

4th Grade Math: Understanding Hundredths

Lesson Objective:

By the end of this lesson, students will be able to:

- Understand and identify hundredths as fractions and decimals.
- Represent hundredths using visual models, such as number lines and grids.
- Compare and order numbers expressed as hundredths.

1. Introduction to Hundredths

What is a Hundredth?

- A hundredth is one part of something that has been divided into 100 equal parts.
- In fraction form, a hundredth is written as $\frac{1}{100}$.
- In decimal form, a hundredth is written as 0.01.

Examples:

- $\frac{1}{100}$ is one-hundredth of a whole.
- $\frac{43}{100}$ is forty-three hundredths of a whole, or 0.43.

2. Hundredths as Fractions and Decimals

When we divide something into 100 equal parts:

- **Fraction form:** Each part is $\frac{1}{100}$.
- **Decimal form:** Each part is 0.01.

Example:

- If you have 35 out of 100 stickers, you have $\frac{35}{100}$ of the stickers. As a decimal, you have 0.35.

Visualizing Hundredths Using Grids:

- **Grid Example:** Draw a 10x10 grid where each small square represents one-hundredth of the whole. Shade 24 out of 100 squares to represent $\frac{24}{100}$ or 0.24.

3. Hundredths on a Number Line

A number line is a useful tool to visualize hundredths:

- Draw a number line from 0 to 1.
- Divide the space between 0 and 1 into 100 equal parts.
- Each point on the line represents a fraction and a decimal (e.g., $\frac{1}{100} = 0.01$, $\frac{50}{100} = 0.50$).

Example:

- Place $\frac{65}{100}$ on a number line. It corresponds to 0.65.

4. Comparing and Ordering Hundredths

When comparing hundredths, it's helpful to use decimals:

- Numbers with a larger digit in the hundredths place are greater.

Examples:

- Compare $\frac{56}{100}$ and $\frac{72}{100}$.
 - In decimal form: $0.56 < 0.72$.
 - Therefore, $\frac{56}{100}$ is less than $\frac{72}{100}$.

Activity:

Order the following fractions from least to greatest: $\frac{12}{100}$, $\frac{89}{100}$, $\frac{45}{100}$.

- In decimal form: 0.12, 0.89, 0.45.
- Order: $\frac{12}{100}$, $\frac{45}{100}$, $\frac{89}{100}$.

5. Real-World Examples of Hundredths

Example 1: If you have \$0.65, how much of a dollar do you have?

- You have 65 cents, which is $\frac{65}{100}$ of a dollar, or 0.65.

Example 2: If a running race is 100 meters long and you have run 84 meters, how much of the race have you completed?

- You've run $\frac{84}{100}$ of the race, or 0.84.

6. Practice Problems

1. Convert each fraction to a decimal:

- $\frac{23}{100} = \underline{\quad}$
- $\frac{78}{100} = \underline{\quad}$

2. Plot these decimals on a number line:

- 0.09, 0.67, 0.25

3. Compare the following fractions and write $<$, $>$, or $=$:

- $\frac{45}{100} \text{ — } \frac{58}{100}$
- $\frac{72}{100} \text{ — } \frac{72}{100}$

7. Class Discussion

- Where else do you see hundredths in the real world?
 - Examples: Money (dollars and cents), gas prices, measurements on a ruler.

8. Review and Wrap-Up

- Key Points:
 - Hundredths are one of 100 equal parts.
 - Hundredths can be written as fractions ($\frac{1}{100}$) or decimals (0.01).
 - Use number lines and grids to visualize hundredths.

Exit Question: Write $\frac{49}{100}$ as a decimal and explain how you know.