Grade 2 : Parts and Wholes
"Comparing Fractions 2"
(From: Mathology)

This activity focuses on comparing the sizes of different unit fractions of the same whole. To start, students explore parts of a whole by covering a yellow Pattern Block with smaller blocks to show halves, thirds, and sixths, then repeat the activity using Cuisenaire Rods. In pairs, students use the dark green Cuisenaire rod to show halves, thirds, and sixths, then use the brown rod to show eighths, fourths, and halves. Students use the rods to answer questions and talk about what they notice about the number and size of the different parts. To consolidate, students use the rods to decide whether one half or one fourth, then two thirds or one half, is bigger. Students discuss how they can only compare parts of the same whole (same colour rod).

Big Idea	Curriculum expectations
Comparing the sizes of different unit fractions of the same whole	**B1. Number Sense:** demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life • **Fractions: B1.6** use drawings to represent, solve, and compare the results of fair-share problems that involve sharing up to 10 items among 2, 3, 4, and 6 sharers, including problems that result in whole numbers, mixed numbers, and fractional amounts
Learning Goals	**Success Criteria**
We want students to understand: • Quantities and numbers can be grouped by or	I can: • Use patterns blocks and Cuisenaire Rods to compare different fractions of the same whole

partitioned into equal-sized units	• I can compare and describe fractions that are bigger or smaller

Materials	Math Language / Vocabulary

• Pattern blocks
• Cuisenaire rods *(virtual learners can use the Mathies relational rods app OR the Pearson interactive tools)*
• Line Masters: (*All Line Masters can be accessed by logging into your Mathology account)*
  ○ 53: Brown Rod Questions
  ○ 54: Assessment
	• Part / Whole
	• Compare
	• Half / Third / Fourth / Sixth / Eighth
	• Bigger / Smaller
	• Fewest
	• Biggest / Smallest
	• Fraction
	• More
	• Equal parts
	• Partition

Prior Knowledge

Students may benefit from prior experience with:

- sharing items fairly
- partitioning shapes into equal parts
- using ordinal number names to tenth
- comparing and ordering quantities

Key concepts

- Fair-sharing or equal-sharing means that quantities are shared equally. For a whole to be shared equally, it must be partitioned so that each sharer receives the same amount.

Note

- Words can have multiple meanings. It is important to be aware that in many situations, fair does not mean equal, and equal is not equitable. Educators should clarify how they are using the term “fair share” and ensure that students understand that in the math context fair means equal and the intent behind such math problems is to find equal amounts.
- Fair-share or equal-share problems provide a natural context for students to encounter fractions and division. Present these problems in the way that students will best connect to.
- Whole numbers and fractions are used to describe fair-share or equal-share amounts. For example, 4 pieces of ribbon shared between 3 people means that each person receives 1 whole ribbon and 1 one third of another ribbon.
- When assigning these types of problems, start with scenarios where there is a remainder of 1. As students become adept at solving these problems, introduce scenarios where there is a remainder of 2 that needs to be shared equally.
- Fractions have specific names. In Grade 2, students should be using the terminology of “halves”, “fourths”, and “thirds”.

Minds On

Show students a yellow Pattern Block. Have a volunteer find 2 Pattern Blocks (red block) that cover the yellow block. Ask, *“What part does each red block represent?”* (one half)

Repeat; this time have a volunteer find 3 blocks that cover the yellow block (blue block; one third). Then have a volunteer find 6 blocks that cover the yellow block (green block; one sixth).

Have students compare the sizes of the different parts.

Repeat the activity with Cuisenaire Rods.

Action!

Give each pair a set of Cuisenaire Rods and a set of questions (Line Master 53).

- Take the dark green rod. Find 2, then 3, then 6 rods of the same colour that cover the rod exactly. Draw pictures and label each part.
- What do you notice about the number and size of the different parts?
- Which is bigger: two thirds or three sixths? How do you know?
- Take the brown rod. Find 8, then 4, then 2 rods that cover the brown rod exactly. Choose questions. Use the rods to answer the questions.

Probing Questions:

- *What 3 rods covered the dark green rod exactly?*
- *How did you know what to label that part?*
- *How do you know that the purple rod is one half of the brown rod?*
- *How do you know that the whole with the fewest rods has the biggest parts?*

Look-Fors

- Are students able to use rods to show different parts of a whole?
- Are students able to label each part with a fractional name?
- Are students able to compare fractional parts to determine which is bigger?
- Do students realize that the whole covered with the most rods has the smallest parts?

Consolidation

Have students share their results.

Have volunteers use the dark green rod to show halves, thirds, and sixths.
Ask: *"How do you know which part is the biggest? the smallest?"*
Have volunteers use the brown rod to show halves, fourths, and eighths.

Ask, *"Which is bigger: one half or one fourth?"* Ask, *"Are there more halves or more fourths in one whole?"*

Show the dark green rod. Align 3 red rods above it and 2 light green rods beneath it.
Ask: *"Which is bigger: two thirds or one half? How do you know?"*
Ensure students understand that we can only compare parts of the same whole (same colour rod).

Highlight for Students

- We can use different materials (e.g., rods, Pattern Blocks) to compare parts of a whole.
- As a whole is divided into more parts, the size of the parts gets smaller (e.g., one half is bigger than one fourth of the same whole).

Supports for Student Learning

Accommodations: Have students focus on finding 2 rods of the same colour that cover the dark green and brown rods.

Extension: Have students show thirds using the blue rod, and halves, fifths, and tenths using the orange rod.

Combined Grades Extension: Have students choose any rod and then show and record as many different unit fractions as they can.

Independent Tasks / Assessment Opportunities

All assessments, in the moment feedback/prompts, and independent tasks can be accessed by logging into your Mathology account.

SEL Self-Assessments (English) and Teacher Rubric

Extension Activities

Log in to your Mathology.ca / Mathologie.ca account to access Intervention and Extension activities, Professional Learning Videos and Assessment tools.

Technology

If you require support logging into your Mathology/Mathologie account, please contact Kerry Stack or Erica Doucet.

https://etr.mathology.ca/

Use the Relational Rods Tool (Pearson interactive tool OR Mathies app) in front of the class to compare the sizes of different unit fractions of the same whole. Click the *Hide Numbers* button to hide the fraction names. Drag a pink rod to the workspace. Have a volunteer find 2 rods that cover the pink rod exactly (red rod), then identify what each red rod represents (one half). Repeat, this time finding 4 rods that cover the pink rod exactly (tan rod; one fourth). Have students compare the sizes of the different parts. Repeat with different rods to show other unit fractions.