FAMILY MATH

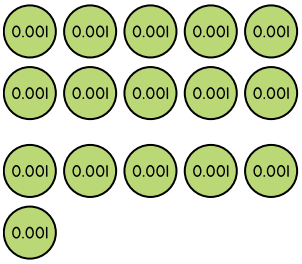
Understanding Decimal Numbers with Place Value and Fraction Thinking

Dear Family,

Key Term

thousandths

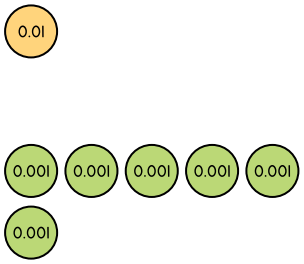
Your student is learning that the place value unit thousandths is made by decomposing 1 hundredth into 10 equal parts. Students represent decimal numbers to thousandths by using models. They also name decimal numbers to thousandths in unit form, fraction form, decimal form, standard form, and expanded form. Your student describes the relationships between place value units as 10 *times as much as* the next smaller unit and $\frac{1}{10}$ *as much as* the next larger unit. This helps students multiply and divide decimal numbers by powers of 10. Students also use place value to compare the value of digits in decimal numbers and to round to any place value. Students recognize that the thinking and reasoning used to multiply, divide, compare, and round whole numbers are the thinking and reasoning used to multiply, divide, compare, and round decimal numbers.



16 thousandths

$\frac{16}{1{,}000}$ 0.016

sixteen thousandths

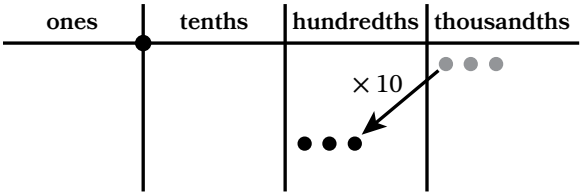


1 hundredth 6 thousandths

$\frac{16}{1{,}000}$ 0.016

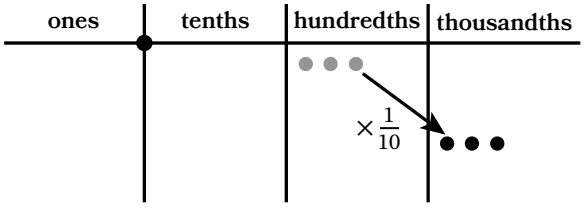
sixteen thousandths

Composing 10 *thousandths makes* 1 *hundredth, and decomposing* 1 *hundredth makes* 10 *thousandths. Decimal numbers can be written in the same forms as other numbers.*



3 *hundredths is* 10 *times as much as* 3 *thousandths.*

$0.03 = 10 \times 0.003$



3 *thousandths is* $\frac{1}{10}$ *as much as* 3 *hundredths.*

$0.003 = \frac{1}{10} \times 0.03$

At-Home Activities

Calculator Patterns

Using a calculator, help your student explore how multiplying and dividing by powers of 10 changes the value of a digit. First, have your student enter a one-digit number, such as 3, on the calculator. Next, have them multiply by 10 to get 30. Then, have them divide by 10 once to get back to 3. Finally, have them divide by 10 again to get 0.3. Discuss how the value of the digit changes each time. Help your student use the language 10 *times as much as* and $\frac{1}{10}$ *as much as* to describe the changes. Encourage your student to continue experimenting with multiplying or dividing by 10 and describing the changes in the value of digits.

Shop-A-Round

Find prices of various items at the store or in an advertisement. Begin by asking your student to round the prices to the nearest whole dollar, and then to the nearest tenth of a dollar, or 10 cents.

- "What is $\$3.79$ rounded to the nearest dollar?" ($\$4.00$)
- "What is $\$3.79$ rounded to the nearest tenth of a dollar, or 10 cents?" ($\$3.80$)

To offer more practice, complete this activity again with different prices.