CLASSICAL MECHANICS (WHAT IS IT?)

The main problem of classical mechanics is to use its laws and principles to describe the motion (position and velocity) of a body at any time given some set of initial conditions.

The laws of Classical Mechanics (especially Newton's Laws of Motion) are very powerful laws that do an outstanding job of explaining and describing the physical world around us. They have far reaching applications/implications in every branch of science (engineering, chemistry, biology ….) For example, Classical Mechanics can be used to very accurately describe and explain the motion of:

1. The planets
2. The Space Shuttle
3. A projectile (missile)
4. A gyroscope
5. A pendulum

However, the Laws and Theories of Classical Mechanics are not truly correct! That is, its Theories and Laws have their limitations. They are valid only when:

1. The speed of objects are much smaller than the speed of light(3.0×10^8 m/s). (Einstein's Special Theory of Relativity)

2. The size of objects are **not** very small such as electron, atoms, etc. (Quantum Mechanics)