

# Unit 1: Functions and Numbers

Ch.1 Number and Algebra

1.3: Standard Form

## Section 1.3: Standard Form

IB Syllabus: How do we write answers from the calculator?  
Scientific Notation

## Scientific Notation

In science, we often work with quantities that are inconveniently large or small:

There are 1,000,000,000,000 stars in the Andromeda galaxy.  
This galaxy has 710,000,000,000 times the mass of our Sun.

The mass of a single helium atom is 0.000 000 000 000 000 000  
000 000 006 649 kg.

We need a better way to work with these quantities...

## Scientific Notation

A number in standard form makes it easier to work with. It's written in the form  $a \times 10^k$  where  $1 \leq a < 10$  and  $k \in \mathbb{Z}$ .

2,500,000 elephants weigh 26,000,000,000 pounds.

$$2.5 \times 10^6 \quad \frac{2.6 \times 10^{10}}{2.5 \times 10^6} = 10400 \text{ lbs} \quad 1.04 \times 10^4$$

The Andromeda galaxy has 710,000,000,000 times the mass of our Sun.

$$7.1 \times 10^{11}$$

## Scientific Notation

The mass of a single helium atom is 0.000 000 000 000 000 000 000 000 006.649 kg.

$$6.649 \times 10^{-27}$$

The brain of a Brachiosaurus weighed 0.0000025 times as much as its body.

$$2.5 \times 10^{-6}$$

## Scientific Notation

Expanded Form	Standard Form

1. Pair Cards Activity

2. WS 1.3

## Homework:

Students will complete pgs.22-25: 1M and 1N