

Metric System – Easy Guide for Measuring Like a Scientist


Main Idea

The **metric system** is used all over the world (except mostly in the U.S.). It's super easy because it's based on **units of 10**, which means you just move the **decimal point**!

The 3 Basic Metric Units

What You Measure	Metric Unit	Example
Length	Meter (m)	About the length of a baseball bat
Volume	Liter (L)	A large water bottle or soda bottle
Mass	Gram (g)	A paper clip weighs about 1 gram

Why Scientists Love the Metric System

- It's **used worldwide** 
 - It's based on **10s** → just move the **decimal point**
 - It's **simple**: no weird fractions!
-

Metric Prefixes – Make Things Bigger or Smaller

Metric units use **prefixes** to tell you how big or small the number is:

Remember:

- **Prefixes go before** meter, liter, or gram
→ You can't just say "kilo" or "milli" — you say **kilogram**, **millimeter**, etc.
-

▲ Big Prefixes (Large Units)

Prefix	Means	Example
Kilo	1,000	1 kilometer = 1,000 meters

Hecto	100	1 hectogram = 100 grams
Deca	10	1 decameter = 10 meters

▼ Small Prefixes (Tiny Units)

Prefix	Means	Example
Deci	1/10 (0.1)	1 deciliter = 0.1 liter
Centi	1/100 (0.01)	1 centimeter = 0.01 meter
Milli	1/1000 (0.001)	1 milligram = 0.001 gram

Bonus Tip: "Downright Crazy"

When converting:

- Go **DOWN** the chart? → Move your decimal to the **RIGHT**
- Go **UP** the chart? ← Move your decimal to the **LEFT**

This helps when you're switching between units like milliliters and liters!

What Can You Measure?

Thing	Unit	Tool
Length/Distance	Meters, kilometers	Ruler, meter stick
Volume	Liters, milliliters	Graduated cylinder
Mass	Grams, kilograms	Scale or balance
Time	Seconds, minutes, hours	Stopwatch, clock
Temperature	Degrees Celsius	Thermometer
Speed	Kilometers per hour	Speedometer
Force	Newtons	Spring scale

Key Terms and Definitions

Term	Definition
Metric System	A system of measurement based on 10s, used by scientists and most countries
Meter (m)	Measures length or distance
Liter (L)	Measures volume (how much liquid or space something takes up)
Gram (g)	Measures mass (similar to weight)
Kilo-	Means 1,000 times the base unit
Centi-	Means 1/100 (0.01) of the base unit
Milli-	Means 1/1000 (0.001) of the base unit
Prefix	A word part added to the beginning of a unit to show size
Mass	The amount of matter in something
Volume	The amount of space something takes up (usually liquid)
Temperature	How hot or cold something is, measured in Celsius in the metric system
Density	Mass per volume (how tightly packed something is)
Decimal Place	The position of a digit to the right or left of a decimal point