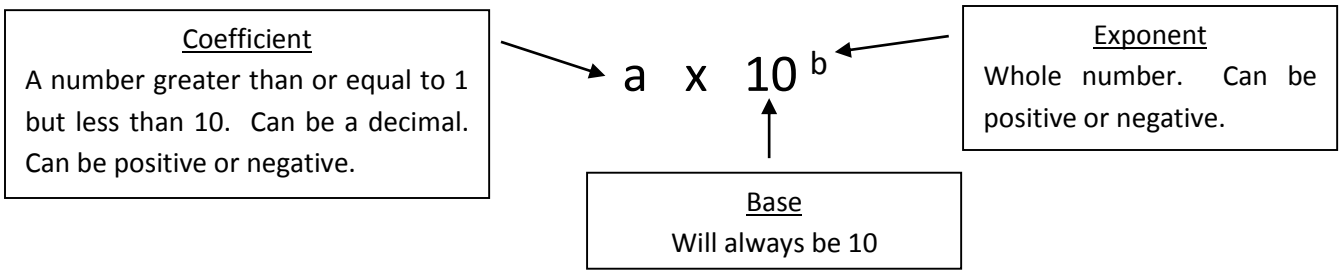
Scientific Notation

When numbers are extremely small or large it is easier to rewrite them in scientific notation.
Numbers are written in scientific notation using the following format:



Steps to convert into scientific notation:

1. Move the decimal point so that the coefficient is a number greater than or equal to 1 but less than 10.
2. Write the coefficient x 10
3. The exponent is the number of places the decimal point was moved.
    a. If the decimal point was moved to the right, then the exponent is negative.
    b. If the decimal point was moved to the left, then the exponent is positive.

Examples:

If the number is **less than one,** the decimal point is moved to the **right** and the **exponent will be negative**.

If the number is **greater than one,** the decimal point is moved to the **left** and the **exponent will be positive.**

Practice Part A: Rewrite the following values in scientific notation.

1) 45 148 287 cm

2) 1 289 m

3) 0.000 004 293 nm

4) 602 000 000 000 000 000 000 000 atoms

5) 0.0075 L

6) 0. 000 619 s

Practice Part B: Rewrite the following values in standard form.

7) 3.765×10^{7} m

8) 4.0×10^{-8} g

9) 7.26×10^{-5} L

10) $2.889\,241 \times 10^{4}$ kg