

# UNIT 3 – PROJECTILE MOTION

## **Type I Projectiles**

Projectile – the object moving (ex. ball, bullet)

Trajectory – the path of the projectile

Range – the horizontal displacement of the projectile

\* Because the horizontal and vertical motions of a projectile are perpendicular to each other, they are independent.

Horizontal Motion

Vertical Motion

Which component determines the time that a projectile is in the air?

ex.

An object rolls off a 4 m high cliff with a horizontal velocity of 5 m/s.

a.) How long will the object take to hit the ground?

b.) What is the range?

ex.

A soccer ball is kicked horizontally from a roof and hits the street 40 meters away. The ball is in the air for 4.8 seconds.

a.) What is the height of the roof that it was kicked from?

b.) What is the initial horizontal velocity of the ball?

c.) What is the velocity of the ball after 2.5 seconds?