



FORCE



WHAT IS FORCE VIDEO?

What is a FORCE?

- ▶ A PUSH or a PULL
- ▶ One newton = $1\text{kg} \cdot \text{m/s}^2$

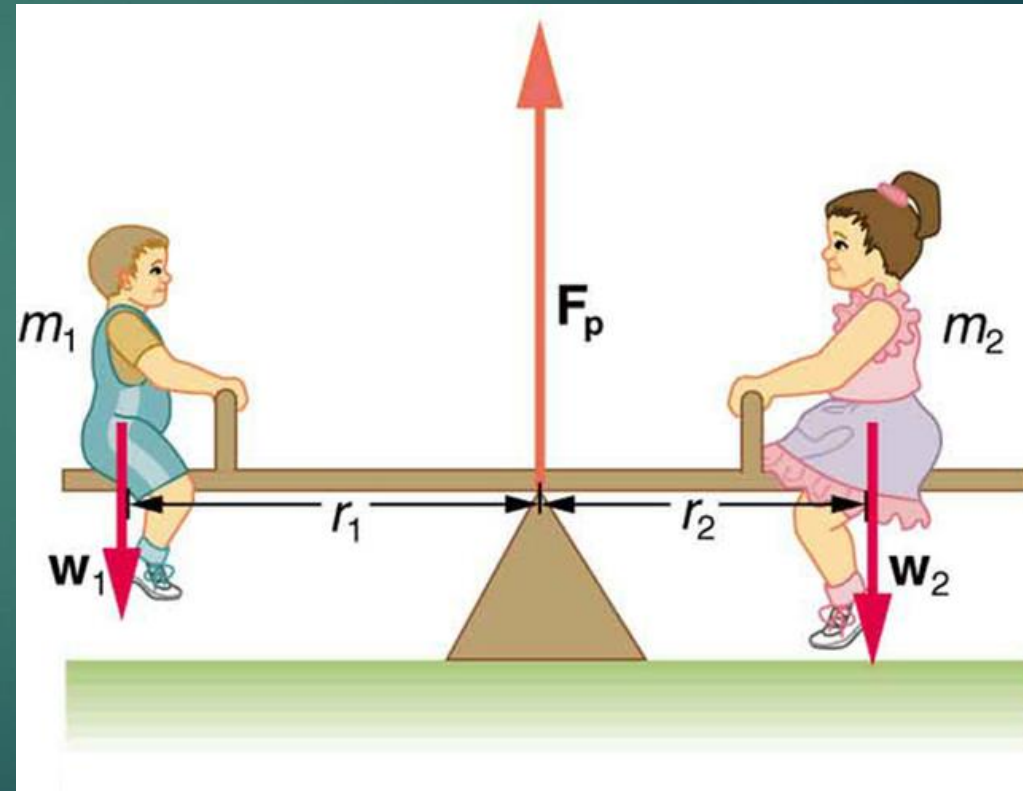
How can forces act?

- ▶ **Can act in direct contact or at a distance.**
- ▶ **Can transfer energy**



How do multiple force impact?

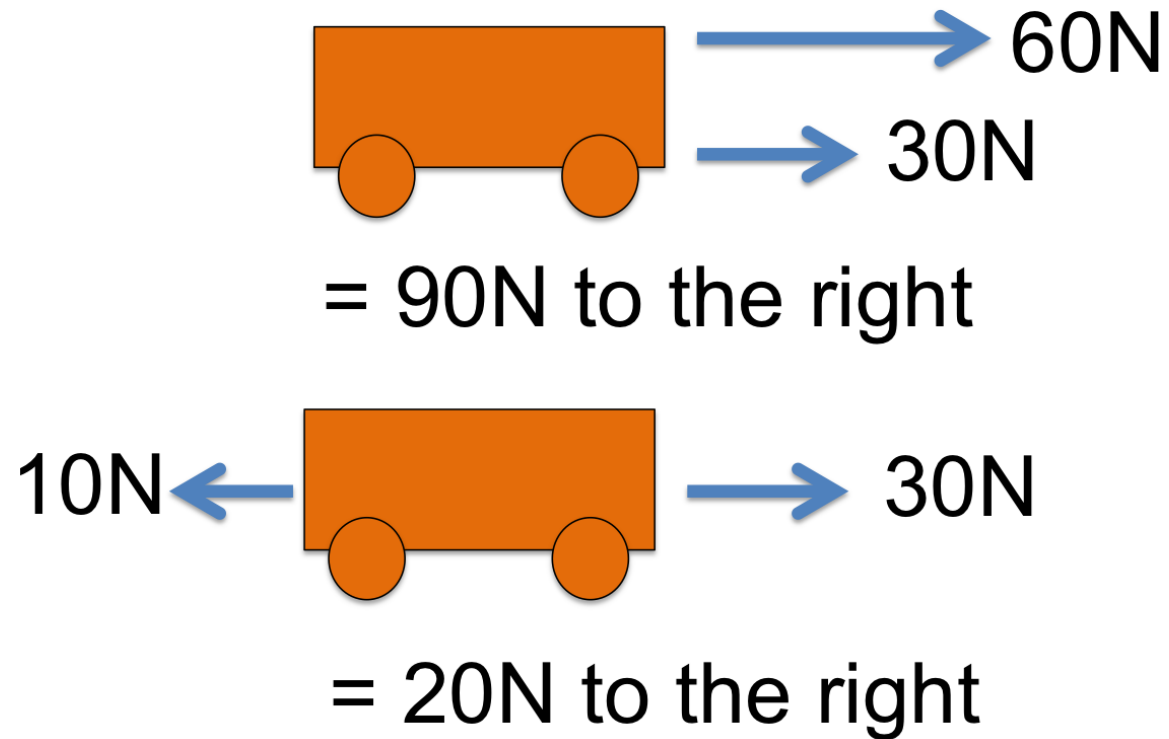
Balance
Forces do
NOT cause
a change
in motion



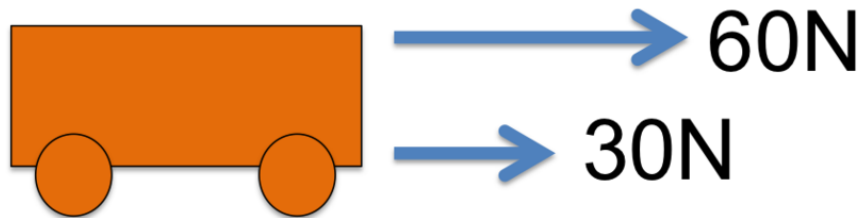
What is acceleration?

- ▶ the rate of change of velocity per unit of time.

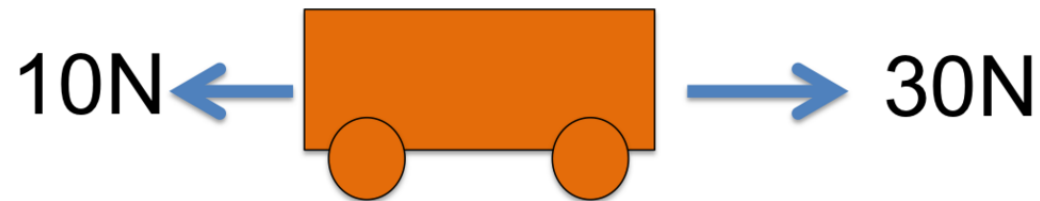
Unbalanced forces combine to produce acceleration.



What is net force?

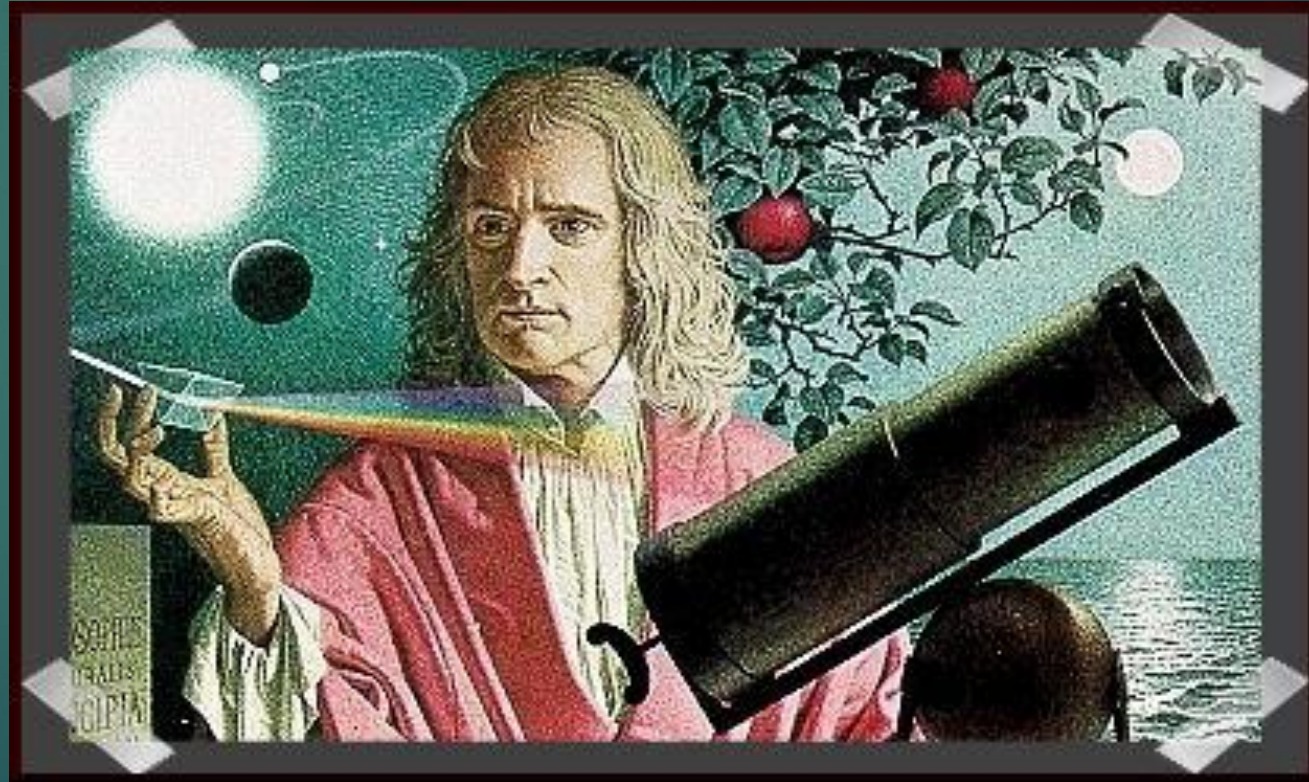


= 90N to the right



= 20N to the right

How do forces act on objects?




Newton's First Law of Motion aka law of inertia

- ▶ *An object at rest remains at rest, and an object in motion maintains its velocity unless it experiences an unbalanced force*

Newton's Second Law of Motion

- ▶ *An object in motion maintains its velocity unless it experiences an unbalanced force*
- ▶ *The acceleration of an object depends on the mass of the object and the amount of force applied*



Force = mass X acceleration
or
F=ma



HAMMER AND FEATHER **EXPERIMENT VIDEO**

Newton's Third Law of Motion

- ▶ *Whenever one object exerts a force on a second object, the second object exerts an equal and opposite force on the first.*

