**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Physical Science Lab #1**

**Measurement Stations**

**Objective:** This lab will take you through 6 different stations, giving you hands on experience measuring objects using the metric system and converting units of measurement.

**Procedures:**

1. Follow the directions at each station carefully, you will have approximately 7 minutes at each station to complete the directions
2. Do NOT move samples or equipment from one station to another
3. Both you and your partner are required to do all work at each station, not just one person!
4. You are required to visit each station and complete the work
5. Only two groups per station at a time
6. Work safely and carefully throughout the lab
7. Immature, reckless, dangerous, or unsafe behavior will NOT be tolerated. Violators will be removed from the lab and will receive a zero on this lab
8. Record your results on this sheet

**Station 1: Metric Measurements-Length**

Use a METER STICK to record the following measurements to the nearest 0.01 meters. Then once you are done, calculate decimeters and centimeters of each.

|  |  |  |  |
| --- | --- | --- | --- |
| **Object** | **Meters (m)** | **Decimeters (dm)** | **Centimeters (cm)** |
| Length of lab table |  |  |  |
| Height of lab table |  |  |  |
| Classroom door width |  |  |  |
| Your partner’s height |  |  |  |
| Length of bulletin board |  |  |  |

**Station 2: Metric Measurements-Length**

Use the millimeter rule to measure the following; then convert your answer to millimeters and decimeters

|  |  |  |  |
| --- | --- | --- | --- |
| **Object** | **Millimeters (mm)** | **Centimeters (cm)** | **Decimeters (dm)** |
| Diameter (width) of quarter |  |  |  |
| Height of notebook paper |  |  |  |
| Thickness of table top |  |  |  |
| Length of highlighter |  |  |  |
| Width of dollar bill |  |  |  |

**Station 3: Metric Measurements**

Use the inch rule to measure the following; then convert your answer to centimeters and kilometers (1 inch=2.54 cm). Show your work using the factor label method.( I’ll help you with the first one below)

|  |  |  |  |
| --- | --- | --- | --- |
| **Object** | **Inches (in)** | **Centimeters (cm)** | **Kilometers (km)** |
| Length of paperclip |  |  |  |
| Length of dry erase marker |  |  |  |
| Width of textbook |  |  |  |
| Width of sink  |  |  |  |
| Diameter of a CD |  |  |  |

**Station 4: Metric Measurements-Volume**

Use the centimeter rule to measure length, width, and height of the following. Then calculate volume of each solid by multiplying length x width x height.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Object** | **Length (cm) x** | **Width (cm) x** | **Height (cm) =** | **Volume (cm3)** **=l x w x h** |
| White board eraser |  |  |  |  |
| Kleenex Box |  |  |  |  |
| Textbook |  |  |  |  |
| Band-Aid Box |  |  |  |  |
| Cardboard box |  |  |  |  |

**Station 5: Metric Measurements-Survivor**

Use only objects provided to measure the following: then find the actual length with an inch rule and then convert to centimeters (1 inch = 2.54 cm). Show work for conversion from inches to cm using a factor label.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Object** | **# needed to measure** | **Length of measurement tool in inches (in)** | **Total length in inches (in)** | **Total length in centimeters (cm)** |
| Length of desk by # of paper clips |  |  |  |  |
| Length of desk by # of thumbs |  |  |  |  |
| Length from floor to desktop by # of hands |  |  |  |  |
| Height of desk by # of paper clips |  |  |  |  |
| Height of desk by # of thumbs |  |  |  |  |
| Height from floor to desktop by # of hands |  |  |  |  |

**Station 6: Practice with metric conversions:**

Fill in the following chart with the prefix and abbreviation of the appropriate SI units. Answer the 3 questions below and then convert the three problems.

Prefix name:

 **9 6 3 2 1 -1 -2 -3 -6 -9**

 **|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_0\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|\_\_\_|**

Abbreviation:

1. To figure out how many places to move the decimals \_\_\_\_\_\_\_\_\_\_ (add or subtract) the exponents of each prefix.
2. If you move down (across to the right) the scale move the decimal to the \_\_\_\_\_\_(left or right?)
3. If you move up (across to the left) the scale, move the decimal to the \_\_\_\_\_\_\_(left or right?)

|  |  |  |  |
| --- | --- | --- | --- |
| 4.5 m =  | mm | nm | um |
| 47.5 cm = | nm | dm | mm |
| 16 kg = | g | mg | ug |