

LESSON PLAN

Improper Fractions to Mixed Numbers

Age group: **Fourth Grade**

Common Core Standard: **4.NF.A.1**

Online resources: [All the Same to Me – Mixed Numbers on the Number Line](#)

Opening



Present All the Same to Me



Play All the Same to Me



Activity



Closing



GOALS:

- **Experience** a visual model for equivalent fractions
- **Practice** partitioning a number line into fractional parts
- **Learn** to convert between improper fractions and mixed numbers
- **Develop** algebra skills

Opening | 6 min

- Ask the students the following question. Have them write their answers in their notebooks.
You buy a bunch of pizzas for a birthday party. Each pizza is cut into eight slices. At the end of the party, 10 slices are left over. How many pizzas are left?
How do you know?

- When the students have finished writing, share.
 - Ask: How many pizzas are left?
 - *One whole pizza and two slices of a second pizza are left. So that's $1\frac{2}{8}$, or $1\frac{1}{4}$, pizzas.*
 - Ask: How do you know?
 - *There are 10 slices. We take eight of them to make one whole pizza. Now there are two slices left over. Those two slices make up part of a pizza. Since the whole pizza is eight slices, then two slices is $\frac{2}{8}$ of a pizza.*
 - Ask a student to draw a picture on the board that demonstrates how 10 slices make $1\frac{2}{8}$ ($1\frac{1}{4}$) pizzas.
- Say: We can represent the amount of pizza in two different ways. Both $\frac{10}{8}$ and $1\frac{2}{8}$ (and $1\frac{1}{4}$) name the same amount of pizza. They are **equivalent** because they have the same value. $\frac{10}{8}$ is an **improper fraction** (a fraction where the numerator is bigger than or equal to the denominator), and $1\frac{2}{8}$ is a **mixed number** (a whole number paired with a **proper** fraction).

Teacher presents **All the Same to Me – Mixed Numbers on the Number Line** | 12 min

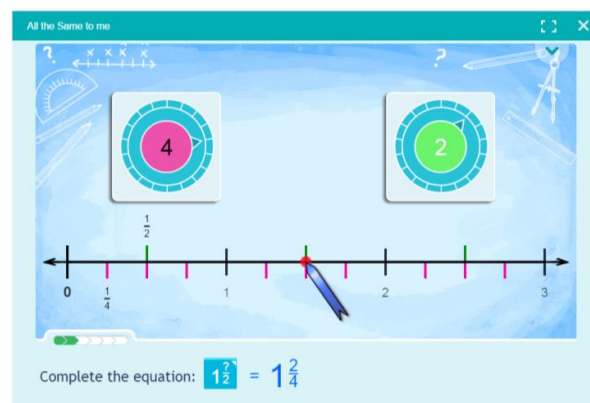
- Present *Matific's* episode [All the Same to Me – Mixed Numbers on the Number Line](#) to the class, using the projector.

The goal of the episode is to write equivalent fractions and to convert between mixed numbers and improper fractions.

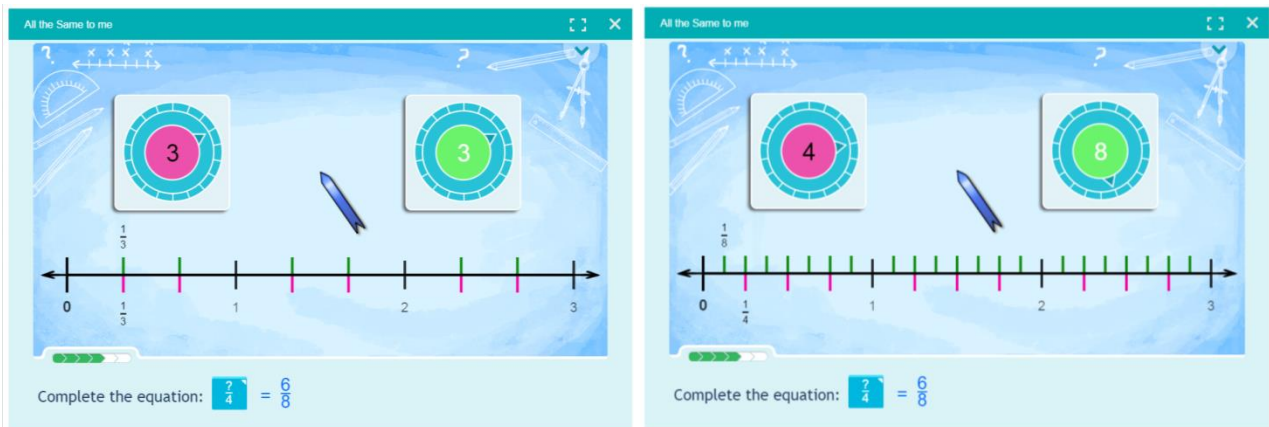
Example:



- Say: Please read the instruction.
 - *Students can read the instruction at the bottom of the screen.*
- Say: A number line has been divided into parts to help us solve this problem. Above the number line are small green dividers representing one way to partition the line. Below the number line there are small pink dividers representing another way to partition the line. You will notice that the green and pink dividers sometimes meet. This is where they are equivalent. Look at the blue pointer. It is pointing at the two equivalent fractions for this problem. What is the missing number in this problem?
 - *Students can answer based on the episode.*
- Click on the to enter the number that the students indicate. If the answer is correct, the episode will proceed to a new problem. If the answer is incorrect, the instruction will wiggle.
- For the second problem, the episode will present dials. The dials will be set to the denominators in the problem.



- Say: Again, we are looking for equivalent fractions. What is the missing number?
 - *Students can answer based on the episode.*
- For the third problem, the dials will be set to the denominators in the problem and the line will be partitioned correctly. However, the pointer will not yet be in place. Ask for students' input in placing the pointer.
- For the remaining problems, the dials will not be properly set. You will need to turn each dial so that it is set to one of the denominators in the problem. This will adjust the partitions. Ask for students' input in how to change the dials and where to place the pointer.



- The episode will present a total of six problems.

Students play All the Same to Me | 12 min

- Have the students play [All the Same to Me – Mixed Numbers on the Number Line](#) on their personal devices. Depending on time, students may also proceed to the [Equivalent Fractions – Fractions and Integers](#) worksheet. Circulate, answering questions as necessary.

Activity | 12 min

- Ask the students to copy the following bingo board:

		Free Space		

- Have the students fill in the 24 empty boxes with the following improper fractions. They should each place the numbers randomly in the boxes; in this way, each student has a unique bingo card.

$$\frac{14}{5} \quad \frac{11}{3} \quad \frac{29}{6} \quad \frac{8}{3} \quad \frac{6}{2} \quad \frac{17}{3} \quad \frac{21}{5} \quad \frac{15}{4} \quad \frac{24}{6} \quad \frac{22}{3} \quad \frac{16}{5} \quad \frac{33}{8}$$

$$\frac{15}{2} \quad \frac{4}{3} \quad \frac{9}{5} \quad \frac{17}{6} \quad \frac{10}{3} \quad \frac{13}{4} \quad \frac{19}{4} \quad \frac{20}{3} \quad \frac{23}{4} \quad \frac{19}{6} \quad \frac{25}{8} \quad \frac{9}{2}$$

- The students should cross off the “Free Space”.
- Read off mixed numbers, in random order. The students should cross off the equivalent improper fraction on their bingo cards as you read. The first student to cross off five in a row (across, down, or on the diagonal) wins.

$$2\frac{4}{5} \quad 3\frac{2}{3} \quad 4\frac{5}{6} \quad 2\frac{2}{3} \quad 3 \quad 5\frac{2}{3} \quad 4\frac{1}{5} \quad 3\frac{3}{4} \quad 4 \quad 7\frac{1}{3} \quad 3\frac{1}{5} \quad 4\frac{1}{8}$$

$$7\frac{1}{2} \quad 1\frac{1}{3} \quad 1\frac{4}{5} \quad 2\frac{5}{6} \quad 3\frac{1}{3} \quad 3\frac{1}{4} \quad 4\frac{3}{4} \quad 6\frac{2}{3} \quad 5\frac{3}{4} \quad 3\frac{1}{6} \quad 3\frac{1}{8} \quad 4\frac{1}{2}$$

- More games can be played, as time allows.

Closing | 5 min

- Say: Define equivalent fractions.
 - *Equivalent fractions are fractions that have the same value.*
- Hand out a small piece of paper. Ask the students to:
 1. State one improper fraction and its equivalent mixed number.
 - 2a. State two equivalent proper fractions.
 - 2b. Draw two figures that represent the proper fractions and demonstrate that they are equal.
- Collect the papers to review later.
 - *A possible response:* $\frac{2}{3} = \frac{6}{9}$

