

## What is a Force?

**A Force** is a **PUSH** or **PULL** that acts on an object.

--A force can act to cause an object at rest to MOVE.

-- A force can ACCELERATE an object that is already moving.

Describing Forces:

1. Magnitude (strength)
2. Direction

A Force can be shown with a **Vector**:

- An arrow points in the direction of the force
- The length of the arrow tells the strength of the force

SI Unit: **Newton (N)**

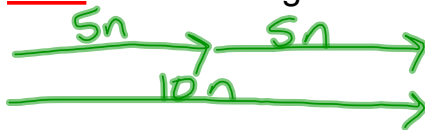
What is a Force?

## Combining Forces

**Net Force** is the combination of all forces acting on an object

**SAME** Direction

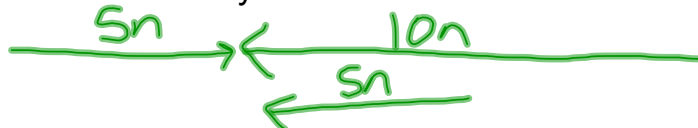
**Add** the forces together



**OPPOSITE** Direction

**Subtract** the forces

The net force always acts in the direction of the greater force.

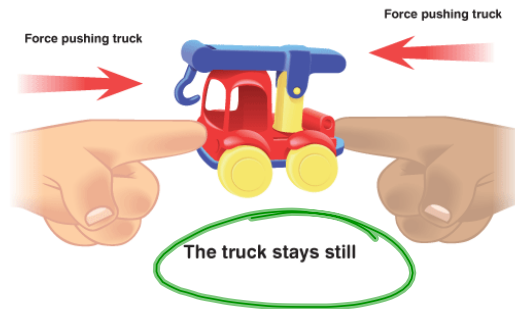


If the forces are equal, they cancel, Net force is **zero**.



Combining Forces

## Balanced Forces



Net Force = *Zero*

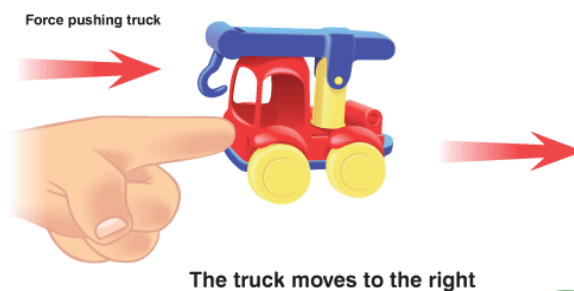
### Balanced forces do not change motion

If two balanced forces are acting on an object, that object will not change its motion.

- If it is still, it will stay still.
- If it is moving, it will continue moving, in the same direction and at the same speed.

Balanced Forces

## Unbalanced Forces



Net Force = *Greater than Zero*

- Unbalanced forces do change the way something is moving.
- Unbalanced forces can make objects start to move, speed up, slow down, or change direction.

Unbalanced Forces