, then write your answers below.

- 12 Create:** Draw an area model or number line to show $\frac{5}{8}$. Find a fraction with the same denominator that is less than $\frac{5}{8}$.

Explain how you found your answer. _____

- 13 Explain:** Mario painted $\frac{2}{6}$ of the wall in his bedroom. Mei Lyn painted $\frac{2}{4}$ of a wall in her bedroom. Both walls are the same size. Explain how you know who painted more. _____

- 14 Justify:** Jace and Lianna each baked a loaf of bread. Jace cut his in halves and Lianna cut hers in thirds.



Jace says they can use their loaves of bread to show that $\frac{1}{2}$ is less than $\frac{1}{3}$. Lianna says they can't. Who is correct? Explain why. _____



Put It Together

15

Mrs. Ericson made sandwiches for her 4 children. Each sandwich was the same size. After lunch, each child had a different fraction of his or her sandwich left. Matt had $\frac{1}{4}$, Elisa had $\frac{3}{8}$, Carl had $\frac{3}{4}$, and Riley had $\frac{7}{8}$.

- A Use this information to write a problem that compares two fractions with the same numerator. _____

- B Use this information to write a problem that compares two fractions with the same denominator. _____

- C Choose one of your problems to solve. Circle the question you chose. Draw a model or number line to help you find the answer.

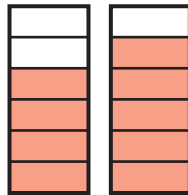
Explain how you could use unit fractions to think about the problem.

Lesson 19 Part 1: Introduction CCSS
3.NF.A.3d

Use Symbols to Compare Fractions

In Lesson 18, you learned how to compare fractions. Take a look at this problem.

Erica's cup is $\frac{4}{6}$ full. Ethan's cup is $\frac{5}{6}$ full. Use $<$, $>$, or $=$ to compare $\frac{4}{6}$ and $\frac{5}{6}$.


 Explore It

Use the math you already know to solve the problem.

- The fractions have the same denominator. What do you need to think about to compare the two fractions? _____

- How many sixths does Erica have? _____
- How many sixths does Ethan have? _____
- Use a symbol to compare those two whole numbers. _____
- Is the amount in Erica's cup less than, greater than, or equal to the amount in Ethan's' cup? _____
- Explain how you can use a symbol to compare the two fractions. _____



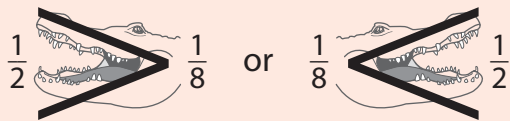
Find Out More

You have already learned how to figure out if one fraction is less than, greater than, or equal to another. Now you will use the symbols $<$, $>$, or $=$ to compare fractions.

$<$ means less than $>$ means greater than $=$ means equal to

Think of the $<$ and $>$ symbols as the mouth of an alligator. The alligator's mouth will always be open to eat the greater fraction.

Think about the fractions $\frac{1}{2}$ and $\frac{1}{8}$. $\frac{1}{2}$ is greater. $\frac{1}{8}$ is less.



$\frac{1}{2}$ is greater than $\frac{1}{8}$ or $\frac{1}{8}$ is less than $\frac{1}{2}$.

You can switch the order of the fractions. Just be careful which symbol you use. If the greater fraction is first, you use $>$. If the greater fraction is last, you use $<$.

Also, remember that sometimes one fraction is not greater than the other. Sometimes they are equivalent. Then you use $=$ to compare them.

$$\frac{1}{2} = \frac{1}{2} \quad \text{and} \quad \frac{7}{8} = \frac{7}{8}$$



Reflect

- 1 Use the symbols $<$ and $>$ to compare $\frac{7}{8}$ and $\frac{3}{8}$. Explain your answers.



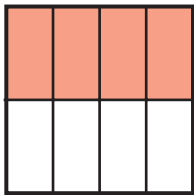
Read the problem below. Then explore different ways to compare fractions.

Use $<$, $>$, or $=$ to compare $\frac{4}{8}$ and $\frac{4}{6}$.

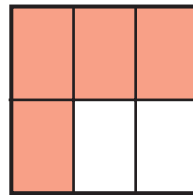
Picture It

You can use models to help you compare fractions.

This model shows $\frac{4}{8}$.



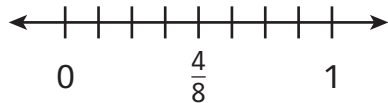
This model shows $\frac{4}{6}$.



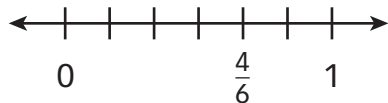
Model It

You can also use number lines to help you compare fractions.

This number line is divided into eighths. It shows $\frac{4}{8}$.



This number line is divided into sixths. It shows $\frac{4}{6}$.





Connect It

Now you will solve the problem from the previous page using symbols.

- 2 Explain how you can use the model to compare the fractions.

- 3 Explain how you can use the number lines to show how the fractions compare.

- 4 Write the comparison:

using words: 4 eighths is _____ than 4 sixths.

using symbols: $\frac{4}{8}$ _____ $\frac{4}{6}$

- 5 Now switch the order of the fractions. Write the comparison:

using words: 4 sixths is _____ than 4 eighths.

using symbols: $\frac{4}{6}$ _____ $\frac{4}{8}$

- 6 Explain how to use symbols to compare two fractions.



Try It

Use what you just learned about using symbols to compare fractions to solve these problems. You can draw models on a separate piece of paper.

- 7 Use $<$, $>$, or $=$ to compare each set of fractions. Each symbol will be used once.

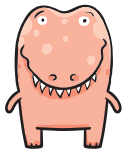
$\frac{4}{6}$ _____ $\frac{2}{6}$ $\frac{2}{4}$ _____ $\frac{2}{3}$ $\frac{1}{2}$ _____ $\frac{1}{2}$

- 8 Use $<$, $>$, or $=$ to compare each set of fractions. Each symbol will be used once.

$\frac{3}{4}$ _____ $\frac{3}{4}$ $\frac{2}{8}$ _____ $\frac{2}{2}$ $\frac{2}{3}$ _____ $\frac{1}{3}$



The fractions have the same denominator, so they are easy to compare on the same number line.



Pair/Share

How do you find the greater number on a number line?

What do you need to think about when you compare fractions that have different denominators?



Pair/Share

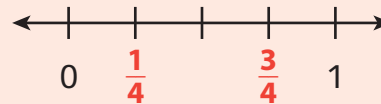
How did you know which fraction was smaller?

Study the models below. Then solve problems 9–11.

Student Model

Su and Anthony live the same distance from school. Su biked $\frac{3}{4}$ of the way to school. In the same amount of time, Anthony walked $\frac{1}{4}$ of the way to school. Who went the greater distance? Compare the fractions using a symbol.

Look at how you could show your work using a number line.



Solution: **Su went a greater distance.** $\frac{3}{4} > \frac{1}{4}$

- 9 Julia and Mackenzie have the same number of homework problems. Julia has done $\frac{1}{3}$ of her problems. Mackenzie has done $\frac{1}{2}$ of her problems. Which student has done less of her homework? Compare the fractions using a symbol.

Show your work.

Solution: _____



- 10 David and Rob each got the same snack pack of crackers. David ate $\frac{3}{6}$ of his snack pack. Rob ate $\frac{3}{4}$ of his snack pack. Who ate more? Compare the fractions using a symbol.

Show your work.

Solution: _____

- 11 What number could go in the blank to make the comparison true? Circle the letter of the correct answer.

$$\frac{5}{8} < \underline{\hspace{2cm}}$$

- A $\frac{5}{8}$
- B $\frac{4}{8}$
- C $\frac{6}{8}$
- D $\frac{1}{8}$

Blake chose **A** as the correct answer. How did he get that answer?

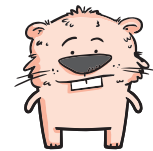
I think drawing a model might help. Be sure the wholes are the same size.



Pair/Share

Which fraction is made of bigger unit fractions? Why?

Is $\frac{5}{8}$ less than or greater than the fraction that goes in the blank?



Pair/Share

Does Blake's answer make sense?



Solve the problems.

- 1 Which fraction could go in the blank to make the comparison true?

$$\underline{\hspace{2cm}} > \frac{1}{2}$$

- A $\frac{2}{4}$
B $\frac{4}{8}$
C $\frac{2}{3}$
D $\frac{2}{6}$

- 2 Shade the rectangles below to represent the given fractions. Then use your diagrams to help you complete the statement below with $<$, $>$, or $=$.



$$\frac{1}{4} \square \frac{2}{8}$$

- 3 Use the numbers below to build fractions that make the statement true. There is more than one correct answer.

6 8 1 3 4

$$\frac{\square}{8} < \frac{\square}{8}$$



- 4 Look at the comparison below.

$$\underline{\hspace{2cm}} < \frac{3}{4}$$

Tyrone wrote a fraction in the blank to make the comparison true. His fraction had an 8 in the denominator. What is one fraction that Tyrone could have used?

Show your work.

Answer _____

- 5 Tran and Noah were each given the same amount of clay in art class. Tran divided his clay into 3 equal pieces. He used 2 of the pieces to make a bowl. Noah divided his clay into 4 equal pieces. He also used 2 of the pieces to make a bowl. Tran said that he had more clay left over than Noah. Is Tran correct? Explain.



Self Check

Go back and see what you can check off on the Self Check on page 131.