

## **Module 1 – Integer Exponents and Scientific Notation**

**Cube** - A cube is a right rectangular prism all of whose edges are of equal length.

**Exponent** - The number of times a number is to be used as a factor in a multiplication expression.

**Exponential notation** - Let  $m$  be a non-zero whole number. For any number  $a$ , we define  $a^m$  to be the product of  $m$  factors of  $a$ , i.e.,  $a^m = \underbrace{(a \cdot a \cdot a \cdots a)}_{(m \text{ times})}$ . The number  $a$  is called the base, and  $m$  is called the exponent, or power of  $a$ .

**Integers** - The whole numbers and their opposites. The set of integers is represented mathematically by the set:  $\{\dots, -3, -2, -1, 0, 1, 2, 3, 4, 5, \dots\}$ .

**Scientific notation** - The scientific notation for a finite decimal is the representation of that decimal as the product of a decimal  $s$  and a power of 10, where  $s$  satisfies the property that it is at least 1, but smaller than 10, or in symbolic notation,  $1 \leq s < 10$ . For example, the scientific notation for 192.7 is  $1.927 \times 10^2$ .

**Whole number** - Whole numbers are positive numbers, including zero, without any decimal or fractional parts. The set of whole numbers is represented mathematically by the set:  $\{0, 1, 2, 3, 4, 5, \dots\}$ .