

Measuring Length: math lesson, Grade 1 – download the PDF

How long is your pencil? How tall is your friend? When you tell how long, how short, or how tall something is, you are talking about **length**. In this chapter you will compare things, put them in order, and measure them with small units. Get ready to be a length detective!

1. What Is Length?

Length tells you how far something stretches from one end to the other. A long jump rope has a big length. A tiny bead has a small length. We use length to answer questions like “How long is the table?” and “How tall is the tree?”

D Length

Length is how long something is from one end to the other. We can also say *tall* when something stands up, and *wide* when it stretches across.

We can see length with our eyes, but to be sure we need to compare carefully or measure. In this chapter we do both.

2. Longer, Shorter, Tallest

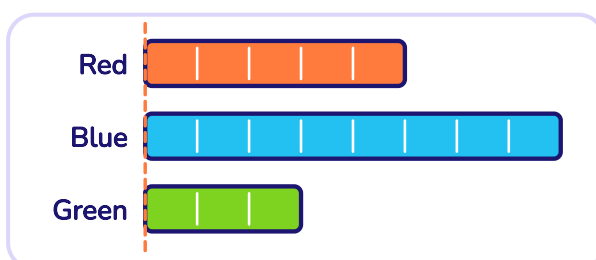
These words help you compare lengths. Learn them well!

Word	What it tells	Example
longer	more length than another object	A bus is longer than a bike.
shorter	less length than another object	A spoon is shorter than a broom.
longest	the most length of three or more	The rope is the longest of the three.
shortest	the least length of three or more	The crayon stub is the shortest.
taller	more height than another object	A giraffe is taller than a dog.
tallest	the most height of three or more	The sunflower is the tallest.

Use *longer* and *shorter* when you compare **two** objects. Use *longest*, *shortest*, and *tallest* when you compare **three or more**.

3. Comparing Three Objects

To compare lengths fairly, line up one end of each object at the same starting line. Then look at the other ends. The object that reaches farthest is the longest.



E**Example 1: Three ribbons**

The red ribbon is 5 cubes long, the blue ribbon is 8 cubes long, and the green ribbon is 3 cubes long. All three start at the line.

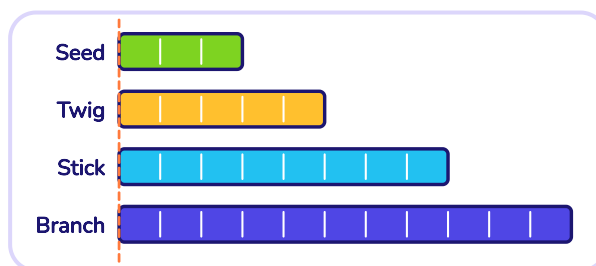
The blue ribbon reaches the farthest, so it is the **longest**. The green ribbon stops first, so it is the **shortest**. We can write $3 < 5 < 8$.

**Careful!**

If the objects do not start at the same line, you cannot tell which is longer just by looking at where they end.

4. Ordering Objects by Length

To **order** objects, put them in a line from the shortest to the longest, or from the longest to the shortest.



M**How to order by length**

1. Line up all the objects at the same starting line.
2. Find the shortest one and put it first.
3. Find the shortest one that is left, and keep going.
4. The last object is the longest.

E**Example 2: Ordering four objects**

A seed is 3 cubes long, a twig is 5 cubes, a stick is 8 cubes, and a branch is 11 cubes. From shortest to longest: seed, twig, stick, branch. The branch is the longest and the seed is the shortest.

5. Comparing with a Third Object

Sometimes you cannot put two objects side by side. A table cannot slide next to a bookshelf! Then you can use a **third object**, like a piece of string, to help you.

P**Comparing with a third object**

If object A is as long as the string, and object B is shorter than the string, then object B is shorter than object A.

Table



String



Book



E

Example 3: The string trick

You cut a string exactly as long as the table. Then you hold the string next to a book. The string is longer than the book. So the table is longer than the book too. You never had to put the book on the table.

6. Measuring with Units

Words like “longer” are good, but numbers tell more. To measure length, we choose a small object called a **unit**, such as a cube, a paper clip, or a shoe. Then we count how many units fit along the object. The number tells the length.

D

Length unit

A length unit is a small object of the same size that we use again and again to measure. We say, “The pencil is 7 cubes long.”

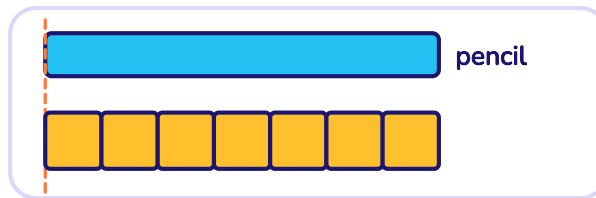
7. Laying Units End to End

To measure correctly, follow these rules.

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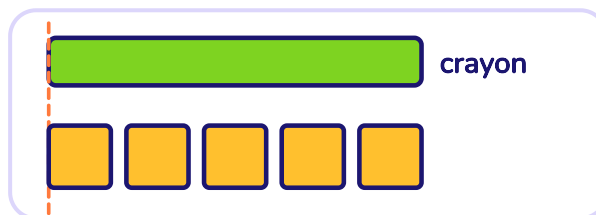
How to measure with units

1. Start the first unit exactly at one end of the object.
2. Lay the units **end to end**, in a straight line.
3. Leave **no gaps** and do not let units **overlap**.
4. Stop at the other end of the object.



Gaps spoil the count

Look at what happens when cubes have gaps between them.



The crayon is really 6 cubes long, but with gaps only 5 cubes were used. The count is too small. Always push the units together.



Zyro's tip

On my planet we measure with space bananas! But here is a rule that works everywhere: use units that are all the same size.

8. Counting Units and Telling the Length

Count the units one by one, and say the last number. That number is the length, written as a whole number. For example, if you count 7 cubes, the length is 7 cubes. Say the unit name too: “7 cubes,” not just “7.”

If two kids measure the same object with **different units**, they get different numbers. A small unit needs more copies than a big unit. So when you compare two objects, always use the same unit for both.

Key takeaways

- Length tells how long, tall, or short something is.
- Use *longer* and *shorter* for two objects, and *longest*, *shortest*, and *tallest* for three or more.
- Line up the objects at the same starting line before you compare.
- To order objects, go from the shortest to the longest, or the other way around.
- You can use a third object, like a string, to compare two objects that cannot be put side by side.
- Lay same-size units end to end, with no gaps and no overlaps, and count them.
- The length is a whole number of units, like “7 cubes.”



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