



**Core Focus**

- Subtracting two-digit numbers
- Working with and comparing pounds and kilograms

**Subtraction**

- In this module, students **compose** (put together) and **decompose** (break apart) numbers in many ways. E.g. 53 is 5 tens and 3 ones, or 4 tens and 13 ones. Composing and decomposing are two of the most important ideas in mathematics at all levels, from elementary through college.
- Extended experience with mentally composing and decomposing numbers will help students avoid confusion with subtraction.

**8.1 Composing and Decomposing Two-Digit Numbers**

Look at these pictures of blocks.  
What number does each picture show? How do you know?

Imagine all the blocks were used to show one number.  
How could you figure out what number they would show?

Imagine the total was split into two groups.  
What numbers could be in each group? How do you know?

In this lesson, students regroup tens and ones blocks to explore ways to compose and decompose two-digit numbers.

- Students are familiar with subtraction as **take away** (e.g. I had 34 crayons and I gave away 15. How many do I have left?). In this module, students think about subtraction as **difference** (e.g. I have 15 crayons and my friend has 34. How many more crayons does she have than me?).

**8.3 Calculating Difference Between Two-Digit Numbers**

Which item can you buy with the amount in the wallet?

How much money will you have left? How do you know?

I could start at 53 and subtract the price like this,

or start at 53 and count back to the price like this.

Where is the solution on each number line?

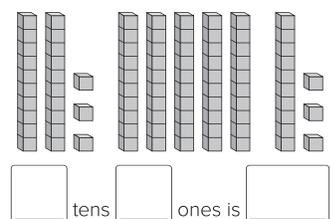
In Lesson 3, students use the count-back strategy to subtract two-digit numbers that involve counting back past a multiple of ten.

**Ideas for Home**

- Knowing the combinations that make 10 (1 and 9, 2 and 8, 3 and 7, 4 and 6, 5 and 5) helps your child count on using a number line. Jumping to the next multiple of 10 is an efficient strategy. Ask, “How far from 63 to 70?” or “How far from 24 to 50?”
- Comparing prices for food, clothing, or other items is a practical way to think about subtraction as comparison. Ask your child to find the difference in prices for two similar items. Ask them if they counted on or counted back and to explain why.

**Glossary**

- ▶ **Decomposing** is breaking apart numbers by place value (e.g. 79 can be broken apart into 7 tens and 9 ones).
- ▶ **Composing** is putting numbers together by place value (e.g. 7 tens and 12 ones can be put together as 82, as shown in the image below).



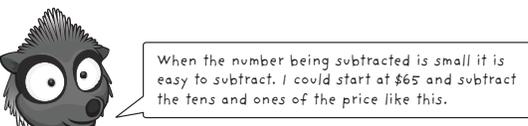
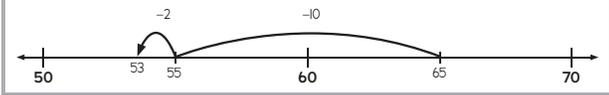
- Students know about “fact families.” For every addition and subtraction fact, there are three related facts, e.g.  $5 + 6 = 11$ ,  $6 + 5 = 11$ ,  $11 - 5 = 6$ ,  $11 - 6 = 5$ .
- Understanding fact families helps students see that there are two ways to think about doing any mental subtraction problem. They can subtract by “thinking addition” (like when a store clerk counts up to give change) or they can actually subtract (taking away part by part).
- In class, students describe their strategies for solving subtraction problems. They discuss when it is easier to count on or count back.
- When the number being subtracted is small ( $65 - 12$ ), it can be easier to count back. When the number being subtracted is large ( $78 - 65$ ), it can be easier to count on. Students may use whichever strategy makes the most sense to them.
- Students make different size jumps on the number line when solving problems. To count back 20 from 52, a student might make one jump of 20 or two jumps of 10. Students also decide whether to subtract the ones first or the tens depending on the numbers involved.

**8.7 Using Place Value (Number Line) to Solve Subtraction Problems**

Imagine you had \$65. Which ticket can you buy with the amount in the wallet?



What strategy would you use to figure out how much money you will have left?

What is another way you could figure out the difference?

In Lesson 7, students choose and use a place-value strategy to subtract two-digit numbers.

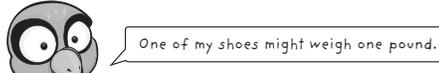
### Measurement: Customary and Metric Mass

- Students develop a sense of how much objects weigh in **pounds** or **kilograms**. A bag of sugar is one pound, and a kilogram is a little more than 2 pounds.
- Students compare the mass of classroom items to determine which are lighter or heavier than one pound, or one kilogram.

**8.8 Introducing the Pound**

What are some things you know about one pound?  
What are some things that are measured in pounds?  
What are some things that you think might weigh about one pound?

A short way to write pound is **lb**.




In Lesson 8, students are introduced to the pound.

### Ideas for Home

- Children can easily count on or count back by ones, or use a known fact, to subtract when they do not need to bridge a multiple of ten (e.g.  $68 - 5$ ). However, counting past a multiple of ten can be difficult for children (e.g.  $54 - 7$ ). Name any two-digit number with the ones place less than 5 and have your child subtract 7, 8, or 9 (e.g. “what is 73 take away 8?”) Listen as your child explains how they solved the problem.
- Find an item in your home that weighs one pound (e.g. a package of pasta or a bag of sugar). Ask your child to find other items that weigh more, weigh less, and weigh about the same as one pound. Your child can compare the item to the one pound item to decide. Use a kitchen or bathroom scale to confirm.
- Weigh different fruits and vegetables at the grocery store to help your child get a sense of what one pound feels like. Discuss how equal weights do not necessarily take up the same amount of space (e.g. a pound of apples will take up less space than a pound of spinach).

### Glossary

A short way to write pound is **lb**.

A short way to write kilogram is **kg**.