

# Unit 5 Lesson 4 & 5

Forces  
Gravity





## Forces Intro

What causes a ball to roll on a ramp?

Gravity

Which rolls faster, a golf ball or a ping pong ball?

The golf ball, why?

It has more mass



## Forces page 356

**SC.6.P.13.1** Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.

**SC.6.P.13.2** Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.

**SC.6.P.13.3** Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.



# Copy the vocab terms in your ISN

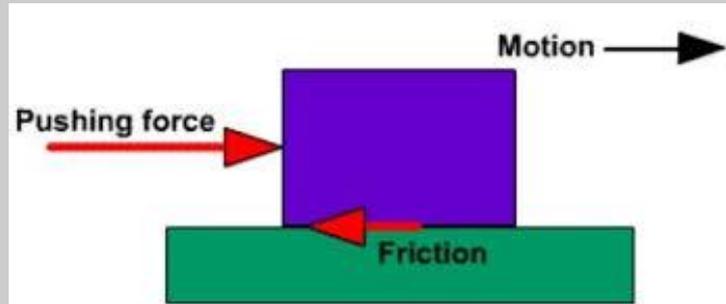
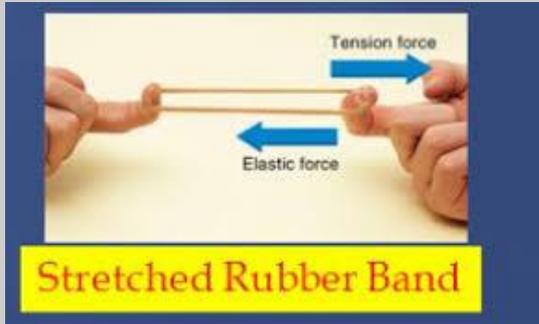
## Forces Vocabulary

- force** -
- a push or a pull
  - has strength and direction
  - Measured in Newtons (N)

# Copy the vocab terms in your ISN

## Forces Vocabulary

- Contact force** -
- Interactions between objects that touch
  - Examples: springs, elastic, air pressure, friction, buoyancy



[air pressure](#)  
[example video](#)

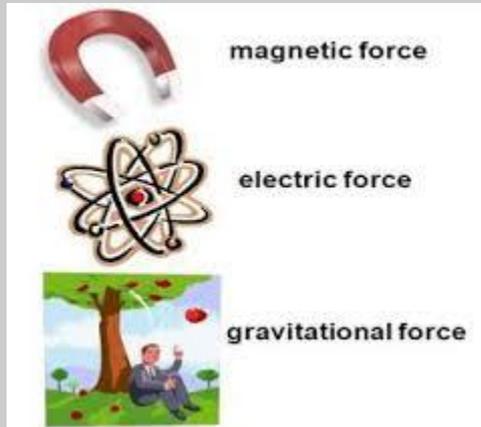


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## Forces Vocabulary

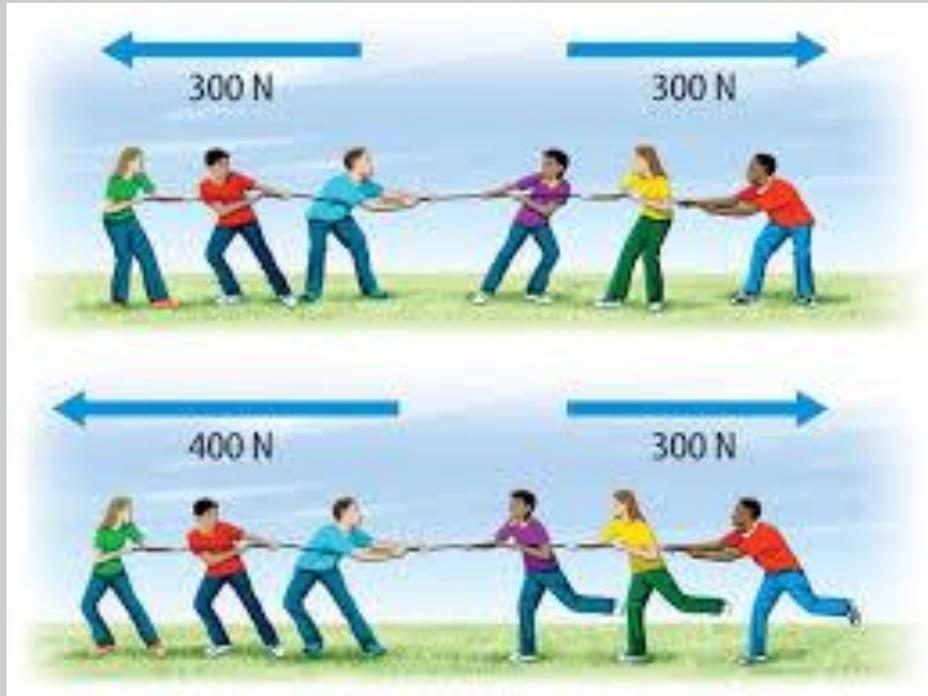
### NONContact force -

- Attract (pull) or repel (push) from a distance
- Examples:
- magnetic, electric, gravitational



## net force

- the combination of all the forces acting on an object
- depends on the directions of the forces



**300 Newtons left and  
300 Newtons right,  
net force is 0**

**400 Newtons left and  
300 Newtons right,  
net force is 100 N left**



## balanced force

- Equal and opposite forces acting on an object
- Net force = 0
- The object stays still or continues to move at the same speed in the same direction

## unbalanced force

Causes a change  
in motion



# inertia

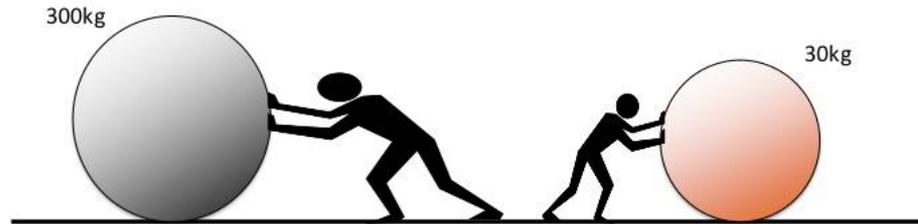
- the tendency of objects to resist a change in motion
- At rest or constant motion

## Newton's First Law of Motion: **Inertia**

An **object** will not change its motion unless acted on by an unbalanced force.

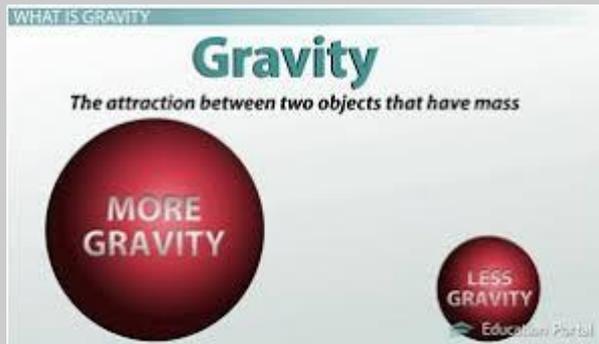
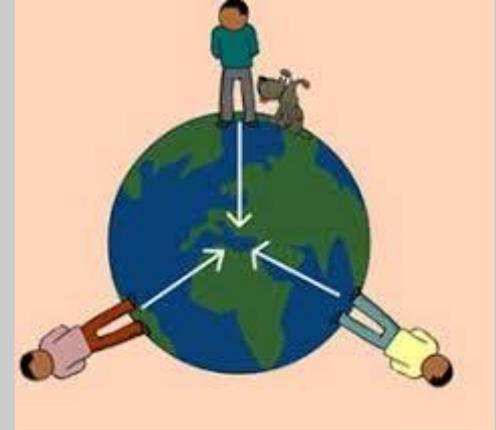
- *if it is at rest, it will stay at rest*
- *if it is in motion, it will remain at the same velocity*

Objects with a **greater mass** have **more inertia**.  
It takes **more force** to change their motion.

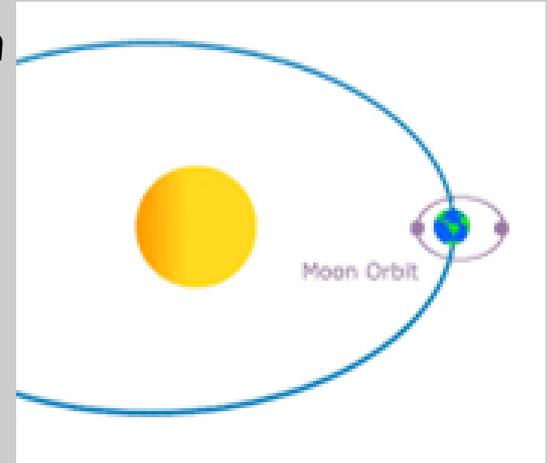


# Gravity -

- force of attraction between objects due to their mass
- noncontact force
- More mass, stronger force
- Closer together (less distance), stronger force



Why does the Moon orbit Earth and not the Sun, when the Sun is soooooo much bigger?  
The Earth is **MUCH** closer





# Study Jams Video

[force and motion study jams](#)