Suggested Internet Resources

Periodically, Internet Resources are updated on our web site at www.LibraryVideo.com

- **mathforum.org/**
  "Math Forum," sponsored by Drexel University, contains a wealth of information about math for students and teachers. Students can tackle the "Problem of the Week," or send a question to Dr. Math. Teachers can find lots of helpful resources for teaching math, including lesson plans.
- **www.harcourtschool.com/glossary/math_advantage/index.html**
  This multimedia math glossary offers illustrations and definitions for many mathematical concepts, individualized for grades 1 through 8.
- **www.aaamath.com/B/dec.htm**
  This helpful site offers explanations, interactive practice and challenge games about decimals.

Suggested Print Resources

- Caron, Lucille. *Fractions and Decimals.* Enslow Publishers, Berkeley Heights, NJ; 2000.
- Gifford, Scott. *Piece = Part = Portion: Fractions = Decimals = Percents.* Tricycle Press, Berkeley, CA; 2003.
- Long, Lynette. *Delightful Decimals and Perfect Percents: Games and Activities that Make Math Easy and Fun.* Wiley, New York, NY; 2002.

TEACHER'S GUIDE

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TITLES

- **Addition**
- **Decimals & Percents**
- **Division**
- **Fractions**
- **Gathering & Graphing Data**
- **Geometry**
- **Measurement**
- **Money**
- **Multiplication**
- **Number Sense**
- **Subtraction**
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TEACHER'S GUIDE

Math for Children™

Decimals & Percents

Grades K–4

We use math in everything we do, from catching a movie at the local theater to shopping at the grocery store! Because math is an important aspect of our everyday lives, it's crucial that students are fluent in mathematical thinking and communicating. In our ever-changing world, it's not enough for students to be able to perform calculations. Students need to be challenged to solve problems in creative ways, using various approaches. Enhancing students' mathematical understanding can help to unlock the secrets of the world around them.

Introduction

Believe it or not, 1/4, 25% and 0.25 all name the same amount! That's because fractions, decimals and percents all show relationships between parts and wholes, and can represent number amounts smaller than one. To hone their skills with these special values, students can learn how to manipulate decimals by adding and subtracting, comparing and ordering, and rounding. Students can also develop experience in renaming values as decimals, percents or fractions, and in the process, learn a lot about the parts that make up a whole!

Vocabulary

fraction — A way to compare equal parts to a whole. 3/4 is an example of a fraction, naming three out of four equal parts.

decimal — A way to show relationships between parts and wholes. Decimals provide a way to represent numbers smaller than one. 0.25 is an example of a decimal, naming 25 out of 100 parts.

percent — A way to compare a number with one hundred. 45% is an example of a percent, naming 45 out of 100 parts.

decimal point — A symbol that is used to separate whole numbers from numbers less than one.

tenth — One of ten equal parts of a whole.

hundredth — One of 100 equal parts of a whole.

Pre-viewing Discussion

- Discuss with students what they know about decimals and percents. What are they? How are they similar and different? Where have students seen decimals and percents in everyday life?
- Have a class discussion about fractions. What are they, and why are they important? Give some examples of fractions. What do fractions have to do with decimals and percents?
- Address the role of the decimal point with your students. Encourage them to discuss why it is important to put the decimal point in the right place when working with decimals. What might happen if the decimal point is put in the wrong spot (e.g., with money values — $13.00 versus $130.00)?

Follow-up Discussion

- Encourage students to explain using words, manipulatives and drawings how 1/2, 0.5 and 50% all name the same amount.
- Students know that the number 9 is smaller than the number 12, but encourage them to discuss why 0.9 is larger than 0.12.
- Discuss with students how decimals play a role in money. What decimal does a penny represent? A nickel? Challenge students to think about what percentage of a dollar these coins are worth.

Follow-up Activities

- Encourage your students to make decimal riddles, such as "I am a decimal in the hundredths. If you double me my value is between 0.4 and 0.5. When doubled, my hundredths digit is 8. Who am I?" Make a book containing all students' riddles for your class to share.
- Students can make designs in hundredths grids (see the following Web site for a printable hundredths grid: www.geocities.com/ljacoby_2000/100grid.html). Have them challenge partners to determine the fraction, decimal and percent that they are representing in their pictures.
- Play a decimal dice game with your students! Each pair of students needs two dice and two hundredths grids. The goal of the game is to come the closest to one whole (shading a complete grid) without going over. The first student rolls the dice and shades in that number in either tenths or hundredths — the choice is up to the student. He needs to select carefully, considering that he doesn't want to go over one. Play continues back and forth, until a student reaches one whole.
- Make a fraction, decimal and percent memory game for students to play. On separate index cards, write either a fraction, decimal or percent (e.g., 1/2) and its match (e.g., 50%). With partners, students can flip these cards over and try to make matches.
- Give each student a piece of construction paper on which to write any decimal that he or she chooses (either with tenths or hundredths). Put students in small groups and encourage them to order their decimals from smallest to largest. Each group can stand in front of the class as a human number line, demonstrating the ordering of their decimals. As a group, they can also create a written number line to demonstrate how they could order their decimals on paper.
- Check out the following web site with your students: webinstituteforteachers.org/99/teams/rationals/studenthome.html This site tells stories about characters who use fractions, decimals and percents to divide up a pizza. Encourage students to write similar stories, using these number values.
- Students can play a card game to practice comparing and ordering decimals. First, create game cards by writing 30 decimal amounts on separate index cards. This will make enough cards for one pair of students. A pair of students can divide the cards in half, so that each student has 15 cards. Both students should turn their first cards over and determine who has the decimal with the largest value. This student wins both cards. If students have matching values, they turn over the next card, and the student with the highest amount claims all four cards. Play continues until one student has possession of all of the cards. See the following Web site for more information: home.att.net/~clnetwork/math/decwar.pdf