

UNDERSTANDING DECIMAL PLACE VALUE



Curated by



Understanding decimal place value

Introduction

This lesson will help students understand the role of the decimal point and the relationship between tenths, hundredths, and thousandths.

Objectives

Students will:

- Explore decimal place values.
- Read and write decimals using tenths, hundredths, and thousandths.
- Compare decimals using greater-than and less-than notation.

Suggested time allowance

This lesson can be divided into two or three smaller lessons, each lasting about 20-25 minutes.

Materials

Overhead transparency of grid paper, instructor-guided practice questions, Guided practice Worksheets, Independent Practice Worksheets, Extension Worksheets, Homework Worksheets.

Procedures

1. Introduce key vocabulary: decimal, decimal point, tenths place, hundredths place.
2. Display the overhead transparency of grid paper.
3. Have students examine the 10 x10 grid. Ask:
 - How many small boxes make up the whole grid? (100)
4. Have a volunteer come to the projector, count out a row or column (10 squares), and shade it.
 - What does the shaded part represent? (one-tenth of a whole)

5. Explain, or ask students to explain, ways to read and write this decimal (one-tenth, 0.1, or $\frac{1}{10}$). The first place to the right of the decimal point is the tenths place.
6. Have a second student come to the projector and shade in only one square on the grid. Ask:
 - What does the shaded part represent? (one hundredth)
 - What are ways to read and write this decimal? (one hundredth, 0.01, or $\frac{1}{100}$)The second place to the right of the decimal point is the hundredths place.
7. Ask:
 - Is 0.1 greater or less than 0.01? (greater)
 - How much greater? (10 times)
8. Explain that one-tenth (0.1) and ten hundredths (0.10) have the same value. Clean the overhead, and have a third student shade both values to illustrate that they are the same.
 - If the first place to the right of the decimal is called the tenths place, and the second place to the right of the decimal is called the hundredths place, what do you think the third place to the right of the decimal point is called? (the thousandths place)
 - What are ways to read and write one thousandth? (one-thousandth, 0.001, or $\frac{1}{1,000}$)
9. Ask students to name instances when it is important to calculate and record numbers less than 1 (Possible answers: time, money, scientific measurements). Use instances from life to show the class how each of the following decimals is written and read.
 - Marcel's slice of pizza cost \$1.35.
 - In the 1988 Summer Olympics, Carl Lewis won the gold medal for running the 100-Meter Dash in 9.92 seconds.
 - An inch is equal to 2.54 centimetres.
 - The average body temperature is 98.6° Fahrenheit.
 - When comparing decimals, begin on the left and compare the digits in each place.

- Example:
Compare 0.11 and 0.12.
In the tenths place, the digits are the same. Look at the hundredths. 2 is greater than 1, so $0.12 > 0.11$. Compare 0.02 and 0.120.
The ones are the same. 1 is greater than 0 in the tenths place, so $0.120 > 0.02$. Compare 2.17 and 0.99.

The ones are different. Since 2 is greater than 0, $2.17 > 0.99$.

1. Remind students that when there are non-zero digits on both sides of the decimal point, they should say, "and," where they see the decimal point. For example, 2.17 is read, "two and seventeen hundredths."
2. Use models on a 10 x 10 grid as necessary to guide the class in comparing decimals numbers using $>$ and $<$.
 1. $0.1 (>) 0.01$
 2. $0.2 (>) 0.02$
 3. $0.999 (>) 0.99$
 4. $0.13 (>) 0.12$
 5. $0.51 (>) 0.509$
 6. $0.183 (>) 0.083$
 7. $1.460 (>) 1.45$
 8. $0.005 (>) 0.004$
 9. $1.003 (>) 0.339$
 10. $1.06 (>) 1.007$
3. Distribute the guided practice worksheet and have students work in pairs. To help students compare the value of decimals, see Teacher guided practice Questions.
4. Distribute the independent practice worksheet and have students complete it independently.

Assessment

- Use the assessment questions for evaluating student knowledge.
- Students should be able to:
Read and write decimals accurately, moving between the written, spoken, and symbolic forms of decimals.

- Understand the role of the decimal point and the relationship among tenths, hundredths, and thousandths.
- Complete and explain grids to form a picture of a decimal value.
- Compare and order decimals and use this skill to solve basic word problems.

Extension activities

- Distribute the extension worksheet and have students complete them independently.
- Distribute the homework worksheet and have students complete it. You may want to reinforce the lesson by discussing the answers as a class.

Prepare to teach your students about decimal points with this outline of a detailed lesson with steps to follow, guided practice, assessments, and extension activities. Students will understand the role of the decimal point and the relationship between tenths, hundredths, and thousandths at the conclusion of this lesson.

Source:



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