

More or Less

Strand:	Number and Number Sense
Topic:	Comparing unit fractions
Primary SOL:	2.4 The student will c) compare the unit fractions for halves, fourths, eighths, thirds, and sixths, with models.
Related SOL:	2.4a, 2.4b

Materials

- Colored sheets of paper (six colors, one for each unit fraction: wholes, halves, fourths, eighths, thirds, and sixths)
- Scissors
- Crayons

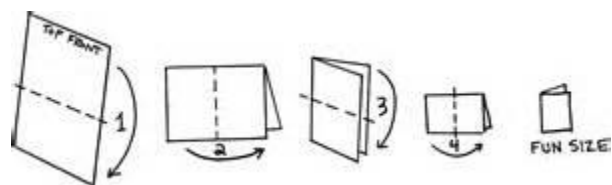
Vocabulary

eighths, equal to (=), fourths, greater than (>), halves, less than (<), sixths, thirds, whole

Student/Teacher Actions: What should students be doing? What should teachers be doing?

1. Review identifying fractions in a set, region, or length for halves, fourths, eighths, thirds, and sixths. Begin with a number talk with various representations for the same fractions; ask students what they notice, how the fractions are alike, and how they are different.
2. Provide each student with a colored sheet of paper and ask, “*What does this sheet of paper represent?*” (the response you are looking for is one whole). Have students write “one whole” on this first sheet of paper.
3. Provide students with a different color of paper. Ask students to fold this paper in half (hamburger style; see model below), open it, and cut along the fold line. Ask: “*How many pieces do you now have?*” “*Is it still a whole sheet of paper?*” “*What can we call each piece of paper and how do you know?*” Once you have identified this piece of paper as one-half, have the students label each half as $\frac{1}{2}$.
4. Pass out another color of paper. Have students fold this piece in half and in half again. Each fold should be hamburger style. Before students open their folded paper, ask, “*How many sections did we just create on our paper?*” Discuss student observations and how they came to that conclusion. Open the paper to check theories; ask students what each of these pieces could be called. Have students cut on folds and write $\frac{1}{4}$ on each. Ask: “*Which piece is bigger, one-half or one-fourth?*” “*How do you know?*” “*What do you notice about the fractions?*” (2 is smaller than 4, but $\frac{1}{4}$ is a smaller piece) This is a good time to revisit equal shares and how when something is cut into two pieces, the pieces are bigger than when you cut into four pieces.
5. Give students a different color of paper. This time, have the student fold in half, fold in half, and fold in half again (see model below). Ask students to predict how many sections

their paper will have when it is opened this time; discuss students' predictions, and be sure to ask students to support their theory. After discussion, have students open their papers to check predictions, cut along the folds, and discuss what the name of these pieces could be; record $\frac{1}{8}$ on each piece. Discuss with students which piece is the smallest and the largest out of the halves, fourths, and eighths. Ask whether the combined pieces would equal one piece; record comparison statements on the board using symbols and words.



6. To make thirds, provide students with a different color of paper and guide students on making a trifold with the paper. Fold and discuss number of sections. Ask, “*What would you would name each piece?*” Have students record $\frac{1}{3}$ on each piece. Compare to other fractions of various sizes and write comparison statements with words and symbols on the board.
7. Using the final color of paper, guide students on once again making a trifold and then folding it in half. Before they open the paper, ask students to predict the number of sections; discuss students' predictions. Open the paper and cut along the folds; ask students what to call each section and label.
8. Using the fraction pieces, just created, have students explore with a partner and write comparison sentences using words and symbols. Teacher should be looking for understanding as students are building comparisons and writing statements.

Assessment

- **Questions**

- Ask students to use the pieces to find fractions that are greater than, less than, or equal to fractions that you named. Be sure to ask students how they know and note the different fractions.
- What do you notice about the denominators of the fractions that are greater? That are less?

- **Journal/writing prompts**

- My friend said that he had $\frac{1}{4}$ of a pizza. I had $\frac{1}{6}$ of a pizza. Who has more? How do you know?
- Compare the following fractions: $\frac{1}{2}$ and $\frac{3}{6}$. Describe your observations as you use mathematics tools to prove your answer.

- **Other Assessments**

- During mathematics warmup, provide students with various statements and ask whether the statements are true or false, having them support their answer with words and drawings.

Extensions and Connections (for all students)

- Use sentence strips to model the length model.

- Use fractions greater than the unit fraction for comparisons.

Strategies for Differentiation

- Provide students with multiple fraction tools to help students explore, such as Cuisenaire rods, fractions walls, and fraction circles.
- Use real-world items, such as food, to make the idea more meaningful.
- Provide greater than and less than symbol cards.
- Redirection and corrective feedback should be given throughout lesson.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

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