Unit 1 – Extending Base-10 Understanding

Overview

In this unit, students will:

- ❖ Understand the value of digits within a 3-digit number

- ❖ Recognize that 100 is created from ten groups of ten

- ❖ Use skip counting strategies to skip count by 5's, 10's, and 100's within 1,000

- ❖ Represent numbers to 1,000 by using numbers, number names, and expanded form

- ❖ Compare 2-digit numbers using >, =, and <

Key Common Core Standards

- ➢ Use models, diagrams, number sentences, base-10 blocks, words, pictures, number lines, and expanded form to represent numbers within 1,000.

- ➢ Write numbers in expanded form and standard form using words and numerals.

- ➢ Identify a digit's place and value when given a number within 1,000 and understand the difference.

- ➢ Compare two 3-digit numbers with appropriate symbols (>,=, and <).

- ➢ Understand how place value determines which numbers are larger or smaller than other numbers

Vocabulary

Students will be using the following words in this unit:

- **Standard Form**: The "regular way" to write a number. Ex. 576

- **Expanded Form**: A way to write numbers that shows the place value for each digit. Ex. 576 = 500 + 70 + 6

- **Word Form**: Writing a number in words. Ex. 576 = five hundred seventy six

- **Unit/Cube**: A small block used to show 1 in the base-10 number system.

- **Long/Rod**: A long block of 10 cubes used to show 10 in the base-10 number system.

- **Flat**: A flat block of 100 cubes used to show 100 in the base-10 number system.
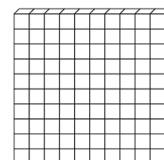
- **Digit**: Any of the symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9.

- **Place Value**: The value a digit has because of its place in a number. Ex. in 342 the digit "3" has a value of "300" because it is in the hundreds place.

Number Talks

A number talk is a short, daily routine that helps students discover strategies for solving math problems mentally (in their head). Students are given a problem and asked to solve the problem and <u>most importantly explain how they got their answer</u>. Students discover which strategies help them find the correct answer quickly.

These are some of the strategies they might use:

- Numbers are made up of smaller numbers. Ex. the number 6 can be broken apart into the numbers 2 and 4, 3 and 3, etc.

- Numbers can be taken apart and combined with other numbers to make new numbers. Ex. to solve the problem 12 + 8, you can break 12 into 10 and 2 to add 2 + 8 = 10 and then add 10 + 10 = 20.

- What we know about one number can help us figure out other numbers Ex. If you know 6 + 6, then you can use that to figure out 6 + 7

- Numbers are organized into groups of hundreds, tens, and ones.

- Knowing pairs of numbers that equal 10, help students to add numbers by counting by 10's. Ex. to solve the problem 8 + 4, you can break 4 into 2 and 2 to add 8 + 2 = 10 and then add 10 + 2 = 12.

Teachers guide students to discover these strategies on their own by asking questions and encouraging students to explain all the steps they took to solve the problem rather than giving them answers. Students learn from each other and are encouraged to apply these strategies when solving more complex problems.

How You Can Help At Home

- Use a set of index cards. Write each digit 0-9 on a card. Have your child pick 3 cards. Ask them to make the smallest possible number or the largest possible number and <u>explain how</u> they know it is the smallest/largest number they can make.

- Play Place Value Yahtzee! Play the 3-digit game or choose the 4-digit game for a challenge! Go to this link for directions and printable score sheets: http://games4gains.com/blogs/teaching-ideas/place-value-game-of-yahtzee

- Use a set of index cards. Give your child 2 cards and have them write a number in 2 different ways: standard form, expanded form, base-10 blocks, or words. Do this for 10 or more numbers. Mix up the cards and turn them over. Play a memory match game by flipping over 2 cards and trying to find the matches.

What is Place Value?

A <u>digit</u> is any symbol used to write a whole number

0, 1, 2, 3, 4, 5, 6, 7, 8, 9

<u>Value</u> is how much each <u>digit</u> is worth

<u>Place</u> is the <u>value</u> of a <u>digit</u> by its place in a number

The <u>digit</u> in the <u>tens place</u> is a 3. Its <u>value</u> is 30.