Scientific Notation

Scientists often work with very large and very small numbers, however these can be **difficult** to work with. To simplify matters we write these numbers using **exponents** or **scientific notation**.

In scientific notation, the numerical part of the measurement is a number from 1 to (and including) 9 multiplied by a whole-number power of 10.

For example: 6 x 103

The number 6 is between 1 and 10 and is followed by a whole number power of 10 (103).

6 x 103 is **6000**.

**To use scientific notation:**

1. Move the decimal to the left or right until it is behind the first digit

2. Write the new number x 10

3. Count the number of spaces you moved the decimal. This is the exponent (power) of 10.

4. Look at the direction you moved your decimal:

Left = positive exponent (e.g. 104)

Right = negative exponent (e.g. 10-4)

5. Write the proper value of the exponent by the 10.

**Examples**

**1. Large numbers** - 36000 written in scientific notation is 3.6 x 104. Count the number of decimal places you move to the left and this becomes the exponent.

**2. Small numbers** - 0.00015 written in scientific notation is 1.5 x 10-4. Notice that a negative exponent is used when moving the decimal to the right.