FRACTIONS - DECIMALS - PERCENTS
Step 2 Connecting Fractions, Decimals and Percents

Purpose: To show equalities and relationships of fractions, decimals and percents

Materials: Master #10 - Blank Decimal Squares on page 122 and copies of Master #11 on page 123

TEACHER MODELING/STUDENT COMMUNICATION

Activity 1 Fractions and decimals

Master #10
Blank
Decimal
Squares

Transp #9

1. Show students the tenths grid with three parts shaded.

➢ What is the fraction for this grid? (3/10)
➢ What is the decimal for this grid? (**.**3)
➢ Every fraction with a denominator of 10 can be written as a decimal with one digit, called a **one-place decimal.**
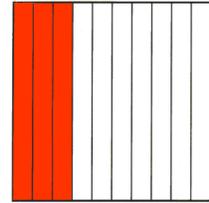
$$\frac{3}{10} = .3$$

2. Show students the hundredths grid with 27 parts shaded.

➢ What is the fraction for this grid? (27/100)
➢ What is the decimal for this fraction? (**.**27)
➢ Every fraction with a denominator of 100 can be written as a decimal with two digits, called a **two-place decimal.**
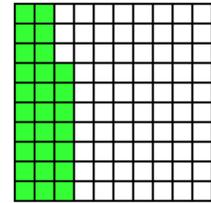
$$\frac{27}{100} = .27$$

copies of
Master #11

3. Distribute Master #11 "Grids for Fractions-Decimals-Percents" on page 123.

➢ Complete #1 on your sheets.
➢ All decimals for fractions with a denominator of 10 have one digit and are called **one-place decimals,** and all decimals for fractions with a denominator of 100 are called **two-place decimals**. Note that **.**07 is a two-place decimal.
➢ Complete #2 on your sheets. When students finish, ask for other decimals for hundredths (two-place decimals) that are equal to tenths (one-place decimals). (**.**10 = **.**1, **.**20 = **.**2, **.**30 = **.**3, etc.)

Activity 2 Percents, fractions and decimals

Blank
Decimal
Squares

1. Show students a hundredths grid with 16 parts shaded.
➢ Percents, fractions and decimals are different ways of writing the same number.
➢ What is the percent, fraction and decimal for this grid? (16%, 16/100 and **.**16)
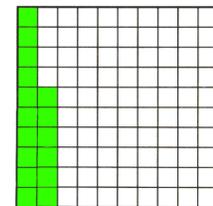
16%

➢ Write a chain of equalities for these three ways of representing this shaded amount. (16% = 16/100 = **.**16)

Activity 3 Percents and decimals that equal 1/3 and 2/3

1. Show students this hundredths square and tell them
it has 33 1/3 small squares shaded.
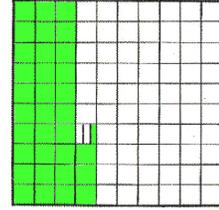
33 1/3%

➞ What fraction of this grid is shaded? Explain your
reasoning. (1/3, because if you multiply 33 1/3 by 3
you get 1 whole square.)

➞ What percent of this grid is shaded? (33 1/3 %)

➞ Since one meaning of 1/3 is to divide 1 by 3, use your calculator to compute
$1 \div 3$ and write the resulting decimal. (.33333333 . . .) Explain that this is
called an **infinite repeating decimal,** and it is indicated by writing $.\overline{3}$.

Blank
Decimal
Squares

2. Show students this hundredths square and tell
them it has 66 2/3 small squares shaded.
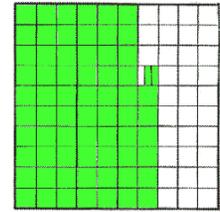
66 2/3%

➞ What fraction of this grid is shaded? Explain your
reasoning. (2/3, because 1/3 of the square is unshaded.)

➞ What percent of this grid is shaded? (66 2/3 %)

Blank
Decimal
Squares

Transp #9

➞ Since one meaning of 2/3 is to divide 2 by 3, use your calculator to compute
$2 \div 3$ and write the resulting decimal. (.666666666 . . .) Explain that this is
also an infinite repeating decimal, and it is indicated by writing $.\overline{6}$.

3. Complete #3 on your sheets. Note that .20 can be written as .2, etc.

Master #11

4. Discuss the convenience of sometimes replacing a decimal or percent by a fraction.
After the two examples shown here, ask students to finish #4 on their sheets.

➞ If a clock is losing .6 seconds every hour, how much time will it lose in 12
hours? (12 × .6 = 12 × 6/10 = 72/10 = 7 2/10 = 7 1/5, that is, 7 1/5 seconds.)

➞ If 25% of the 120 people visiting the dentist's office had tooth cavities, how
many of these people did not have tooth cavities? (25% of 120 = ¼ × 120 = 30,
so 120 − 30 = 90 people did not have tooth cavities.)

5. Students play **Fraction-Decimal Concentration** (page 109).

INDEPENDENT PRACTICE and ASSESSMENT

Worksheets 98-99 from the *Teacher Resource Package*

decimalsquares.com **Beat the Clock** (writing decimals before time runs out)
Concentration (finding squares with the same shaded amount)
Place Value Strategy (spinning to obtain digits for place value table)