

Newton's 2nd Law

The Law of Motion



If you're wearing a hat, you're going places. Vectors have direction.

$$\vec{F}_{\text{net}} = m\vec{a}$$

The net force acting on an object is equal to the product of its mass and its acceleration.

equation

draw it

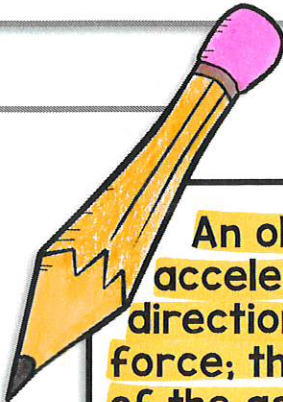
$$\uparrow F \sim \uparrow a$$

$$\uparrow m \sim \downarrow a$$

write it

If the force increases so does the acceleration.

If the mass increases the acceleration decreases.



An object will accelerate in the direction of the net force; the magnitude of the acceleration is proportional to the force and inversely proportional to the mass

use it

1. Find the force it would take to accelerate an 800-kg car at a rate of 5 m/s^2 .

Use: $F = m \cdot a$

2. What is the net force acting on a 0.15-kg hockey puck accelerating at a rate of 12 m/s^2 ?

Use: $F = m \cdot a$

