Activity: Prefixes and Conversions

Purpose

1. To understand the conventional notation used in Scientific and Engineering Notation
2. To practice conversions from one notation to another

Equipment

None

Procedure

Whole values have **NO** prefixes and have all of the zeros and original decimal locations. Some of the types are listed below:

* Amperes Amps A
* Voltage Volts V
* Ohms Ω
* Farad fd
* Hertz Hz CPS

Examples of a **prefix and whole value** used together:

* 1.5 Kohms instead of 1500 ohms
* 450 ufd instead of .000450 farads
* 2.4 MΩ instead of 2,400,000 Ω
* 1180 KHz instead of 1,180,000 hertz
* 34 mA instead of .034 Amperes
* 150 uufd instead of .000000000150 farads

**Part 1: Fill in the information below:**

For **LARGER** values use the following prefixes:

**MEGA**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Move the decimal point \_\_\_\_\_\_\_\_\_\_ spaces

Symbol: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: 10,000,000 ohms = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**KILO**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Move the decimal point \_\_\_\_\_\_\_\_\_\_ spaces

Symbol: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: 3,000 ohms = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For **SMALLER** values use the following prefixes:

**Milli:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Move the decimal \_\_\_\_\_\_\_\_\_\_\_ spaces

Symbol \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: .0003 amps = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**micro** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Move the decimal point \_\_\_\_\_\_\_\_\_\_ spaces

Symbol: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: .000012 amps = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**micro micro** : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Move the decimal point \_\_\_\_\_\_\_\_\_\_ spaces

Symbol: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: .0000000000034 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pico**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Move the decimal point \_\_\_\_\_\_\_\_\_\_ spaces

Symbol: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: .000000000006 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which of the above prefixes can you use interchangeably?

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 2:**

Convert the following values:

1. 4500 ohms = \_\_\_\_\_\_\_\_\_K ohms = \_\_\_\_\_\_\_\_\_M ohms
2. 680,000 ohms = \_\_\_\_\_\_\_\_K ohms = \_\_\_\_\_\_\_\_\_\_M ohms
3. 2,700,000 ohms = \_\_\_\_\_\_\_\_K ohms = \_\_\_\_\_\_\_\_\_\_\_\_M ohms
4. 5.6 M ohms = \_\_\_\_\_\_\_\_\_ohms = \_\_\_\_\_\_\_\_\_\_\_\_\_K ohms
5. 2.6 K ohms = \_\_\_\_\_\_\_\_\_\_M ohms = \_\_\_\_\_\_\_\_\_\_\_\_\_ohms
6. 2.5 Amps = \_\_\_\_\_\_\_\_\_\_m Amps = \_\_\_\_\_\_\_\_\_\_\_\_\_u Amps
7. 15 uu Amps = \_\_\_\_\_\_\_\_\_u Amps = \_\_\_\_\_\_\_\_\_\_\_\_\_m Amps
8. 220 p fd = \_\_\_\_\_\_\_\_\_\_\_\_uu fd = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_u fd
9. 45 m A = \_\_\_\_\_\_\_\_\_\_\_\_u Amp = \_\_\_\_\_\_\_\_\_\_\_\_\_Amperes
10. 500 CPS = \_\_\_\_\_\_\_\_\_\_\_K Hz = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hertz
11. 5,700 Volts = \_\_\_\_\_\_\_\_\_\_\_ K Volts = \_\_\_\_\_\_\_\_\_\_\_\_\_\_M Volts

1. 11 m Amp = \_\_\_\_\_\_\_\_\_\_\_A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_u Amps
2. 68,000,000 Ω = \_\_\_\_\_\_\_K ohms = \_\_\_\_\_\_\_\_\_\_\_\_\_ M Ω
3. 1,200 K Volts = *\_\_\_\_\_\_\_M Volts = \_\_\_\_\_\_\_\_\_\_\_\_\_Volts*
4. .002 m Amps = \_\_\_\_\_\_\_\_\_Amps = \_\_\_\_\_\_\_\_\_\_\_\_\_\_u Amps
5. 5.5 K Hz = \_\_\_\_\_\_\_\_\_\_\_Hertz = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_K CPS
6. 1000 p fd = \_\_\_\_\_\_\_\_\_\_\_\_uu fd = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_u fd
7. 75000 K Volts = \_\_\_\_\_\_\_\_\_\_\_\_Volts = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ M Volts

Conclusion

1. Why do we use prefixes when explaining quantities?
2. There are many more scientific prefixes than those commonly used in electronics. Why do you think we only use the ones we do?