

## **CHAPTER 13: Motion and Time**

- Motion can either be in a straight line or circular motion or it may also have periodic motion.
- An object can have either slow motion or may have a fast motion.
- To understand if an object is moving slowly or fast the distance and time is used.
- **SPEED:**
  - 1.) Speed of an object is determined by distance and time.
  - 2.) Average speed is usually calculated using total distance covered divided by the total time.
  - 3.) Non- uniform motion: if motion along the same line keeps changing it is called as non-uniform motion
  - 4.) Uniform motion: if the objects move in a straight line, it is called as uniform motion.
- **Measurement of time:**
  - In olden time, time was calculated with the position of the from sunrise to sunset.
  - Time between 2 consecutive sun rises is called a day.
  - A month is a period between one new moon to the next.
  - A year is calculated as the time taken by the art to complete one revolution around the sun
  - Watches, clocks make use of periodic motion to calculate the time. e.g., simple pendulums.
  - Simple pendulum: It is made up of a metallic ball or stone attached to a thread.
  - Bob: it is a metal ball in a pendulum.
  - The pendulum is example of oscillatory or periodic motion.
  - Time period: The time taken to complete one oscillation.
- **UNIT OF TIME AND SPEED:**
  - 1.) Time is measured in seconds, minutes and hours
  - 2.) The unit of speed is meter per minute or kilometer per hour.
  - 3.) Unit is always measured as a singular unit.
  - 4.) Sundials, water clocks and sand clocks are also used.
- **MEASURING SPEED:**
  - The speed of an object, you can find the distance moved by it in a unit time.
  - Speedometer is used to measure speed.
  - Odometer is used to measure speed of vehicles.
- **DISTANCE-TIME GRAPH:**
  - A bar graph, pie chart, line graph can be used to describe distance-time graph.
  - Graph can be drawn on graph paper or on a computer.
  - This graph provides information about the type of motion