Newton's First Law

What is Force?

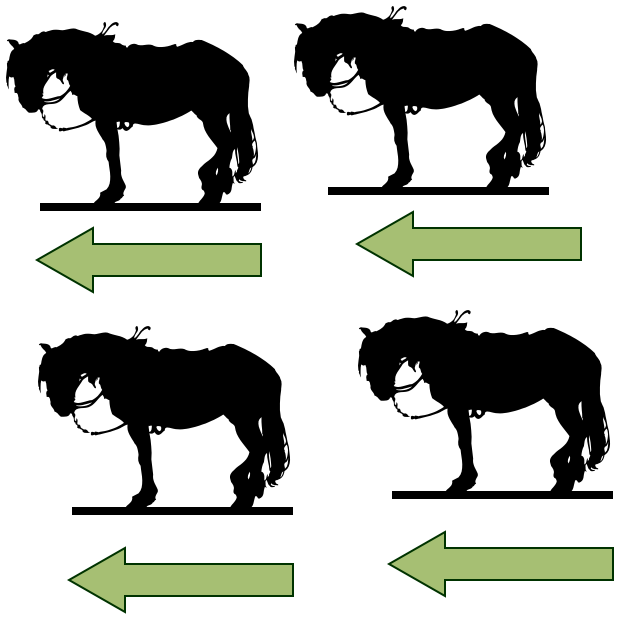
- Force is a push or a pull.

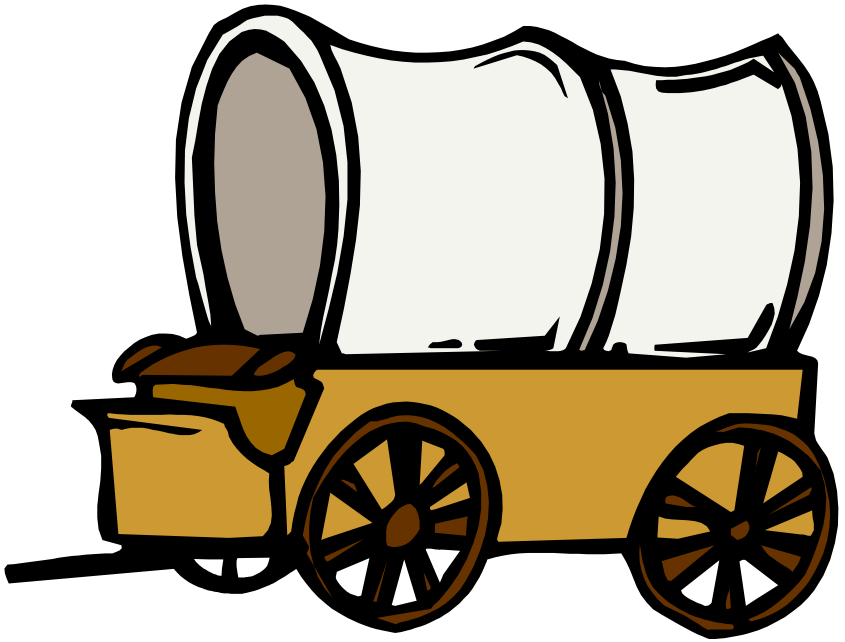
- Examples include:
  - Wind pushing a flag
  - A magnet pulling iron towards it

What is Net Force?

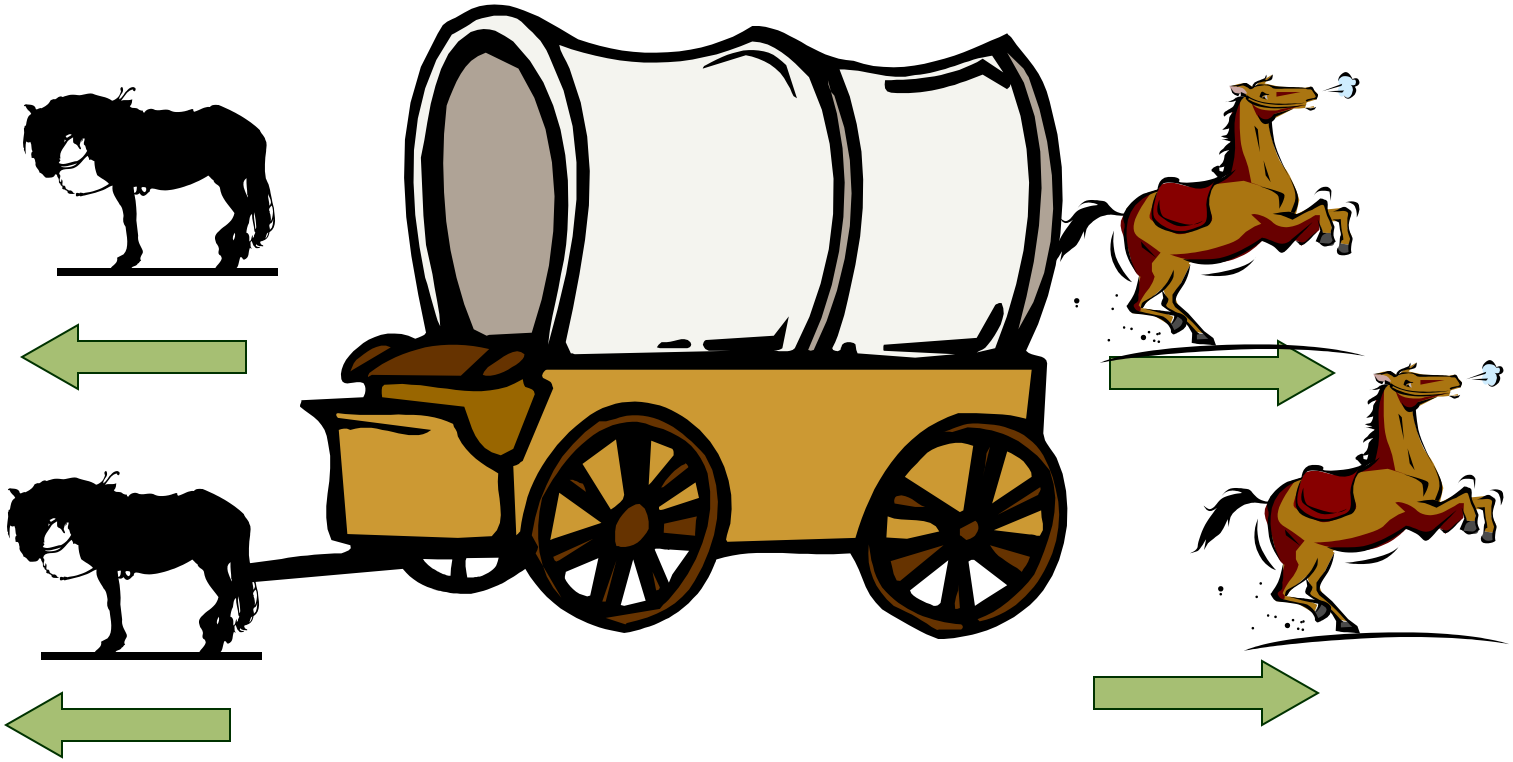
- The combination of all the forces acting on an object is the **net force.**
- If the forces are in the same direction, they **add** together to form the net force.
- If the forces are in opposite directions, the net force is the **difference** between the two forces.

What is the Net Force?





What is the Net Force?



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What happens when the net force is zero?

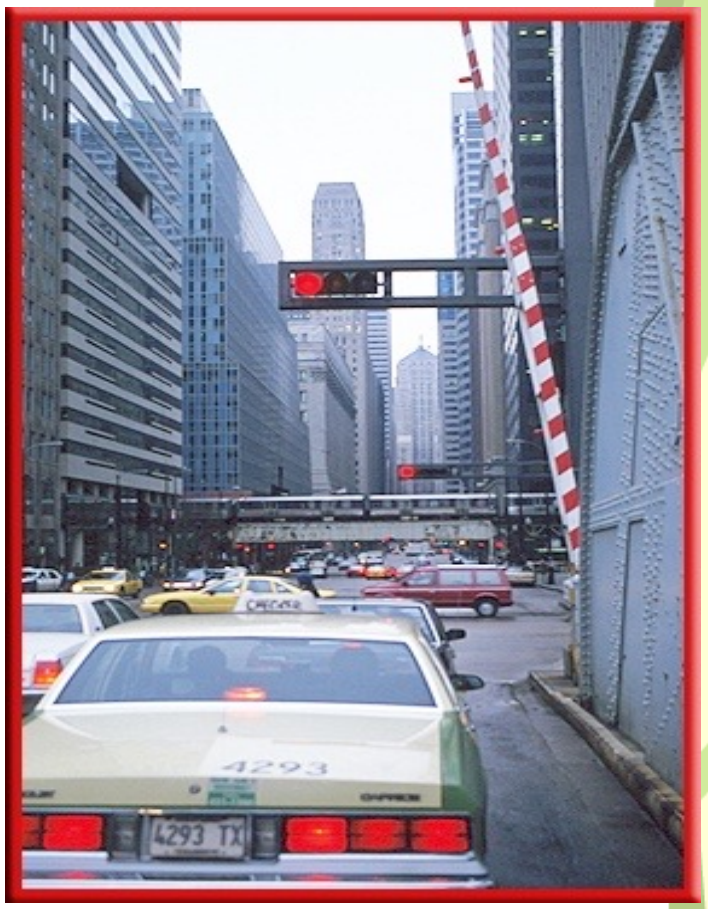
- **When the net force is zero, the object DOESN'T MOVE.**
- **This occurs when two or more forces are balanced forces.**

What happens when the net force is NOT zero?

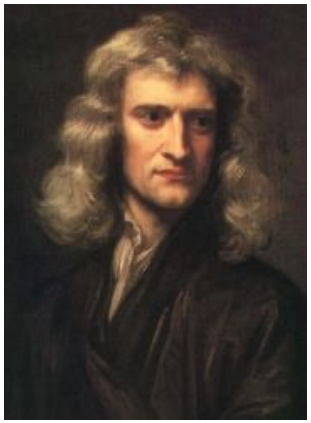
- **When the net force is NOT zero, the object DOES MOVE.**
- **This occurs when two or more forces are unbalanced forces.**

What else should I know before I learn the first law?

- Friction is the force that acts to resist sliding between two touching surfaces.
- Inertia is the tendency of an object to resist a change in its motion.
  - The more mass an object has, the more inertia it has.



Newton's First Law States…



- **An object at rest will remain at rest OR an object in motion will remain in motion unless acted upon by an unbalanced force.**

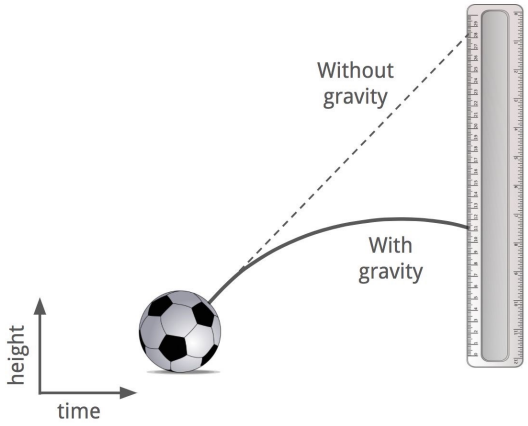
Law of Inertia

- If Newton's First Law of Motion is called the Law of Inertia, we must first define Inertia….
  - **Inertia** is the **tendency** of **object** to **keep** doing what they are doing. If an object is **resting**, it will tend to keep **resting**. If an object is moving, it will tend to keep moving. This property is called inertia.

What makes things slow down on their own?

Friction - is the resistance to motion of one object moving relative to another

Gravity is the force by which a planet or other body draws objects toward its center.

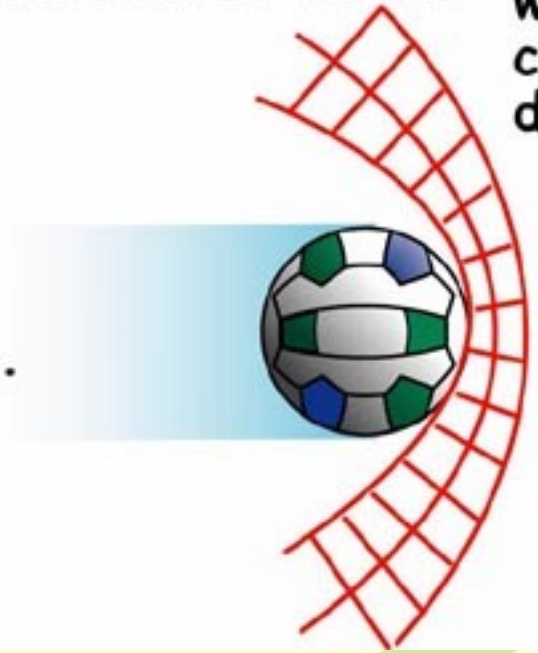


Newton's First Law of Motion

An object at rest will remain at rest...

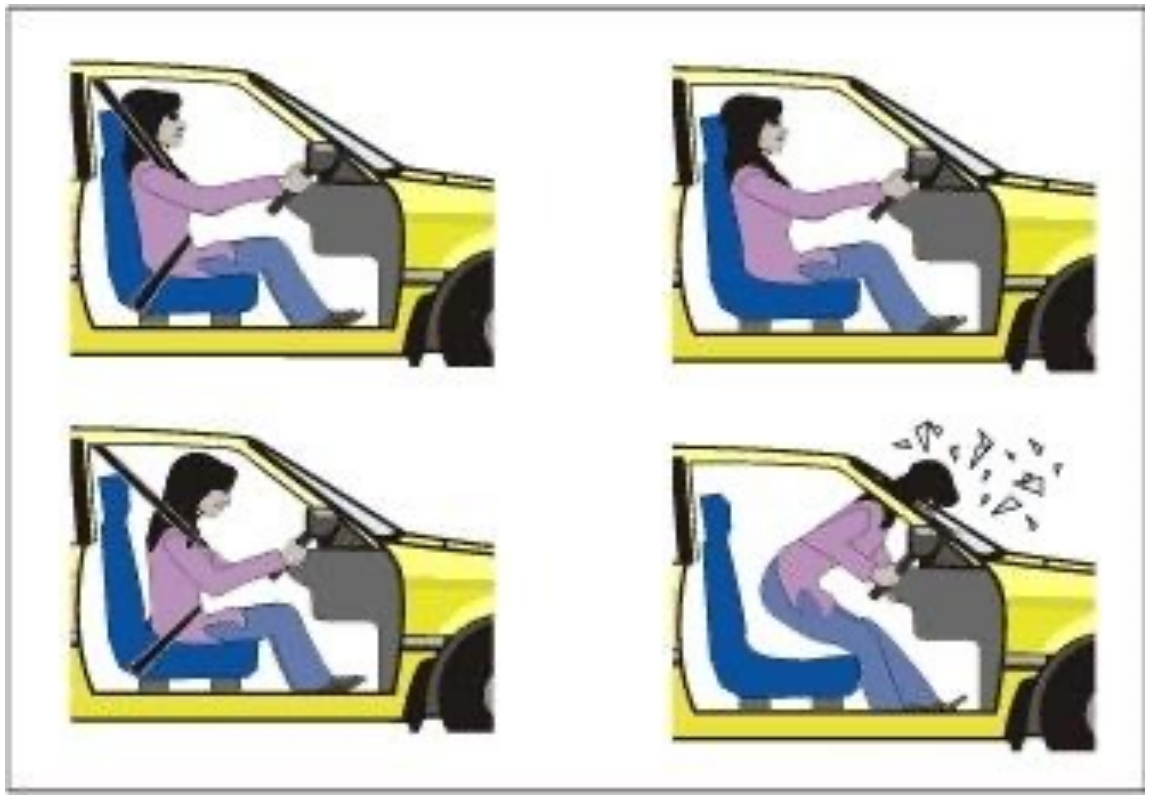
Unless acted on by an unbalanced force.

An object in motion will continue with constant speed and direction,...



...Unless acted on by an unbalanced force.

Newton's Law of Inertia



https://www.youtube.com/watch?v=wV2UTkkQ0Fg