Change in Velocity

- There are many times when an object's velocity does not remain constant

  - change direction
  - speed up/accelerate
  -

- When the velocity of an object is changing, it is moving with **non-uniform** motion.

- Uniform motion feels like **no push/pull on you**

- Non-uniform motion feels like a **push** or **pull** as the velocity changes

-friction makes objects slow down

-gravity

-running from a stop.

* the more the velocity changes, the stronger the push/pull.

Changes in Velocity

- Change in velocity can be represented by the equation:

$$\vec{\Delta v} = \vec{V_f} - \vec{V_i}$$

- Positive changes in velocity occur when your final velocity is **larger** than your initial velocity

  Example:

  $\vec{V_i} = +3 m/s$

  $\vec{V_f} = +8 m/s$

  $\vec{\Delta v} = +8 m/s - (+3 m/s)$
  $\qquad = +5 m/s$

- Negative changes in velocity occur when your initial velocity is **larger** than your final velocity

  Example:

  $\vec{V_i} = +4 m/s$

  $\vec{V_f} = +2 m/s$

  $\vec{\Delta v} = (+2 m/s) - (+4 m/s)$
  $\qquad = -2 m/s$

- Constant velocity occurs when your initial and final velocities are **equal**.

  $\vec{\Delta v} = 0 m/s$

  because constant means no change.

on a position-time graph, constant velocity makes a straight line