

Name: _____

Teacher: _____

Class Period: _____

Date: _____

2011 - 2012 BIOLOGY
Scientific Measurement Outline

I. SCIENTIFIC MEASUREMENT

A. The **SI**, or **International System Units (of Scientific Measurement)** → an improved version of the

→ uses the base unit of 10 = you either _____ or _____ by a factor of 10 or 1/10th

→ _____ of the unit indicates **what multiple of ten** is to be used

EXAMPLES:

1) "_____" = 1,000, SO **1 kg** = _____ **grams**

2) "_____" = one-thousandth, SO **1 millimeter** = _____ **of a meter,**
OR **1 millimeter** = _____ **meter,**
OR _____ **mm** = **1 meter**

B. **Standard Scientific Units of Measurement:**

1) _____ → an exact quantity people agree to use to compare measurements
→ Used to ensure _____ of results, and better _____

2) **SI** is used as the **standard** for scientific measurement of common units such as length, width, height, mass, area, volume, density, time, temperature

a) _____ → is a measurement of distance; its **basic SI unit** is the _____

b) _____ → measurement of the **force of gravity** acting upon an object

c) _____ → amount of **matter** an object has; its basic SI unit is _____

d) _____ → amount of surface, or exterior space, an object takes up

1. ****To calculate area**, multiply _____ X _____

2. **Basic SI unit of area** is _____

e) _____ → amount of space an object takes up, or **how much it can contain**

1. **Basic SI unit of volume for solids** = _____

2. **Basic SI unit of volume for liquids** = _____

f) _____ → amount of matter (**mass**) that occupies a given space (**volume**)

→ **Density = mass / volume**, in **SI units** of _____ or _____

g) _____ → measurement of the average vibrations of particles,
or an object's **kinetic energy**

1. **Basic SI unit of temperature** is _____

2. **Most *scientific work* measures temperature in _____ **degrees**

II. KING HENR METHOD OF UNIT CONVERSION (KHDBDCM):

III. CONVERSION APPLICATION PRACTICE:

1) 54 cm = _____ mm

6) 34.5 L = _____ mL

2) 1.2 km = _____ m

7) 3 cg = _____ mg

3) 2.5 m = _____ km

8) 8.7 g = _____ mg

4) 3678 mm = _____ cm

9) 98.56 kg = _____ g

5) 500 mL = _____ L

10) 2564 mg = _____ g

11) If a pencil is 11 cm long, how long is it in millimeters? _____

12) a) Calculate the volume of the cube shown below. **SHOW YOUR WORK!!!!!!** _____

b) Calculate the area of the same cube. **SHOW YOUR WORK!!!!!!** _____

