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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Introduction to Chemistry

Measurements in Chemistry

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 (^oC), Kelvin (K)

Pressure

How many collisions per time

System of Measure: Atomspheres (atm)

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Introduction to Chemistry

Measurements in Chemistry

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_2O: Quantity: 923.04, Unit: g, Label: H_2O
Ex 2: 34.5^oC Room: Quanitity: 34.5, Unit: ^oC, Label: Room

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