

Name: Key

Date: _____

Science 7

Motion

Aim: I can describe changes in speed and velocity.

Do Now:

Notes:

Velocity

- The speed and direction of a moving body.

Acceleration

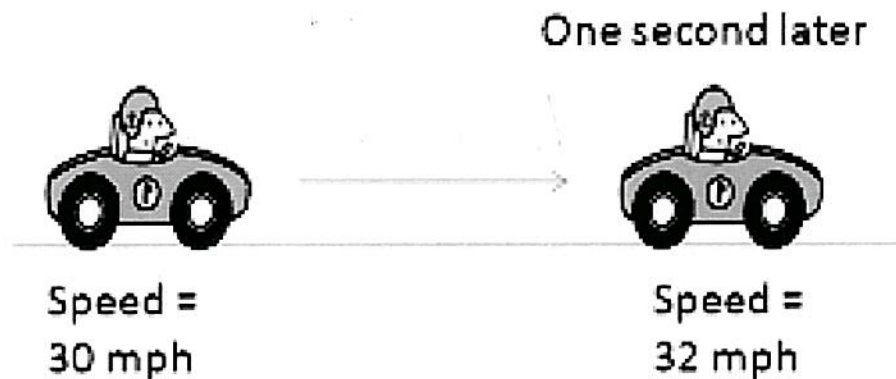
- The rate of change of velocity.
- Speeding up, slowing down or changing direction.

Describing Acceleration

Acceleration: Speeding up "positive acceleration"

Deceleration: Slowing down "negative acceleration"

$$a = \frac{(\text{speed}_{\text{end}}) - (\text{speed}_{\text{start}})}{\text{time}}$$



Practice Problems

1. A car's velocity changes from 0 m/s to 30 m/s 10 seconds later. Calculate the car's average acceleration.

Known Values:	Initial Velocity = 0 m/s Time = 10s Final Velocity = 30 m/s
Unknown Value:	Average acceleration
Formula and Work:	$A = \frac{v_2 - v_1}{t} = \frac{30 \text{ m/s} - 0 \text{ m/s}}{10 \text{ s}} = \frac{30 \text{ m/s}}{10 \text{ s}}$
Solution:	3.0 m/s ²

2. As a roller coaster starts down a hill, its speed is 10 m/s. Three seconds later, its speed is 32 m/s at the bottom of the hill. What is the roller coaster's acceleration?

Known Values:	Speed = 10 m/s Time = 3s Final Speed = 32 m/s
Unknown Value:	Acceleration
Formula and Work:	$A = \frac{S_f - S_i}{t} = \frac{32 \text{ m/s} - 10 \text{ m/s}}{3 \text{ s}} = \frac{22 \text{ m/s}}{3 \text{ s}}$
Solution:	7.3 m/s ²

