

# Module 3

## Core Focus

- Number: Working with tens and ones
- Length: Making direct and indirect comparisons

## Number

- Students read, write, and represent two-digit numbers (including teen numbers and multiples of ten) using visual aids such as ten-frames, fingers, numeral expanders, **base-10 blocks**, and coins to see the groups of ten and leftover ones.

**3.4 Number: Writing tens and ones, and number names (with zeros)**

**Step In** What number does this picture show?



How do you know?

How would you write the number on this expander?



How would you write the number name?

\_\_\_\_\_

What number does this picture show?



How do you know?

How would you write the number on this expander?



How would you write the number name?

\_\_\_\_\_

In this lesson, students record numbers in a numeral expander and in words.

- Understanding the meaning of **place value** in the base-10 number system is an important concept in elementary mathematics. A strong grasp of place value makes mental computation easier and is reinforced with real world examples like money.

**3.7 Number: Working with tens and ones (dimes and pennies)**

**Step In** Look at these coins.



How many pennies do you see?  
How many cents is one penny worth?

How many dimes do you see?  
How many cents is one dime worth?

How would you write the matching number of tens and ones on this expander?



How do you know?

How would you show the same amount on these expanders?



What numeral would you write?

\_\_\_\_\_

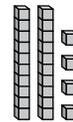
In this lesson, students relate dimes and pennies with the concept of tens and ones in base-10 place value.

## Ideas for Home

- Children need repeated experiences with place value to make sense of it. Point out and say two-digit numbers whenever you see them in elevators, on road signs, on items in stores, in sports scores, etc.
- Practice counting by tens. At first, your child may simply chant (10, 20, 30), but may then count groups of ten objects (e.g. 3 or 4 stacks of 10 pennies).

## Glossary

- ▶ These are **base-10 blocks**. They are used to build numbers showing *tens* and *ones*.



- ▶ **Place value** describes how the value of digits in a number is determined by their position. Both 43 and 34 have the digit 4. The 4 in 43 represents 4 *tens*, while the 4 in the 34 represents 4 *ones*.

## Helpful video

View these short one-minute videos to see these ideas in action.

[www.bit.ly/OI\\_33](http://www.bit.ly/OI_33)



## Module 3

### Length

- Although adults measure length using a standard tool (e.g. a ruler or tape measure) and record in standard units (e.g. inches, feet, centimeters, meters), it is helpful to introduce children to measurement by using a non-standard tool, like a paper clip, and recording the length as a number of those units.

**3.11 Length: Counting non-standard units to measure**

**Step In** How could you use the cubes to measure the length of the pencil?

Does it matter which way the cubes are placed? Why?

Does it matter if gaps are left between the cubes? Why?

In this lesson, students use cubes to measure various items.

- Students measure the same object with several different **non-standard units**, like paper clips and pencils, to see for themselves that the resulting measures will be different.

**3.12 Length: Measuring with non-standard units**

**Step In** Paper ants were used to measure this straw.

Is the measurement accurate? How do you know?  
How would you use paper ants to measure the straw?

I would use tape to join my paper ants so they are in one line with no gaps or overlaps.

Jayden used paper ants to measure this straw.  
What mistake did he make?

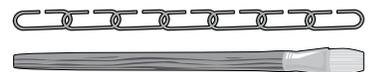
In this lesson, students use paper ants to measure straws.

### Ideas for Home

- Use non-standard units such as paper clips or pennies to measure household items together.
- Children often need help lining up the end of the row of paper clips with the end of the object being measured, and recognizing that it is important to not leave gaps between the paper clips as they are laid end to end.
- Use language to compare length (e.g. *short*, *shorter*, and *shortest*) in everyday situations to help develop awareness of the attribute of length.

### Glossary

- Non-standard units** help students understand that measurement requires the use of a specified unit to serve as the basis of comparison.



For example, this paintbrush is 7 links long.