Grade 2 : Parts and Wholes
"Comparing Fractions 1"
(From: Mathology)

This activity focuses on relating the size and number of equal parts in a whole. To start, students discuss everyday situations where they share fairly. Students then read a story about sharing bannock, then use pictures of circular bannock to model sharing it with 2 and 4 people. In pairs, students cut or fold squares into 2, 4, and 8 equal parts, then compare one part from pairs of squares to determine which is bigger. To consolidate, students show how they compared the sizes of the different parts, Then, using the same whole, students decide whether one half, three fourths, or one whole is biggest and explain how they know.

Big Idea	Curriculum expectations
Relating the size and number of equal parts in a 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 **C4. Mathematical Modelling:** apply the process of mathematical modelling to: • represent, analyse, make predictions, and provide insight into real-life situations
Learning Goals	Success Criteria

We want students to understand:	I can:
• quantities and numbers can be grouped by or partitioned into equal-sized units	• cut or fold a whole into more equal parts • understand that the size of the part gets smaller when I cut or fold a whole into equal parts • understand that when a whole is cut or folded into smaller equal parts, there are more parts
Materials	**Math Language / Vocabulary**

• Scissors
• Line Masters: (*All Line Masters can be accessed by logging into your Mathology account)*
  ○ 47: Bannock Story
  ○ 48: Circular Bannock
  ○ 49: Congruent Paper Squares
  ○ 50: Paper Shapes
  ○ 51: Assessment
	• Share
	• Bigger / Smaller
	• Part / Whole
	• Equal / equal parts
	• Fair share
	• Most / fewest
	• Biggest / smallest
	• Half / fourth / eighth
	• Fraction
	• Increase
	• More
	• Compare
	• 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

Discuss everyday situations where students share fairly. Research bannock, a type of Indigenous bread. Read the story about sharing bannock on Master 47. Use 2 circular bannock of the same size (Master 48) to model sharing the bannock with 2 and 4 people. Have students share their answers and justify their thinking (e.g., the table where it is

shared with 2 people because the pieces are bigger).

Action!

Give each pair scissors and 3 congruent paper squares of different colours (Master 49). You may also use one of the shapes on Master 50.

- Take one square. Cut or fold it into 2 equal parts. Label each part.
- Take another square. Cut or fold it into 4 equal parts. Label each part.
- Take another square. Cut or fold it into 8 equal parts. Label each part.
- Which colour has the most parts? the fewest? the biggest? the smallest?
- Compare one part from two squares. Which is bigger: one fourth or one eighth? one half or one fourth? one half or one eighth? How do you know?

Probing Questions:

- *How did you cut or fold your square into 8 equal parts?*
- *How can you show that the parts for that square are equal?*
- *How do you know that one fourth is bigger than one eighth?*
- *How do you know that the square with the most pars has the smallest parts?*

Look-Fors

- What strategies are students using to cut/fold the square into 8 equal parts (e.g., are they further dividing the fourths into 2 equal parts?)?
- Are students able to cut or fold each square into the correct number of parts? Are the parts equal?
- How are students comparing the different-sized parts?
- Are students able to accurately compare the parts? Are they using math language to make the comparisons?

Consolidation

Have students share the strategies they used to cut or fold the squares into the different numbers of equal parts.

Have volunteers show how they compared the sizes of the different parts.
Help students see that, as the number of equal parts increases, the size of the parts gets smaller.
Show one half of one square and three fourths of another square. Ask, *"Which is bigger (smaller): one half or three fourths?"* Then show a whole square.
Ask: *"Which is biggest (smallest): one half, three fourths, or one whole? How do you know?"* Make sure students understand that we can only compare parts of the same whole.

Highlight for Students

- When a whole is cut or folded into more equal parts, the size of the parts gets smaller.
- When a whole is cut or folded into smaller equal parts, there are more parts.

Supports for Student Learning

Accommodations: Students use 2 colours of squares and cut or fold them into 2 equal parts and 4 equal parts.

Extension: Students cut or fold the squares into 2, 3, and 6 equal parts.

Combined Grades Extension: Students divide a set of 16 counters into halves, fourths, and eighths; draw a picture to show each unit fraction; and then compare the fractions.

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

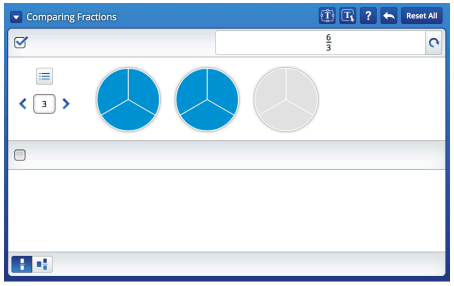
Extension Activities

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 Comparing Fractions Tool in front of the class to model relating the size and number of equal parts in a whole. Click the *Show Another Way* button to hide the fraction names. Show the same rectangle in each part of the workspace. Use the arrows to divide each rectangle into a different number of equal parts. Click on parts to colour them. Discuss what fractional amount each model shows. Compare the shaded parts to decide which model shows the bigger amount. Repeat with squares.