

# NEWTON'S LAWS OF MOTION

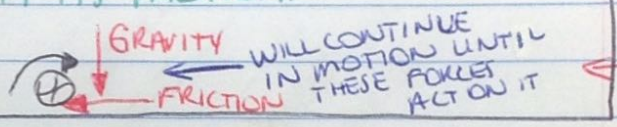
## Newton's First Law of motion

Also known as law of inertia

An object in motion stays in motion, or an object at rest stays at rest until an unbalanced net force acts upon it.

Inertia - tendency of an object to resist any change in its motion.

Will stay at rest until force acts on it



## NEWTON'S SECOND LAW OF MOTION

A net force acting on an object causes the object to accelerate in the direction of the force.

$$\text{Force} = \text{mass} \times \text{acceleration}$$

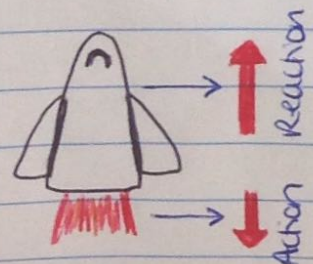
$$F = m \times a$$

$$\text{or } a = F/m$$
$$\text{or } m = F/a$$

Acceleration is determined by size of force and the mass of an object.

## Newton's Third Law of motion

For every action (or force), there is an equal and opposite reaction (or force).



Momentum - property of moving object resulting from its mass and velocity.

$$\text{Momentum}(p) = \text{mass} \times \text{velocity}$$