**Metric System** - Keep this handy Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

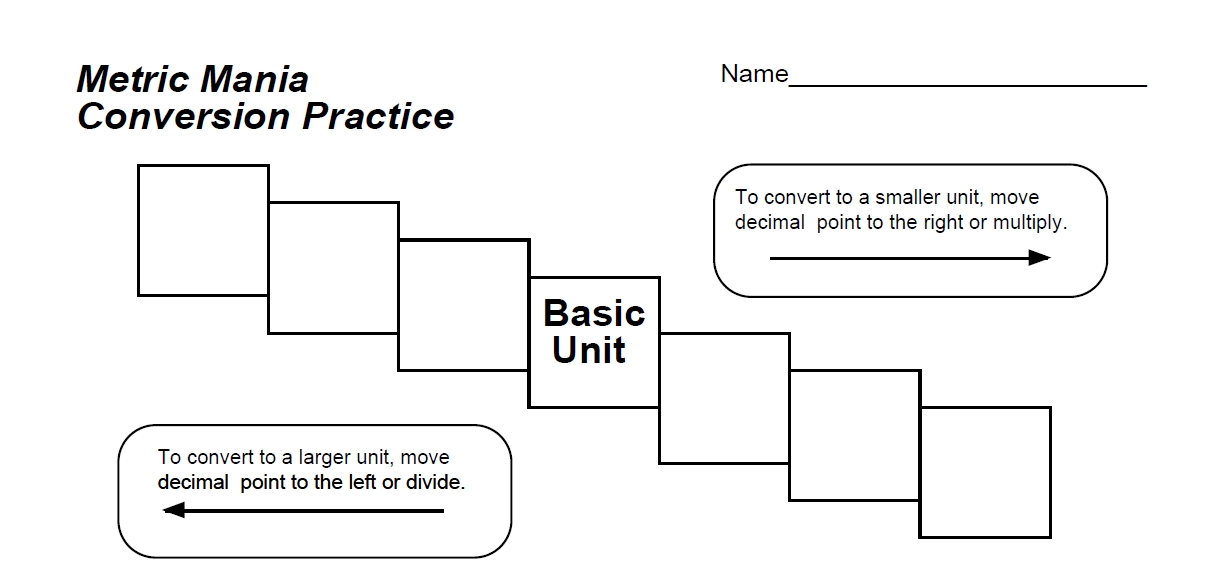
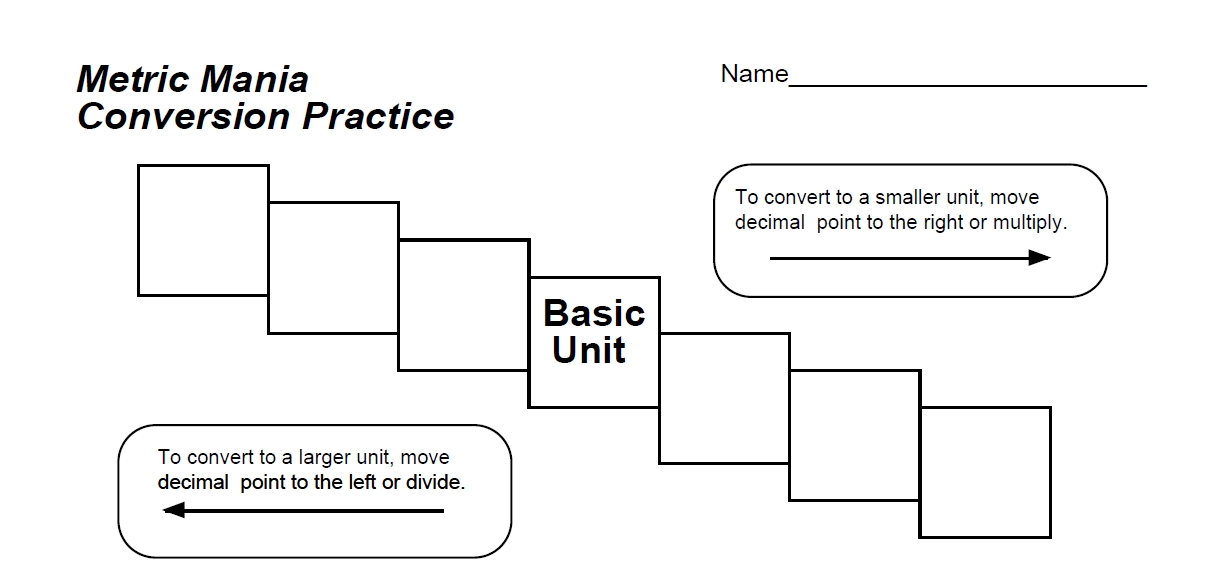
**Prefixes:**

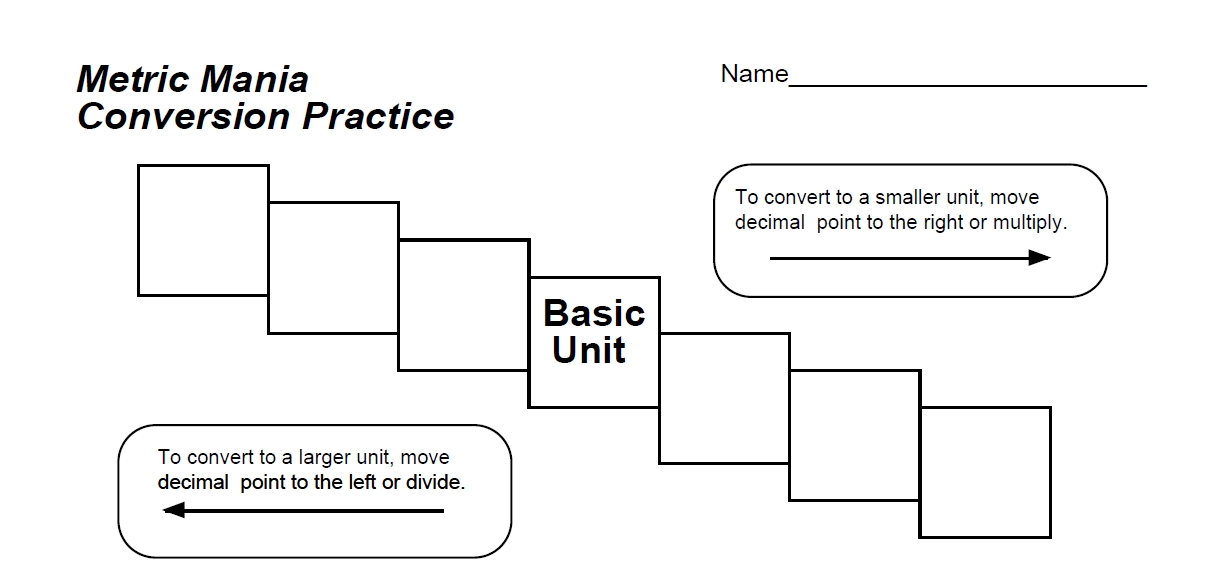
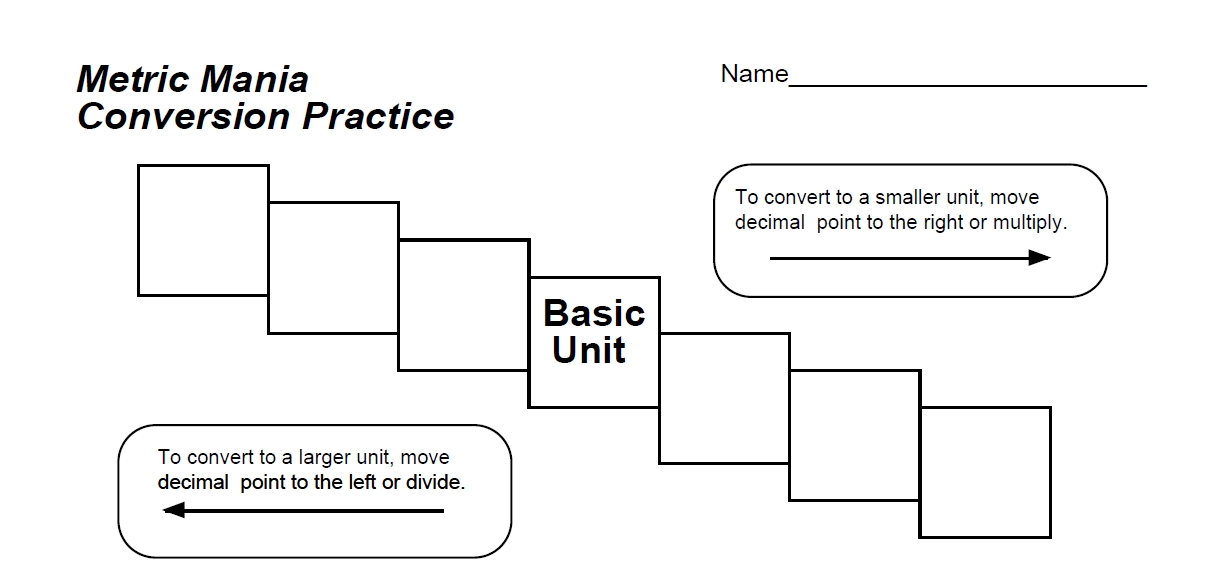
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Prefix | Symbol | Quantity in words | Power of Ten | Quantity in Numbers |
| Tera | T | Trillion | 10 12 | 1,000,000,000,000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Giga | G | Billion | 10 9 | 1,000,000,000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Mega | M | Million | 10 6 | 1,000,000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Kilo | K | Thousand | 10 3 | 1,000 |
| Hecto | H | Hundred | 10 2 | 100 |
| Deca | da | Ten | 10 1 | 10 |
| Base Unit |  | One | 10 0 | 1 |
| deci | d | One tenth | 10 -1 | 1/10 |
| centi | m | One-hundredth | 10 -2 | 1/100 |
| milli | m | On-thousandth | 10 -3 | 1/1000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Micro | **μ** | One-millionth | 10 -6 | 1/1000,000 |
|  |  |  |  |  |
|  |  |  |  |  |
| nano | n | One-billionth | 10 -9 | 1/1000,000,000 |
|  |  |  |  |  |
|  |  |  |  |  |
| pico | p | One-trillionth | 10 -12 | 1/1000,000,000,000 |

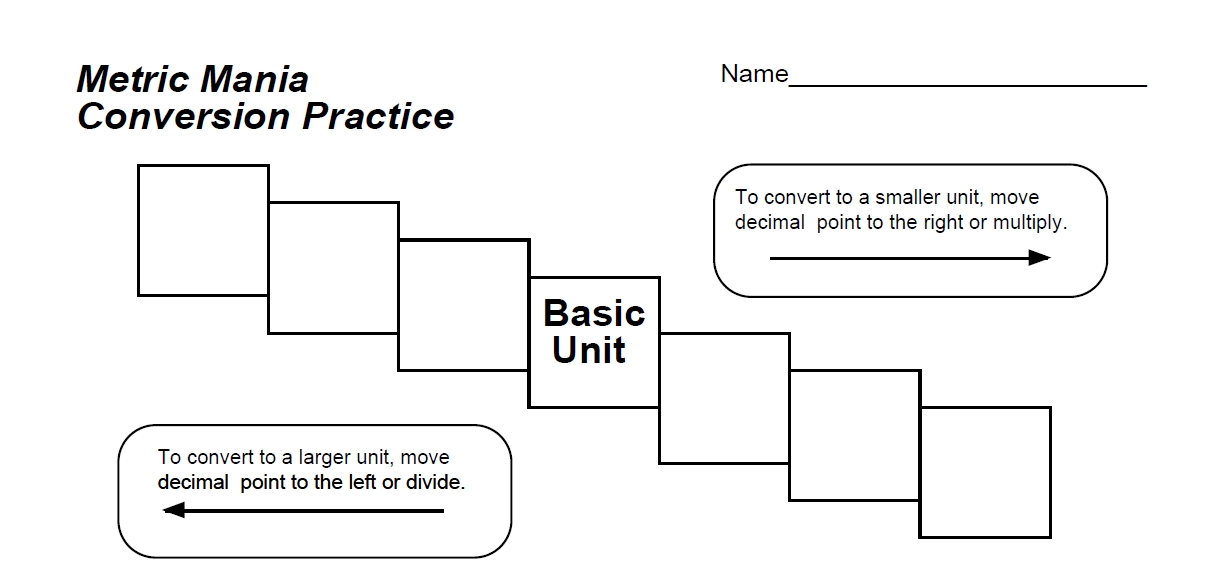
**Base Units**

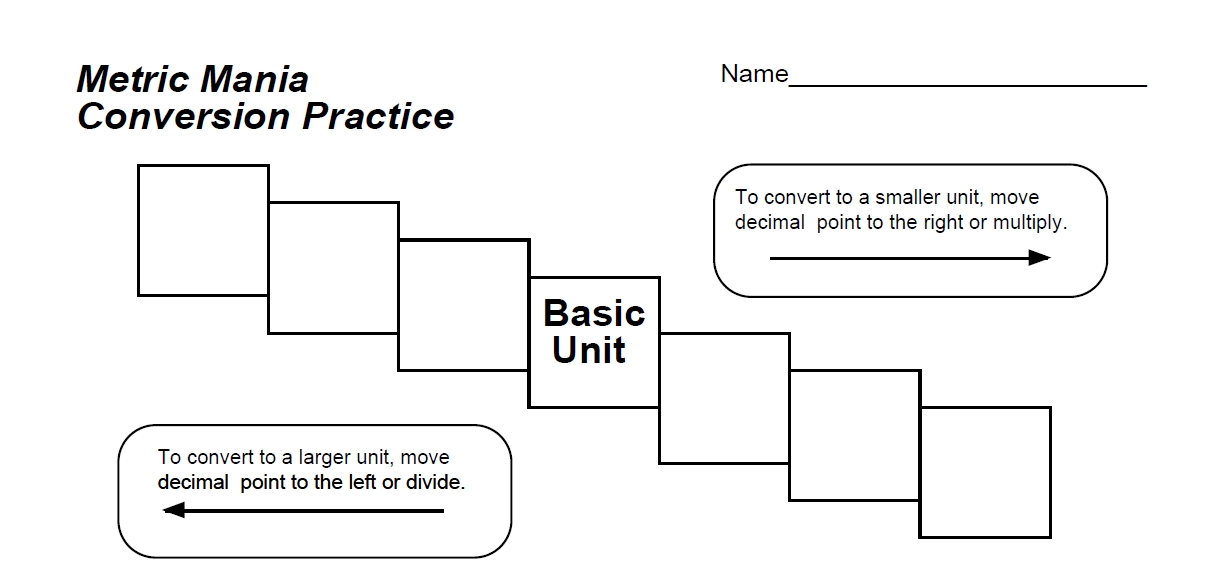
|  |  |  |
| --- | --- | --- |
| Measurement | Base Unit | Symbol |
| Length | Meter | m |
| Mass | Gram | g |
| Volume | Litre | L |
| Time | Seconds | s |
| Temperature | Degrees Celsius | °C |

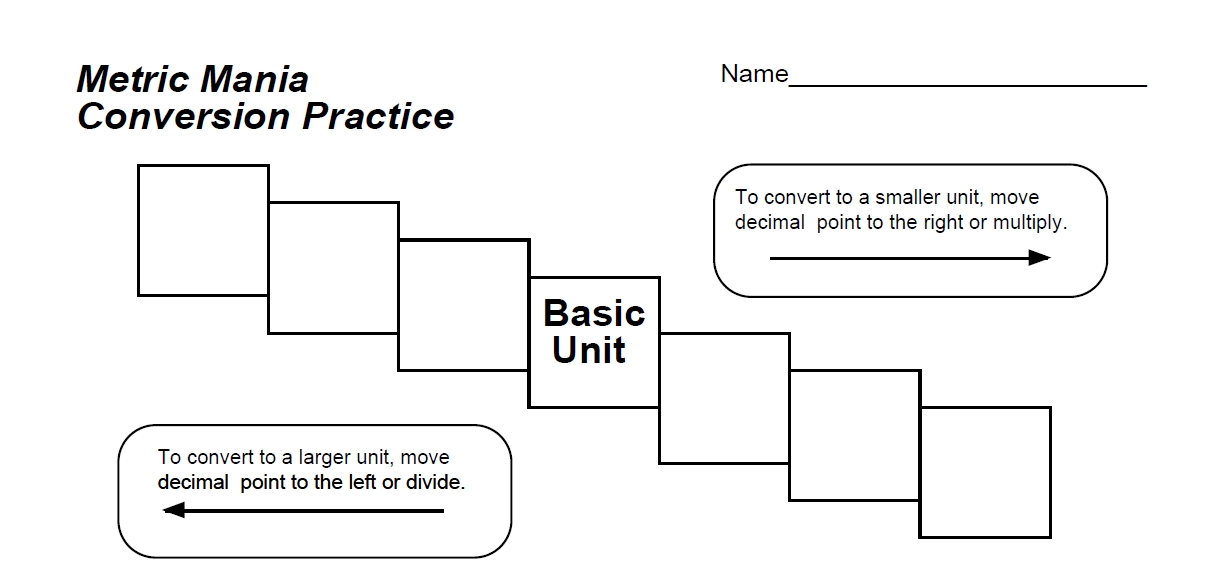
**Note:** One cubic centimeter = 1 mL











Mnemonic:

“The Great Man King Henry Does Usually drink chocolate milk until nine pm”

**Convert the following:**

1000 mg = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ g 1 L = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mL

160 cm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mm 14 km = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ m

100 g = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kg 250 m = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ km

75 km = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cm 2 kg = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mg

2.4 mm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **μ** m 18 **μ** m = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mm

4.3 cm3 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mL

**Which metric unit would you use to measure each of the following?**

1. Volume of a glass of milk
2. Length of your textbook
3. Mass of a mouse
4. Mass of a killer whale
5. Volume of a marble
6. Temperature of tea

**Going further:**

1. In order to compare the results of several experiments, you need to have all your data in the same unit. Covert the following measurements to the same unit:

16 kilograms

888 grams

0.002 kilograms

155 milligrams

1. A recipe calls for 300 milliliters of water. You add 0.25 liters. Have you put in too much, too little, or the right amount?
2. Circle the largest measuremet: 1800 centimeters, 2.1 meters, 0.0017 kilometers.
3. You are told that you need a jar with a volume of at least 150 cm3. The label on the jar says 0.16 liters. Can you use it?
4. Calculate the number of seconds in 1 year. Then calculate the number of seconds in a decade.

Bio 11: See page 14 for dimensional analysis

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | **Prefix** | **Symbol** | **Meaning** | | deci | d | 10-1 | | **centi** | **c** | **10-2** | | **milli** | **m** | **10-3** | | **micro** | **µ** or **mc** | **10-6** | | nano | n | 10-9 | | pico | p | 10-12 | | femto | f | 10-15 | | atto | a | 10-18 | |  | |  |  |  | | --- | --- | --- | | **Prefix** | **Symbol** | **Meaning** | | deka | da | 101 | | hecto | h | 102 | | **kilo** | **k** | **103** | | **mega** | **M** | **106** | | **giga** | **G** | **109** | | tera | T | 1012 | | peta | P | 1015 | | exa | E | 1018 | |

1. Volume of a glass of milk \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Length of your textbook \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Mass of a mouse \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Mass of a killer whale \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Volume of a marble \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Temperature of the Gulf of Mexico \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

