ABC'S :Metric System Lecture Part 2 Notes (ec printing 5pts)

Review from last time

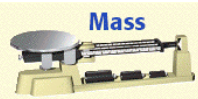
1. Why do we need standardized units?

2. Length is measured in _____.

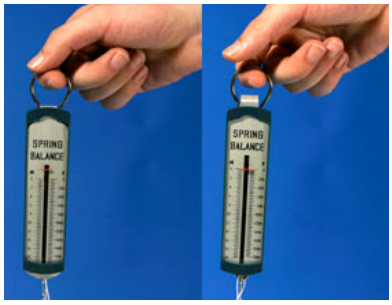
3. Volume is measured in _____.

Measuring Mass

What is mass? Mass is the _____. Mass is measured on a _____ (also called a centigram balance or a triple beam balance). The _____ is a unit of mass. A science book is about 1.3 kilograms. A kilogram is divided into 1000 equal parts called grams (g). A _____ has a mass close to 1 gram. One milliliter of water has a mass of a gram at room temperature.



Mass	**kilogram (kg)**	
	gram (g)	1 g = 0.001 kg
	milligram (mg)	1 mg = 0.000001 kg
Temperature	**Kelvin (K)**	
	Celsius (°C)	0°C = 273 K
		100°C = 373 K



Measuring Weight

So, isn't mass the same thing as weight? I mean, you're finding how much something weighs, right? WRONG! Mass and weight are two totally different measurements. While mass is the amount of matter in an object, weight is the _____ _____We measure weight using a _____. The terms mass and weight are often used interchangeably. That's because they have identical values here on Earth. We'll talk more about this soon, when we get to space science. For now, you need to know that mass and weight are NOT the same thing.

Using a balance: Step 1

The first rule of using a balance is: _____ They are very delicate and prone to breakage. Always carry the balance by the red stem. Never pick one up by the balance beam.

Using a balance: Step 2

The second rule about using a balance is: _____ (set) the balance to zero. Do this by sliding all of the riders to the left. Check to make sure that the pointer, or beam, swings to "zero" on the center mark. If the pointer does not read correctly, then use the "adjustment knob to set it to zero.

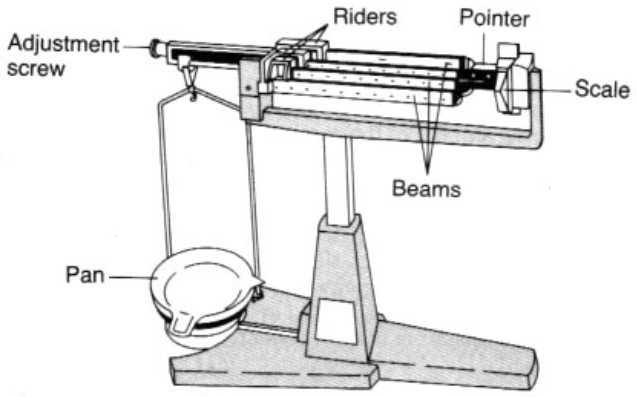
Using a balance: Step 3

Third, place your object on the measurement tray or pan. Move the riders bit by bit until the pointer lines up at the zero mark again.

Reading the Balance

Our balances have 4 beams, each measuring a different amount. For our balances:

-The closest beam is in increments of .01 grams
-The second beam in increments of 1 gram
-The third beam in increments of 10 grams
-The farthest beam in increments of 100 grams



Reading the Balance: You Try It!

4. What does this balance read?	5. What does this balance read?

Measuring Temperature

In science, temperature is measured using the _____. The temperature scale is based on the freezing and boiling points of water. The freezing point of water is given the value of _____.The boiling point of water is labeled at _____. Human body temp is about 37^{o} C. In the International System (SI), temperature is measured using the _____ The kelvin scale is based on absolute zero, the coldest possible temperature. This temperature corresponds to -273^{o} C

- 0^{o}C =_____
- 100^{o}C = _____

POINTS TO REMEMBER:

- _____ science is the study of matter and energy
- Scientists use units from the _____ as standards for measurement.
- _____ are used to indicate change of metric units of multiples of ten.
- _____ is the space occupied by an object.
- Mass is the _____ in an object. It is measured in _____.
- The _____ is based on the freezing and boiling points of water.
- The kelvin temperature scale is based on _____