

## **Introduction to Chemistry**

### **Measurements in Chemistry**

#### **Measurement**

A system used to get *quantitative (number based)* information (*data*) about a physical chemical system (*we can measure*)

#### **System of Measure**

The method used and division chosen to measure quantitative measurements of matter

#### **Common Systems of Measure**

Mass - A balance (*scale*) measuring in grams (*g*)

Volume – Graduated cylinder measuring in mL



Early 1900's Laboratory Balance  
(Measurement of Mass)

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#### **Types of Quantitative Measurements**

##### **Mass**

How heavy matter is (*weight*)

**System of Measure:** Gram (g), Kilogram (kg)

##### **Volume**

How many space matter takes up

**System of Measure:** Liter (L), Milliliter (mL)

##### **Length**

How long a side of matter is a

**System of Measure:** meter (m), Centimeter (cm)

##### **Time**

The duration of a measurement

**System of Measure:** Seconds (s)

##### **Temperature**

How fast (*speed*) matter is moving

**System of Measure:** Celsius (°C), Kelvin (K)

##### **Pressure**

How many collisions per time

**System of Measure:** Atmospheres (atm)

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#### **Parts of a Measurements**

Measurements are always measured in the following system

*Quantity + Unit + Label*

Quantity – The *numerical value* from the scale

Unit – The system of measurement used to compare quantity to others

Label – The matter the measurement relates too

Ex 1: 923.04g H<sub>2</sub>O: Quantity: 923.04, Unit: g, Label: H<sub>2</sub>O

Ex 2: 34.5°C Room: Quantity: 34.5, Unit: °C, Label: Room