

20.1 Measure & Convert

Dimensional Analysis Lab



What you'll reinforce ...

Length, time, volume, and mass should be written in scientific notation. The SI system is useful when converting units of measure.

What you'll do ...

Make basic measurements using standard units of measure: meter, second, liter, and gram. Rewrite measured values in scientific notation. Then convert the rewritten values into other units of measure.

Things you'll need ...

Meter stick, stop watch (or, timer), graduated cylinder, scale, and a calculator for computing averages. (Also, blocks, water, and pencil).

Other considerations ...

When using the graduated cylinder, pay attention to the meniscus. A meniscus occurs because of surface tension in the liquid and must be read at eye level. For a concave meniscus, the correct volume will be read at the bottom of the curve.

SI system prefix table

kilo	k	1000	10^3
hecto	h	100	10^2
deca	da	10	10^1
(none)	(none)	1	10^0
deci	d	0.1	10^{-1}
centi	c	0.01	10^{-2}
milli	m	0.001	10^{-3}

Examples of scientific notation

Decimal notation	Scientific notation
2	2×10^0
300	3×10^2
4,321.768	$4.321\ 768 \times 10^3$
-53,000	-5.3×10^4
6,720,000,000	6.72×10^9
0.2	2×10^{-1}
0.000 000 007 51	7.51×10^{-9}

https://en.wikipedia.org/wiki/Scientific_notation

Now Do This!



Write all answers in scientific notation.

Use no more than three decimal places in the final answer.

Measure the length of the whiteboard

_____ centimeters (cm)

_____ hectometers (hm)

_____ kilometers (km)

Average Height of Group Members

_____ centimeters (cm)

_____ millimeters (mm)

_____ dekameters (dam)

Time to say the alphabet backwards

_____ seconds (s)

_____ hectoseconds (hs)

_____ milliseconds (ms)

Height of tower (Build for 30 seconds, then measure the height)

_____ meters (m)

_____ hectometers (hm)

_____ decimeters (dm)

Volume of water in Graduated Cylinder

_____ milliliters (mL)

_____ dekaliters (daL)

_____ kiloliters (kL)

Mass of a pencil or pen on Scale

_____ grams (g)

_____ kilograms (kg)

_____ milligrams (mg)