

Measurements

Measurements are comparisons of properties against accepted standards, called units.

ENGLISH / US SYSTEM OF UNITS:

1 foot = 12 inches 1 yard = 3 feet 1 mile = 1760 yards

5280 feet = 1 mile

So what's the problem? The English system of units is a mess. Units for the same type of measurement do not relate to one another in a meaningful way,

This makes the English system hard to use and prone to conversion errors.

English units are nonstandard and difficult to use. Solution?

THE METRIC SYSTEM

Metric Base Units:

Length	meter	m
Mass	*kilogram	kg
Temperature	Kelvin	K
Time	second	s

All metric units are made up of COMBINATIONS of BASE UNITS!

*we usually treat the gram as if it's the base unit for mass!

- One meter is approximately 3.3 feet.
- One kilogram is approximately 2.2 pounds.

What about SIZE?

Metric units may be made larger or smaller by adding PREFIXES.

Some very common metric prefixes:

mega-	10^6	M
kilo-	10^3	k
centi-	10^{-2}	c
milli-	10^{-3}	m
micro-	10^{-6}	μ

Bigger units



smaller units

MEMORIZE the common metric prefixes listed in the study guide

Applying prefixes

$$1 \text{ m} = \text{m}$$

$$1 \text{ cm} = 10^{-2} \text{ m} \left(\frac{1}{100} \text{ m} \right)$$

$$1 \text{ km} = 10^3 \text{ m} \left(1000 \text{ m} \right)$$