

Subtraction Within 10: math lesson, Kindergarten – download the PDF

Imagine you have a plate with five crackers, and you eat two of them. How many are left on the plate? You just did **subtraction**! In this chapter you will learn what subtraction means, how to write it with the minus sign, and how to solve subtraction stories with numbers up to 10.

1. Subtracting Means Taking Away

When you **subtract**, you start with a group of things and then take some of them away. What is left is the answer. Subtraction is the opposite of adding: adding makes a group bigger, and subtracting makes a group smaller.

D Subtract

To **subtract** means to take away some things from a group. The number you have left is called the **difference**.

Think about a tower of 6 blocks. If your little brother knocks down 2 blocks, there are only 4 blocks standing. You started with 6, you took away 2, and 4 are left.

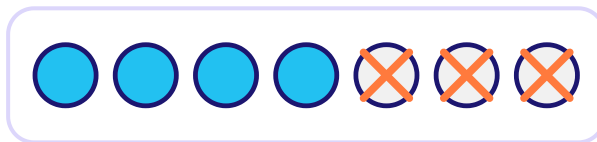
2. Taking Away with Objects

The easiest way to subtract is to use things you can touch: counters, buttons, crayons, or even your fingers. Here is how to do it.

M**How to subtract with objects**

1. Count out the group you start with.
2. Take away the number of objects the story tells you to remove.
3. Count the objects that are still there.

You can also **draw** a picture. Draw the starting group, then cross out the ones that go away. The ones **without** a cross are your answer. Look at the counters below: there were 7, three are crossed out, and 4 are left.

**E****Example 1: Birds on a branch**

Seven birds sit on a branch. Three birds fly away. Draw 7 circles and cross out 3. The circles with no cross are the birds still on the branch. Count them: 1, 2, 3, 4. So 4 birds are left.

3. The Minus Sign and Subtraction Equations

Mathematicians love short ways of writing. Instead of writing “seven take away three is four”, we write an **equation**:

$$7 - 3 = 4$$

D Minus sign and equal sign

The **minus sign** — is a short line that means “take away”. The **equal sign** = means “is the same amount as”. We read $7 - 3 = 4$ as “seven **minus** three **equals** four”.

In an equation, the first number is the group you start with, the number after the minus sign is how many you take away, and the number after the equal sign is how many are left.

E Example 2: Cookies on a plate

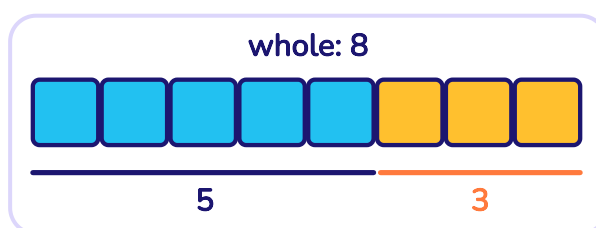
There are 9 cookies on a plate. You eat 4 of them. The equation is $9 - 4 = 5$. Nine **minus** four **equals** five, so 5 cookies are left.

A Careful with the signs!

The minus sign — is not the same as the plus sign +. A plus sign makes the group bigger, but a minus sign makes it smaller. Always check which sign you see before you start.

I 4. Subtracting as Taking Apart

There is a second way to think about subtraction. You can take a group **apart** into two smaller groups. If you know the whole and one of the parts, subtracting finds the other part.



The bar above shows a whole of 8 squares. Five squares are blue. How many are orange? Take the blue part away from the whole: $8 - 5 = 3$. There are 3 orange squares.

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Example 3: Red and yellow crayons

Ruby has 6 crayons. Some are red and the rest are yellow. Four crayons are red. To find the yellow ones we subtract: $6 - 4 = 2$. Ruby has 2 yellow crayons.

P

Parts and whole

If a whole is made of two parts, then the whole minus one part equals the other part. For example, $7 - 3 = 4$ and $7 - 4 = 3$ both come from taking 7 apart into 3 and 4.

5. Subtracting on a Number Line

A **number line** is a straight line with numbers in order. To subtract, put your finger on the number you start with and **hop back** one step for each thing you take away. The number where you land is the answer.



Start at 9. Hop back 3 steps: 8, 7, 6. You land on 6, so $9 - 3 = 6$.

6. Subtraction Word Problems

A **word problem** is a little math story with a question at the end. Use these steps to solve it.

M**Solving a word problem**

1. Listen to the story. Which number tells you how many there were at the start?
2. Find the words that mean something goes away: *fly away*, *eat*, *give away*, *lose*, *pop*.
3. Draw a picture or use objects, then write the equation.
4. Answer the question with a full sentence.

For example: “A frog family has 8 frogs on a log. Five frogs jump into the pond. How many frogs are still on the log?” The equation is $8 - 5 = 3$. Three frogs are still on the log.

7. Special Cases: Zero and All

When you take away **nothing**, the group stays the same. For example, $6 - 0 = 6$. When you take away **everything**, nothing is left. For example, $4 - 4 = 0$.

**Zyro's tip**

On my home planet we say: “Take away nothing, nothing changes. Take away all, nothing is left.” Try it with your snacks!

8. Fact Fluency Within 5

To be fluent means to answer quickly and correctly without counting every time. Practice the facts with numbers up to 5 until you know them by heart.

Take away 1

$$5 - 1 = 4$$

$$4 - 1 = 3$$

$$3 - 1 = 2$$

Take away 2

$$5 - 2 = 3$$

$$4 - 2 = 2$$

$$3 - 2 = 1$$

Take away 3

$$5 - 3 = 2$$

$$4 - 3 = 1$$

$$3 - 3 = 0$$

Here are some helpful tricks. Taking away 1 gives the number just before: $5 - 1 = 4$. Taking away all of the group gives 0. If you know $5 - 2 = 3$, you also know $5 - 3 = 2$, because 2 and 3 are the two parts of 5. Say your facts out loud, play card games, and use your fingers: hold up 5 fingers, fold down 2, and see 3 left.

Key takeaways

- To subtract means to **take away** from a group. What is left is the answer.
- The **minus sign** $-$ means take away. We read $7 - 3 = 4$ as “seven minus three equals four”.
- You can solve subtraction with objects, drawings (cross out the ones that go away), fingers, or a number line (hop back).
- You can also take a whole **apart**: whole minus one part equals the other part.
- **number** $- 0$ is the same number, and **number** $-$ **same number** $= 0$.
- In a word problem, find the starting number, find what goes away, write the equation, and answer with a sentence.



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