ORIGO
STEPPING STONES

Core Focus

- Reading, writing, picturing, comparing, and ordering four- and five-digit numbers
- Rounding numbers to estimate
- Investigating number patterns (using word tables and word rules to describe patterns)

Numbers in Base-10

- Number sense strategies developed with two- and three- digit numbers in earlier grades are extended to four- and five-digit numbers.

- Students learn to read, write, picture, compare, and order these larger numbers using familiar and new models.

1.1 ▶ Reading and Writing Four-Digit Numbers

What is the name of each type of block in this picture?
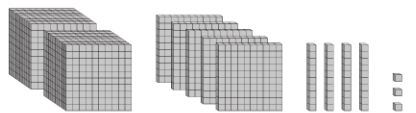
What number do you say for all the blocks?

Write the number that is represented.

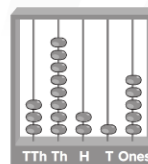thousands

How many blocks are in each place?

In this lesson, students read and record numbers built with base-10 blocks using a numeral expander.

1.6 ▶ Analyzing Five-Digit Numbers

What do you know about the number shown on this abacus?

Look at the rod that represents the ten-thousands place. How many beads can you see?

What is the total value of the beads in that place? How do you know?

TTh Th   H   T Ones

I can see 3 beads in the ten-thousands place. I know that each bead represents 10,000. So 3 × 10,000 = 30,000.

What is the total value of the beads in each place?

38,215
is the same as

3 × 10,000 = 30,000
8 × 1,000 = 8,000
2 × 100 = 200
1 × 10 = 10
5 × 1 = 5

In this lesson, students consider how the digit tells the number of groups and the number in each group to write five-digit numbers in expanded form. They use abacus models to represent the numbers.


Ideas for Home

- Talk informally with your child about number comparisons during everyday activities, such as grocery shopping (prices), travel (distances on a map, road atlas, or car odometer), or car listings in the newspaper or online.

- Ask your child to read numbers aloud, e.g. the number of "hits" on a favorite website or low scores on a video game. Follow up by asking whether the number is closer to 50,000 or 100,000 and why.

- Compare large numbers and ask your child to explain why one number is larger or smaller than another.

Glossary

▸ A **numeral expander** shows how each position in a number represents a designated place value.
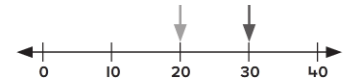
6 2 thousands 9 hundreds 5 tens 4 ones

▸ An **abacus** is a counting frame that shows place value. Each bead is the equivalent of 1 base-10 value, depending on the place. E.g. this model emphasizes that "3 ten-thousands is the same as 3 × 10,000, etc".

TTh Th   H   T Ones

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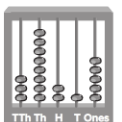
- Students build on the skills developed in earlier grades to compare four- and five-digit numbers using **greater than** (>) or **less than** (<) symbols that were introduced in Grade 1.

- When rounding numbers to the nearest ten, hundred, or thousand, students visualize where numbers are actually located on a **number line** to understand the concept of rounding instead of focusing on "rounding rules".

- Tens, hundreds, and thousands are important benchmarks in our number system. Knowing where other numbers are in relation to these benchmarks on a **number line** makes rounding and comparing more concrete.

> **1.8 ▶ Rounding Five-Digit Numbers**
>
> **What are some reasons for rounding large numbers?**
> How could you round the population of Lincoln County?
>
> **Welcome to Lincoln County**
> **Population   46,213**
>
> David used a number line to help him round the population to the nearest **ten**.
>
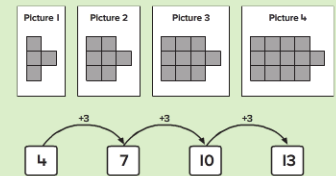> 46,200   46,210   46,220   46,230   46,240
>
> What is the population rounded to the nearest ten?
>
> *I look at the digits in the tens and ones places. 13 is closer to 10 than 20.*

In this lesson, students use a number line to round five-digit numbers to the nearest tens, hundreds and thousands places.

Algebraic Thinking

- Exploration and description of number patterns using pictures, tables, number sentences, and word rules are important for preparing for future work with number patterns and equations in the study of algebra.

> **1.11 ▶ Following and Identifying Pattern Rules**
>
> Draw the fourth picture in this toothpick pattern.
>
> | Picture 1 | Picture 2 | Picture 3 | Picture 4 |
> |---|---|---|---|
> | △ | △▽ | △▽△ | |
> | | | | |

In this lesson, students explore visual and number patterns and determine what should come next in the sequence.

Glossary

▸ When compared on a **number line**, numbers that are **greater than (>)** are positioned at a greater distance from 0 on the number line, and numbers that are **less than (<)** are closer to zero.

0   10   20   30   40

30 > 20 and 20 < 30 are both true because 30 is farther away from 0 than 20 on the number line.

Ideas for Home

- Use toothpicks or pennies to create a pattern that grows from one picture to the next and ask what the next two will look like. Ask your child to create a pattern for you to predict.

- Use bathroom or kitchen tiles to make patterns. Notice the numbers that grow with the pattern and predict how many tiles will make up picture 10.

Picture 1	Picture 2	Picture 3	Picture 4

4 +3→ 7 +3→ 10 +3→ 13