



## COLEGIO NACIONES UNIDAS I.E.D.

INSTITUCIÓN EDUCATIVA DISTRITAL DE EDUCACIÓN BÁSICA, MEDIA SUPERIOR,  
Aprobado según Resoluciones 10-085 DE MARZO 20 DE 2009  
PEI: FORMACIÓN INTEGRAL DE LÍDERES EMPRENDEDORES COMPETENTES, CON PRINCIPIOS  
DEMOCRÁTICOS, TECNOLÓGICOS, CULTURALES Y DEPORTIVOS  
LEMA: "EDUCACIÓN, CIENCIA, CULTURA Y DEPORTE PARA TRASCENDER"

### PHYSICS

#### PREPARATORY WORKSHOP

#### NINTH GRADE

**Delivery date November 3**

**Deliver in the notebook with complete procedures.**

#### Uniformly Accelerated Motion

How do you think the motion in which acceleration is constant will proceed? Constant acceleration means velocity changing at a constant rate since the rate of change of velocity is acceleration (first equation of motion).

When we are talking about motion in a straight line with constant acceleration, there are three equations of motion, which are helpful in determining one of the unknown parameters:

$$\begin{aligned}v &= u + at \\x &= ut + \frac{1}{2}at^2 \\v^2 &= u^2 + 2as\end{aligned}$$

where,

v = final velocity of the particle

u = initial velocity of the particle

s = displacement of the particle

a = acceleration of the particle

t = time interval in which the particle is in consideration

1. A bus is travelling from Addis Ababa to Ambo. It travels 43 km in the first hour, 40 km in the second hour, and 46 km in the third hour of its journey . What is its average speed?
2. A car moves at a speed of 20m/s for 120 seconds due East. What is the displacement of the car?
3. A bus travels 43 km in the first hour, 40km in the second hour and 46 km in the third hour of its journey. Calculate its average speed.
4. What are the main features of a velocity in a uniform motion?
5. The speed of an airplane is 360 km/hr, and another airplane has a speed of 120 m/s. which one of these two air planes has a greater speed? Why?

From rest, a car accelerated at  $8 \text{ m/s}^2$  for 10 seconds.

6. a) What is the position of the car at the end of the 7 seconds?
7. b) What is the velocity of the car at the end of the 8.3 seconds?

With an initial velocity of 20 km/h, a car accelerated at  $8 \text{ m/s}^2$  for 10 seconds.

8. What is the position of the car at the end of the 9.45 seconds?
9. What is the velocity of the car at the end of the 17.4 seconds?

A car accelerates uniformly from 0 to 72 km/h in 11.5 seconds.

10. What is the acceleration of the car in  $\text{m/s}^2$ ?