Dimensional Analysis Lab Stations

AP Physics

Length

- 1) Measure your pencil in centimeters. Record your answer.
- 2) Convert the length in centimeters to inches
- Convert the length in centimeters to the length in meters (using metric prefixes)
- 4) Convert the pencil length into millimeters (using metric prefixes)

Mass and Weight

- 1. Mass the marble that is provided. Record your answer.
- 2. Convert grams to kilograms
- 3. Convert the mass of the marble in kg to pounds
- 4. Convert the marble in pounds to tons
- 5. What unit is best to describe the weight or mass of the marble? Why?

Volume and Mass

- 1. How many cups of the material are in the measuring cup?
- 2. Convert to liquid ounces
- 3. Convert cups to gallons
- 4. What unit is best to use in this situation? Why?

Length

- 1. Measure the length of your arm in centimeters. Record.
- 2. What is the length of your arm in meters?
- 3. What is the length of your arm in kilometers?
- 4. What is the length of your arm in inches?

Money

- 1. How much money do you have in your wallet?
- 2. Convert to a currency in 4 other countries.
- 3. Compare the exchange rates.

Time

- 1. Record how many seconds it takes you to walk from this station to the door and back. Record.
- 2. Convert seconds into minutes (60 seconds = 1 min)
- 3. Convert the minutes into hours (60 minutes = 1 hour)
- How many times could you walk across the room in 1 hour (1 hour / answer to #3)
- 5. What is the best unit to use in this situation?

Mass and Weight

- There is an unknown amount of pennies in front of you. Mass the pennies in grams.
- 2) Convert the mass of these pennies to kilograms
- 3) Determine the mass of one of the pennies in grams

Temperature

1) Today's temperature is currently _____ in Fahrenheit (look it up!)

2)



Use the temperature formulas above to convert your temperature in Fahrenheit to **Celsius and Kelvin**. We cannot use regular dimensional analysis for temperature!