Metric System

International System of Measurement, Metric Conversions, Length, Mass, Volume, Tools of Science
The Basics

- Scientists all over the world use the International System of Measurement.

- Since scientists everywhere use the same measurements, it helps eliminate confusion when scientists from different places share their data.
Metric Unit Conversion

- The metric system is based on multiples of 10. Prefixes are used to indicate the unit.

- king henry Died by drinking chocolate milk is a mnemonic to help remember the order of metric system.
Metric Unit Conversions

- To convert to a smaller unit, move the decimal point to the right. To convert to a larger unit, move the decimal to the left.

- Do the Practice Problems
Using a Metric Ruler

- Always use the centimeter side of the ruler.
- There are 30 centimeters on a standard metric ruler.
- Each centimeter is divided into 10 smaller parts called millimeters.
Using a Triple Beam Balance

- Always start with the value at zero.

- To find the correct mass, move the weights until the pointer is flat.
Using a Triple Beam Balance

- To calculate the mass, add all three beams together. Be sure to line up the decimals!

- Triple Beam Balances typically measure using the unit of grams.
Using a Graduated Cylinder

- Graduated cylinders typically measure using the unit of milliliters.
- Liquid molecules “stick” to the side of a graduated cylinder causing the liquid to make a “dip” called the meniscus.
- To correctly read the volume, look at the bottom part of the meniscus.
Reading the Meniscus

Volume is 43 ml
To become a successful scientists, we must be able to identify and use scientific instruments or tools.

These tools are for collecting data, taking measurements, and recording observations.

Scientists use a variety of tools to do investigations.
Computer

- An electronic tool that is used to help scientists
  - Complete research
  - Analyze results of an experiment
  - Graph data
  - Communicate results to other scientists
Calculators

- An electronic device for solving mathematics problems
Microscope

- ‘micro’ means small while ‘scope’ means to see
- Magnifies smaller objects
- Utilizes slides that are used by scientists to view thin sections of objects or cells
Telescope

- A tool used to see objects in the sky.
- It magnifies or makes objects in the sky larger.
A meter tool that is used to measure distance and the length of objects. Can measure an object using decimeters, centimeters, or millimeters.
Thermometer

- A tool used to measure temperature.
- It measures the temperature of air and most liquids.
- The Greek prefix “therm” means “heat”.
Stopwatch

- A tool used to measure time.
- Measures time in seconds (s).
Balance

A tool used to measure the mass of an object.

A balance tells the amount of matter an object contains.
Test Tube

- Is open at one end and closed at the other.
- It is cylindrical in shape.
- Hold fluids needed in a lab experiment
Graduated Cylinder

- Is used to measure the volume of a liquid.
- The volume is read by reading the bottom of the meniscus.
Spring Scale

- Can be used to measure the mass of an object
  - Has a spring at one end and a hook on the other.
  - The object is hung from the hook.