**Note Guide: Measurements & Scale**

Physics

* It consists of two main components: \_\_\_\_\_\_\_\_\_\_\_ & Energy
* Traditional fields are:
  + \_\_\_\_\_\_\_\_\_\_
  + Optics
  + \_\_\_\_\_\_\_\_\_\_\_\_
  + Thermodynamics
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Modern extensions including
  + Atomic and nuclear physics
  + Cryogenics
  + Solid-state physics
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ physics
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ physics
* **Science-** The search for **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of natural events.
* **Physics**- is the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of the *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* explanations.
  + Can be everyday ie: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, walking, etc
* **Theory**- a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ explanation of natural events based on facts
* **Facts**- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** observations of natural events

SI Units

* International System- French
* All **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** use it
* Units agreed upon and calibrated to each other are critical to scientific advancement and commerce
* Even *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* errors in calibration could crash modern technology and large $ loss

Story-metric error

7 Fundamental Units (to Happiness)

1. \_\_\_\_\_\_\_\_\_\_\_ meter (m)
2. Mass kilogram (kg)
3. \_\_\_\_\_\_\_\_\_\_ second (s)
4. Electric Current Ampere (A)
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Kelvin (K)
6. Amount of Substance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Intensity candela (cd)

Other units can be created from these 7 units!

Speed= m/s

A Newton= kgm/s2

A Watt= Newton/s

Measuring UP!

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- was defined by 10,000,000th of a meridian (prior to 1960 an actual bar) now defined by speed of light
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- the mass of 1 liter of water
* Second- based on the vibration on an atom
* Mass- amount of \_\_\_\_\_\_\_\_\_\_\_\_ in an object
* Weight- the effect of \_\_\_\_\_\_\_\_\_\_\_\_\_ acting on mass

**Make a “body metric ruler” (record the data in your notebook)**

* My hand span is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm. The width of my \_\_\_\_\_\_\_\_\_ fingernail is \_\_\_\_\_\_\_\_\_\_ cm or \_\_\_\_\_\_\_\_\_\_\_ mm.
* The length of my arm is \_\_\_\_\_\_\_\_\_\_ m or \_\_\_\_\_\_\_\_\_\_\_ cm.
* My height is \_\_\_\_\_\_\_\_\_\_\_\_ m or \_\_\_\_\_\_\_\_\_\_\_\_ cm.
* My mass in kilograms is \_\_\_\_\_\_\_\_\_\_\_\_ kg.
* The length of my forearm is \_\_\_\_\_\_\_\_\_\_\_cm.
* My foot is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm.
* My wingspan is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm.

**M k h dk m d c m µ n**

**l**

**g**

* **NOTE: 1 ml=1 cm^3**
* Identify the units of SI & English