

CHAPTER 6: Simple Fractions

MINI-MODULE D

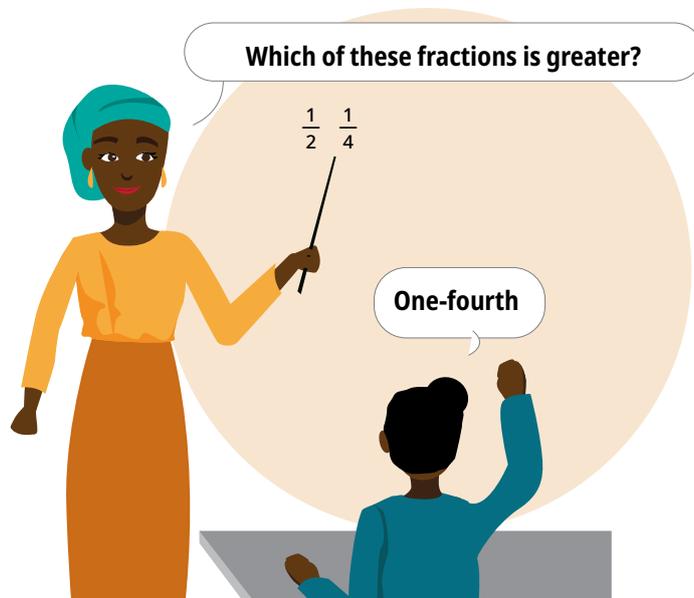
Compare Simple Fractions

Objectives

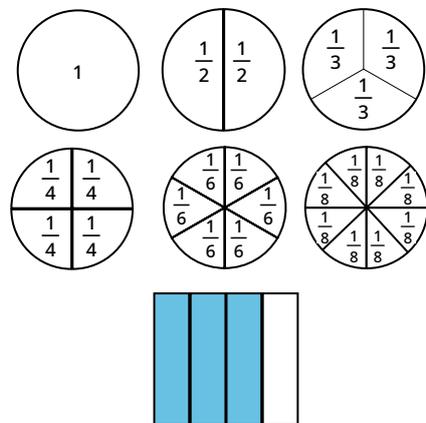
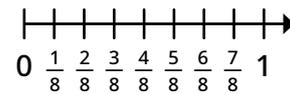
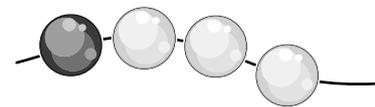
This mini-module aims to help teachers:

- Explain and demonstrate how to compare fractions using different representations.
- Teach students how to compare two fractions.
- Practice a new teaching activity.

Illustration of Teaching



Recommended Materials



REFLECT:

- What mistake did the student make?
- Why do you think the student has misunderstood the relative size of these fractions?
- What materials could you use to address this misunderstanding?

Ideas to Consider

The teacher asked the student to compare fractions in their written form, $\frac{1}{2}$ and $\frac{1}{4}$. This is abstract, and the student may have had difficulty visualizing these fractions to compare their relative size. The student may have thought that $\frac{1}{4}$ is greater because it has a greater number in its denominator. However, this is not how we compare fraction size. The teacher could use visual fraction representations—such as fraction circles, shapes, or number lines—to have the student compare the size of these two fractions.

In this mini-module, you will explore what children learn about comparing fractions in the early grades and how to use materials to support them.



ACTIVITY: IDENTIFY REPRESENTATIONS TO COMPARE FRACTIONS

This activity can be completed alone, in pairs, or with a group of teachers. Discuss your responses to the questions.

Purpose: Identify visual representations that can be used to compare fractions.

Materials needed: Writing materials for all participants; various fraction representations.

Instructions

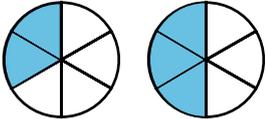
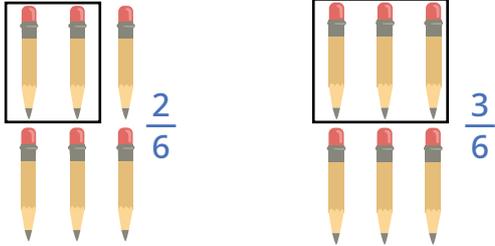
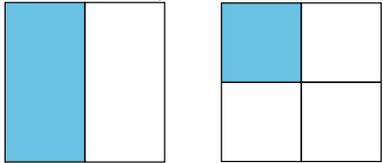
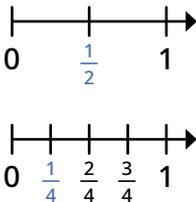
- Consider two fractions: $\frac{1}{3}$ and $\frac{2}{3}$
- **What are two types of materials or representations we could use to compare these fractions?**
- Show two ways that can be used to help children compare the fractions $\frac{1}{3}$ and $\frac{2}{3}$. You may use a number line, fraction circles, drawn shapes, or sets of objects.
- Share your representations with your colleagues and look at their representations.
- **What are the different representations that can be used to compare fractions? Which ones do you think are most useful?**

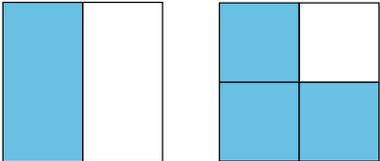
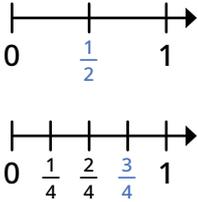
What Do Children Learn about Comparing Fractions?

In the early grades, children rely on concrete or pictorial representations to compare fractions. These can include shapes, fraction circles, number lines, and sets of objects. Children first compare fractions that are divided into the same number of parts (i.e., have the same denominator). Later, they compare fractions with different denominators.

Representations used to compare two or more fractions should be the same type, shape, and size. For example, a teacher could use two fraction circles, or two number lines with the same distance between 0 and 1. However, they should not use two different types of representations (e.g., a shape and a number line) to compare fractions.

Children should not be introduced to comparison with all of the fraction representations at once. They can begin to compare fractions early, before they understand all of the fraction representations and concepts. For example, after introducing children to fractions with shapes, teachers may have them compare fractions using shapes as well. Later, after introducing number lines, these can be used to compare fractions.

Children should be able to ...	What does this mean?	Example
<p>Compare fractions with the same denominator using representations</p>	<p>Compare fractions with the same denominator to identify the relative size (greater than/less than).</p>	<p>Q: Which is greater, $\frac{3}{6}$ or $\frac{2}{6}$?</p> <p>A: I can compare shapes to find that $\frac{3}{6}$ is more:</p>  <p>A: I can compare the fractions on a number line to find that $\frac{3}{6}$ is farther from 0, so it is greater.</p>  <p>A: I can compare two sets to find that $\frac{3}{6}$ is a bigger part of the whole set:</p> 
<p>Compare unit fractions using representations</p>	<p>Compare unit fractions with different denominators to identify the relative size (greater than/less than).</p>	<p>Q: Which is greater, $\frac{1}{2}$ or $\frac{1}{4}$?</p> <p>A: I can compare the shaded parts to find that $\frac{1}{2}$ has more shaded space of the square than $\frac{1}{4}$:</p>  <p>A: I can compare the fractions on two number lines to find that $\frac{1}{2}$ is farther from 0:</p> 

Children should be able to ...	What does this mean?	Example
<p>Compare the size of non-unit fractions using representations</p>	<p>Identify the relative size of any fractions between 0 and 1 (greater than/less than).</p>	<p>Q: Which is greater, $\frac{3}{4}$ or $\frac{1}{2}$?</p> <p>A: I can compare the shaded parts to find that $\frac{3}{4}$ has more shaded space than $\frac{1}{2}$:</p>  <p>A: I can compare the fractions on two number lines to find that $\frac{3}{4}$ is farther from 0:</p> 

Reflection

Write your responses down or discuss your ideas with your colleagues:

- Why is it helpful to use different representations to compare fractions?
- In your opinion, what is the most useful representation for comparing fractions?
- Which representation do you think your students will find challenging? How can you support them?

Teaching Practice

This practice activity may be completed by teachers with their own class or with a smaller group of students.



ACTIVITY: COMPARE FRACTIONS

Purpose: Compare fractions using representations.

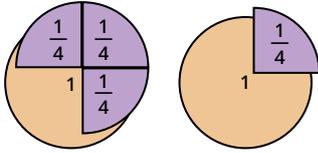
Materials needed: Fraction circles; number lines.

Note: This activity uses two representations (fraction circles and number lines) to compare fractions with the same denominator. It should be completed only after children have already learned about these representations. However, it is a flexible activity that can be adapted in different ways. For example, you may:

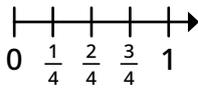
- Use only one representation.
- Use other representations, such as sets of objects.
- Use fractions with different denominators.

Instructions

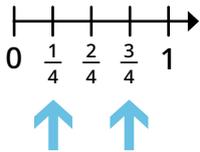
- Using fraction circles, show students two different fractions with the same denominator (e.g., $\frac{3}{4}$ and $\frac{1}{4}$). For example:



- For each circle, ask: **What is this fraction?**
- Invite two students to write the fractions on the board. For example: $\frac{3}{4}$ $\frac{1}{4}$
- Discuss: **Which of these fractions is greater? How do you know?**
- Say: **Very good. $\frac{3}{4}$ is greater than $\frac{1}{4}$. More of the circle is covered, so we know that $\frac{3}{4}$ is a bigger fraction of the shape.**
- On the board, write a number line with fourths:



- Ask the children to identify and point to the numbers you have just compared.



- Discuss: **How can we tell which fraction is greater on the number line?**
- Say: **We can see that $\frac{3}{4}$ is greater than $\frac{1}{4}$ because it is to the right on the number line. It is farther from 0 and closer to 1.**
- Repeat with different fractions with the same denominator.



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