

AP Physics

Instructor: Mr. Butler

Rectilinear Kinematics

Determining Speed Change: Comparing Velocity and Acceleration Vector Directions

We can determine whether an object is speeding up or slowing down by comparing the directions of velocity and acceleration.

Thank About This >

- 1) If an object is speeding up (increasing speed) it must accelerate in the same direction that it is moving. This means that the directions of velocity and acceleration **MUST** be identical.
- 2) If an object is slowing down (decreasing speed) it must accelerate in the opposite direction that it is moving. This means that the directions of velocity and acceleration **MUST** be opposite.

The mnemonic chart below illustrates this principle of rectilinear motion.

