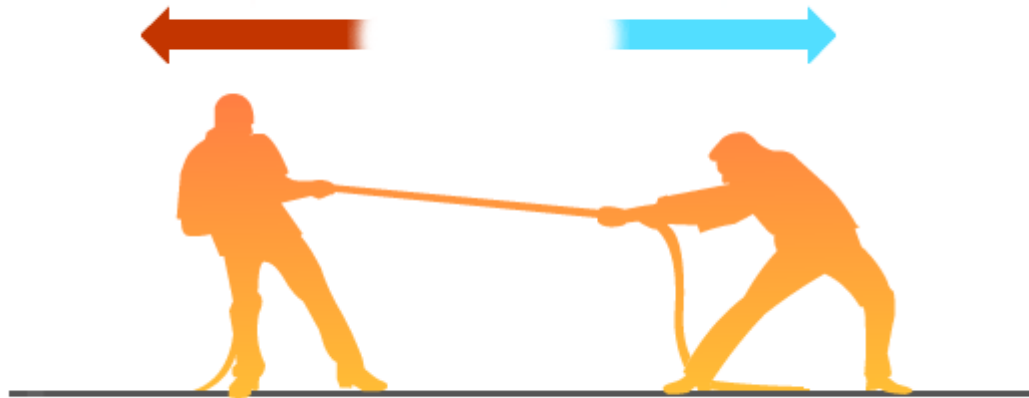


# Motion and Forces Unit

## Vocabulary Words

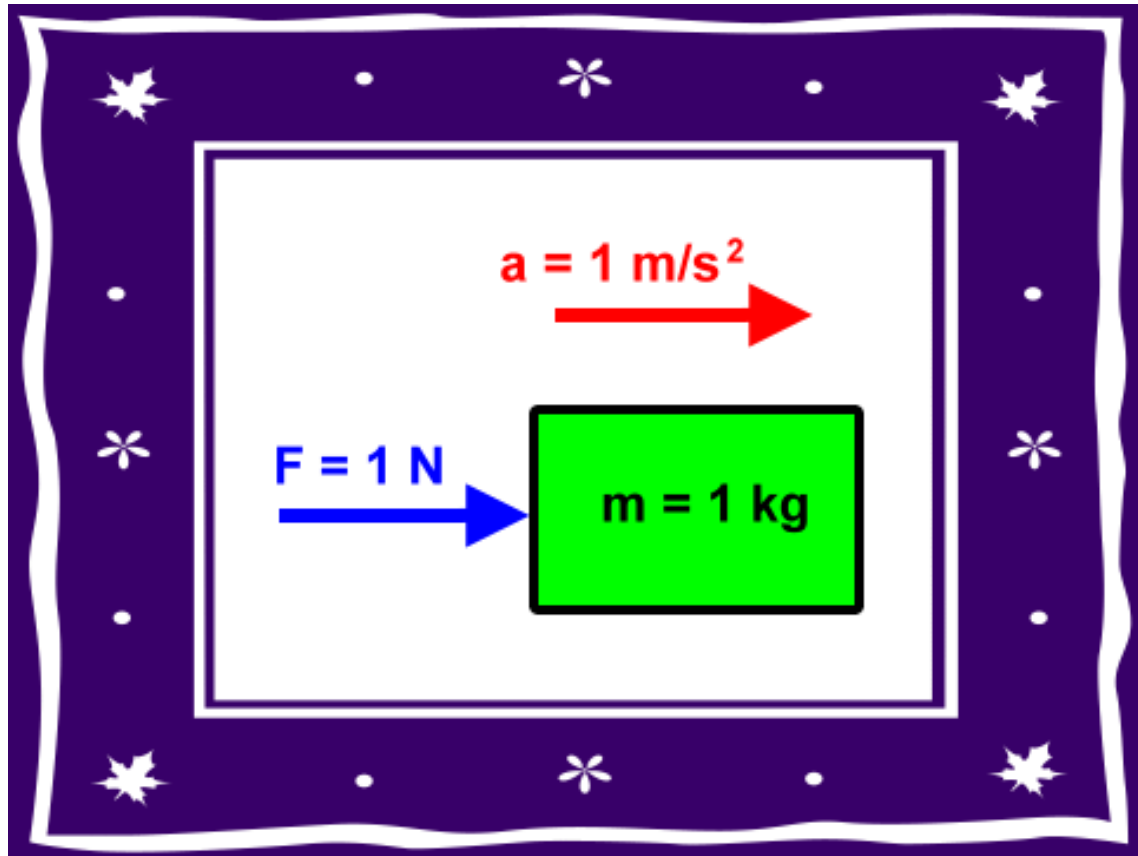
# 1. Force

- A push or pull exerted on an object.



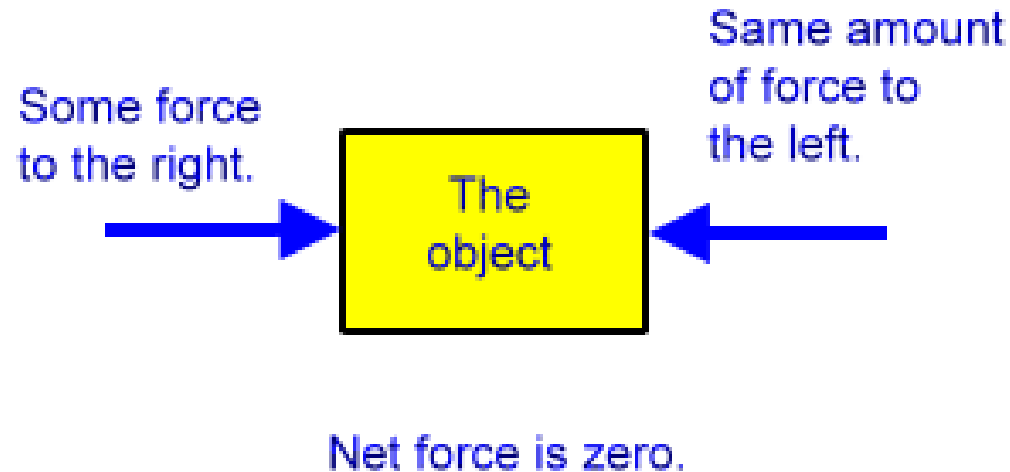
## 2. Newton

- A unit of measure that equals the force required to accelerate 1 kilogram of mass at 1 meter per second.



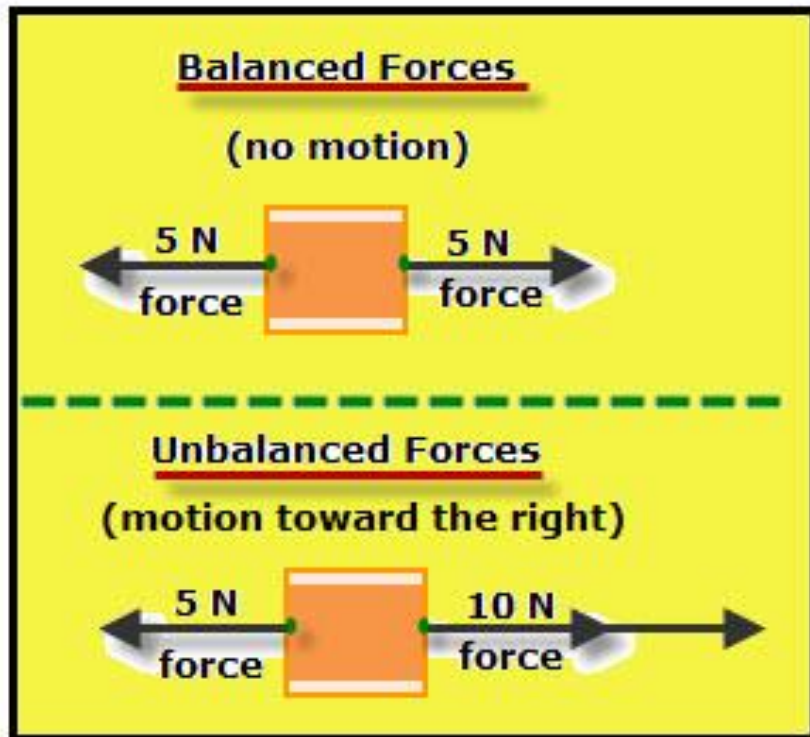
# 3. Net force

- The overall force on an object when all the individual forces acting on it are added together.



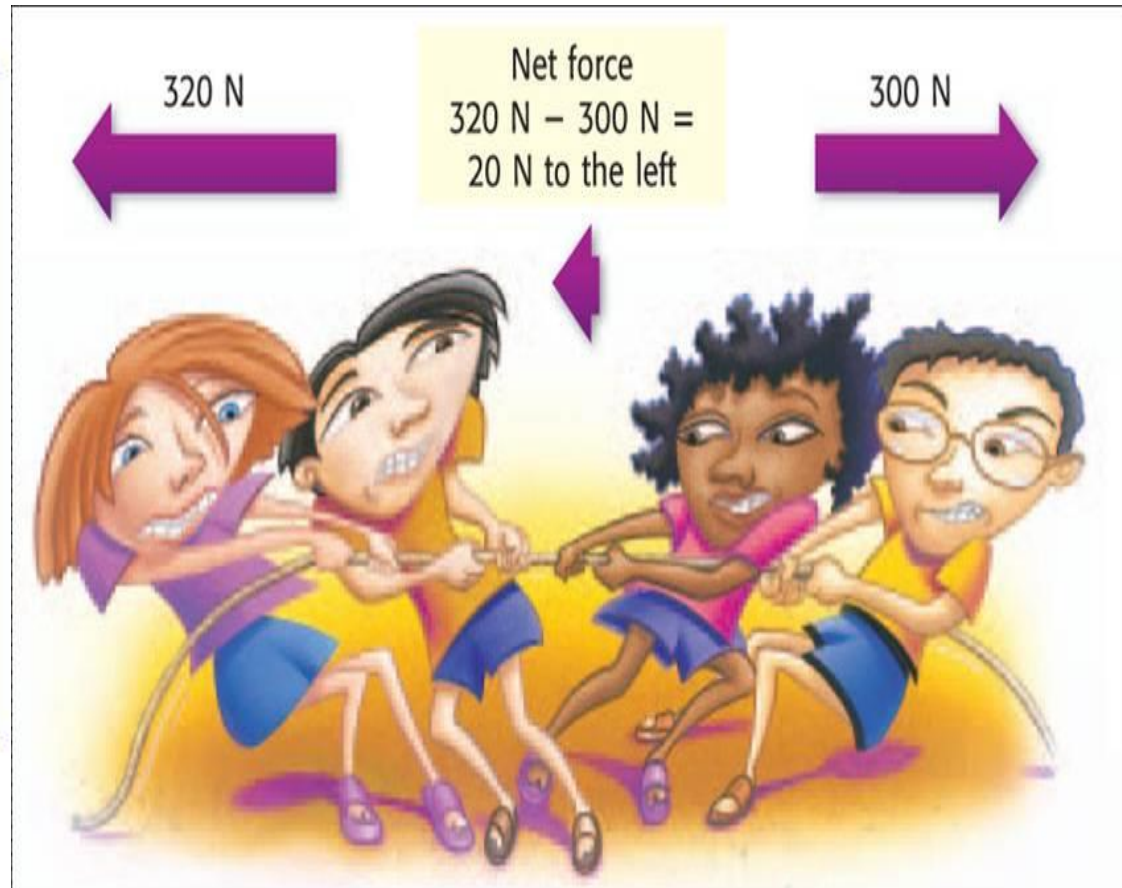
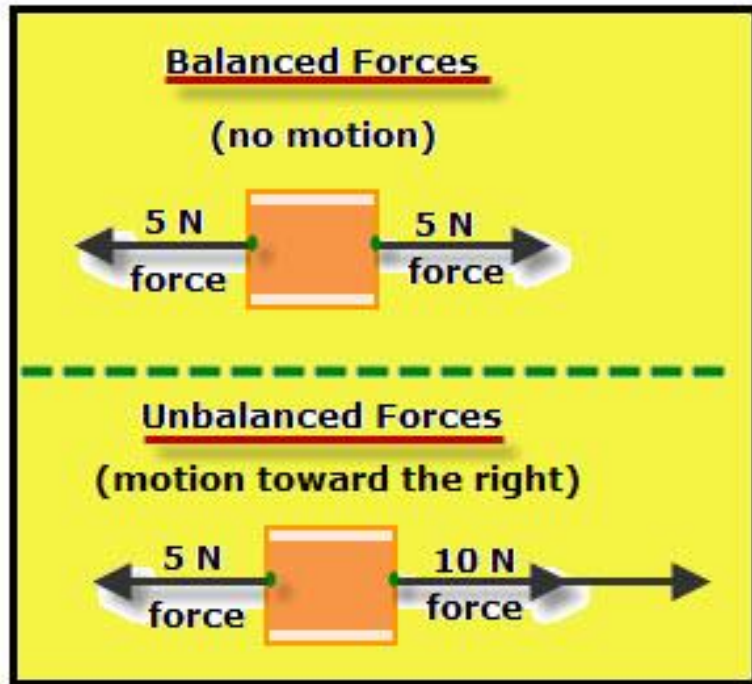
# 4. Balanced force

- When the net force on an object is 0 N.



# 5. Unbalanced force

- When the net force on an object is not 0 N.



# 6. Motion

- An object's change in position relative to a reference point.



# 7. Newton's First Law of Motion

- An object at rest remains at rest, and an object in motion remains in motion at a constant velocity unless acted on by a nonzero net force.

WITH NO OUTSIDE FORCES  
THIS OBJECT WILL  
NEVER MOVE



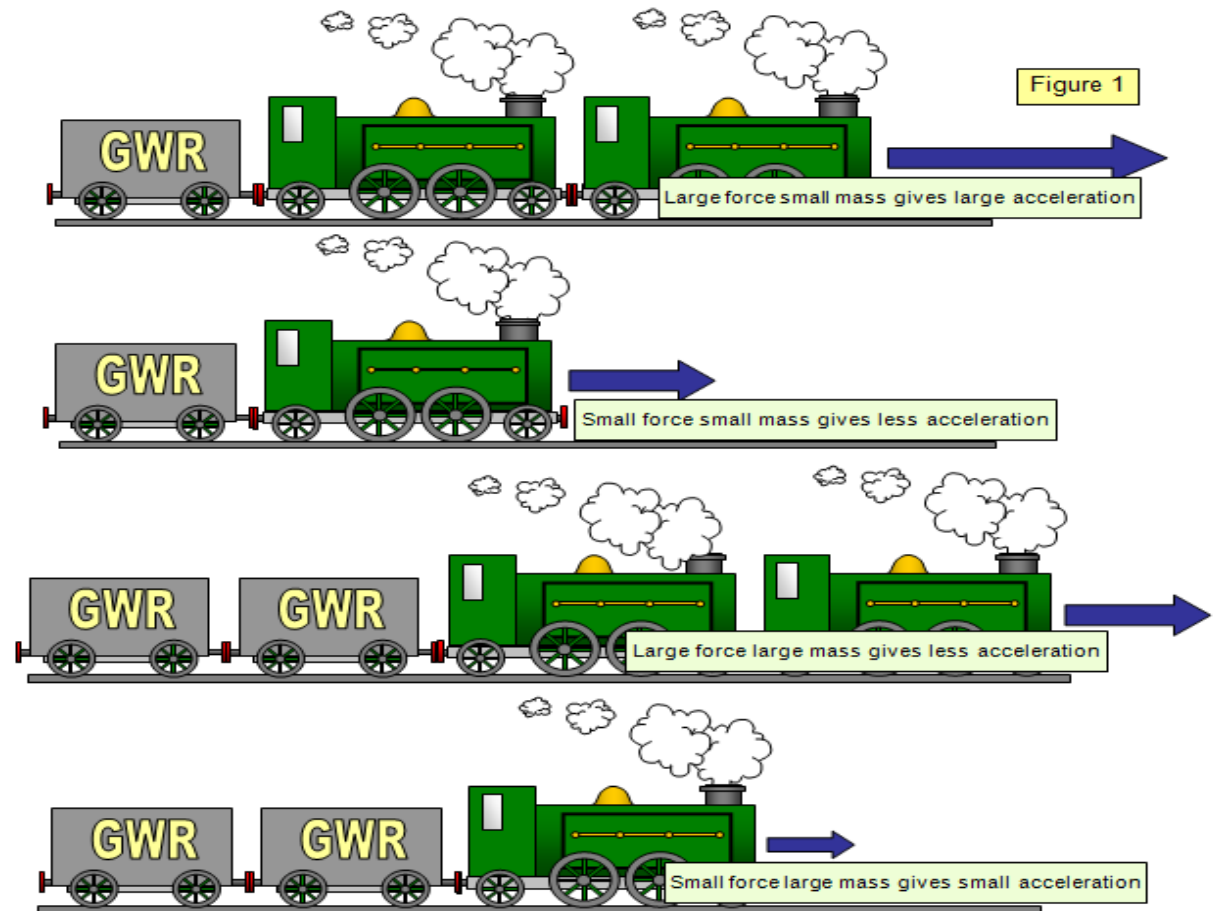
WITH NO OUTSIDE FORCES  
THIS OBJECT WILL  
NEVER STOP





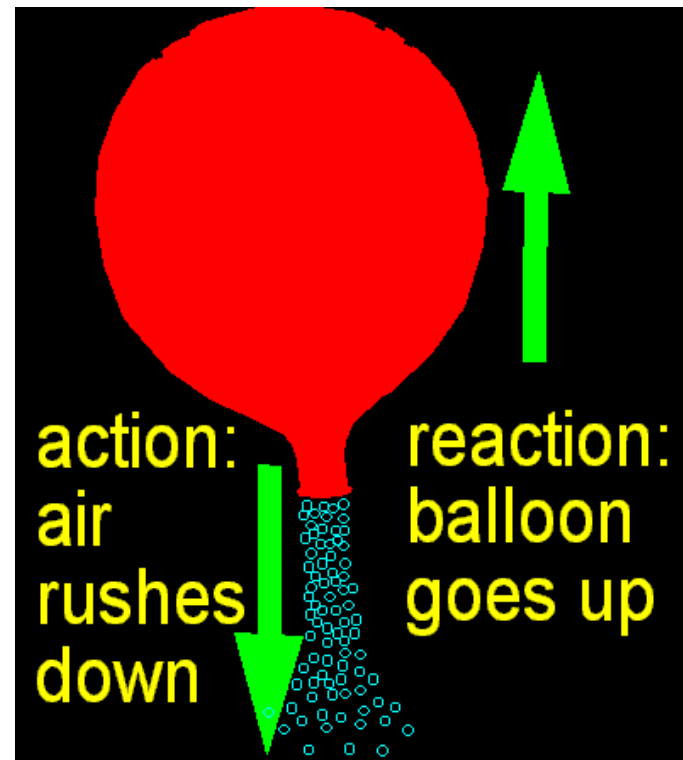
# 8. Newton's Second Law of Motion

- An object's acceleration depends on its mass and on the net force acting on it ( $F=ma$ ).



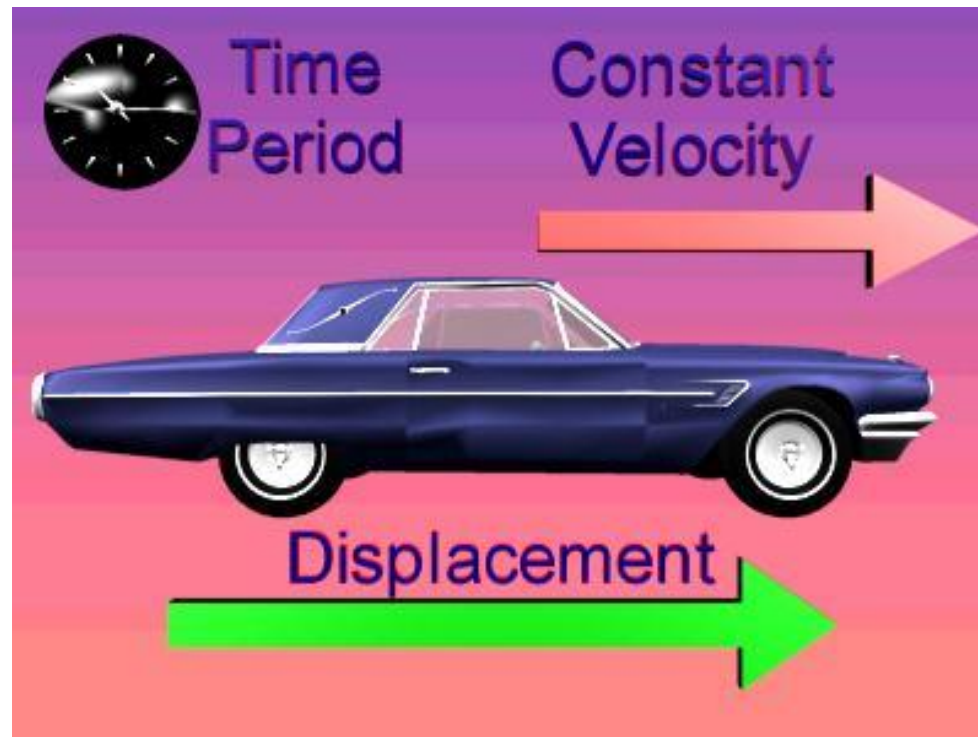
# 9. Newton's Third Law of Motion

- If one object exerts a force on another object, then the second object exerts a force of equal strength and opposite direction on the first object.



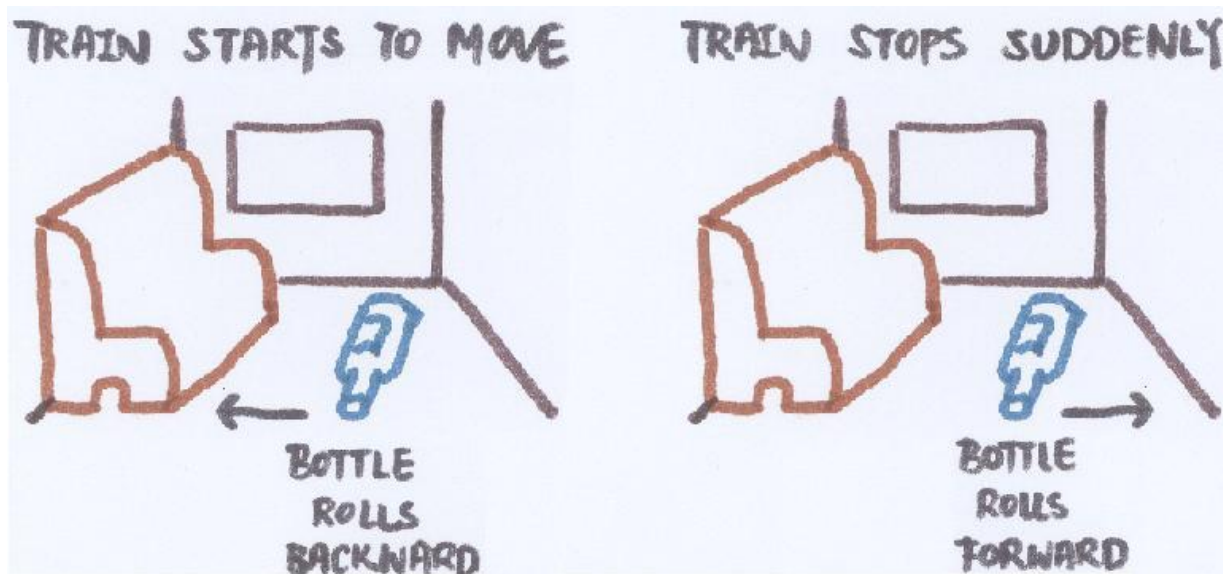
# 10. Constant velocity

- A speed that does not change how fast it is, or the direction that it is in.



# 11. Inertia

- The tendency of an object to resist a change in motion.



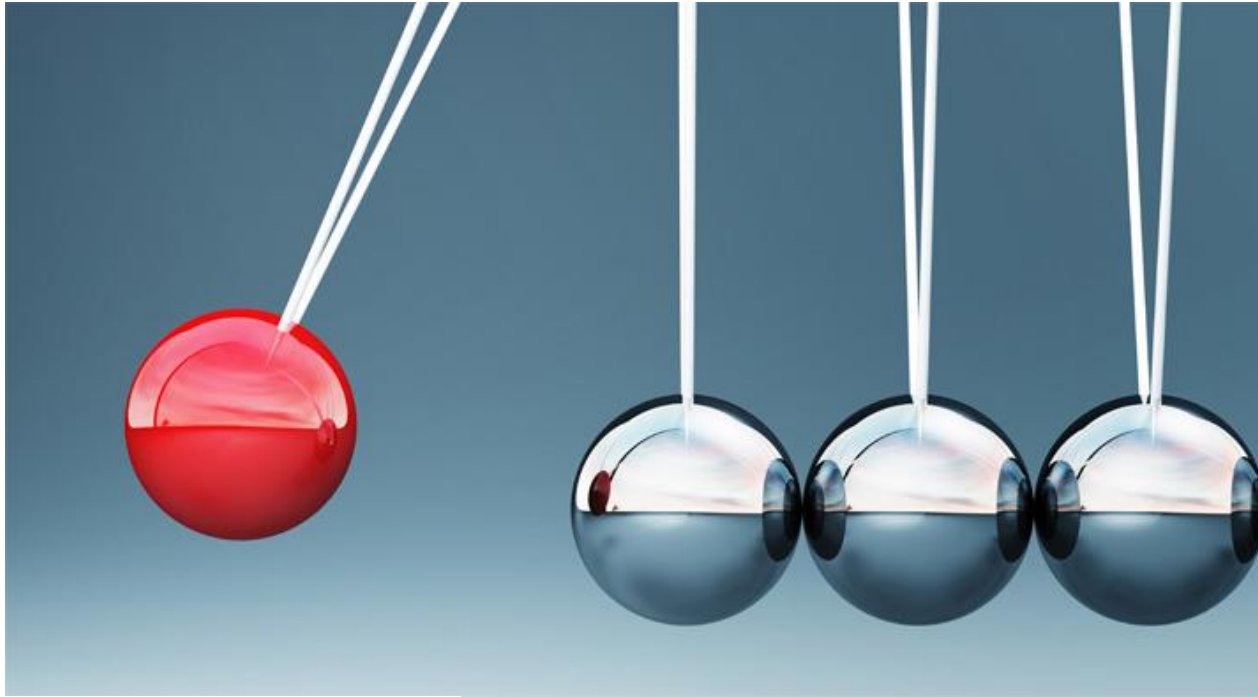
# 12. Acceleration

- The rate at which velocity changes over time; an object accelerates if its speed, direction, or both change ( $a=F/m$ )



# 13. Momentum

- The product of an object's mass and velocity.



LINEAR MOMENTUM

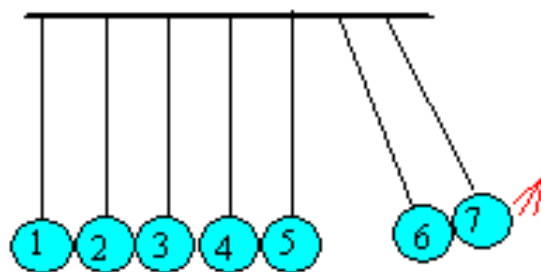
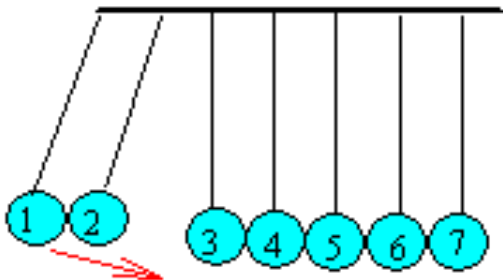
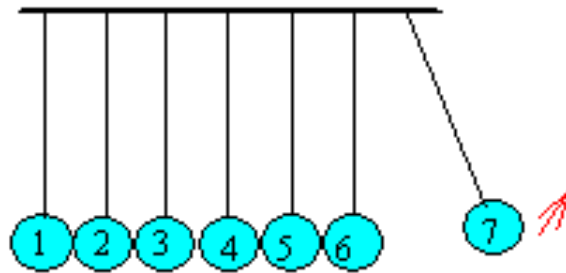
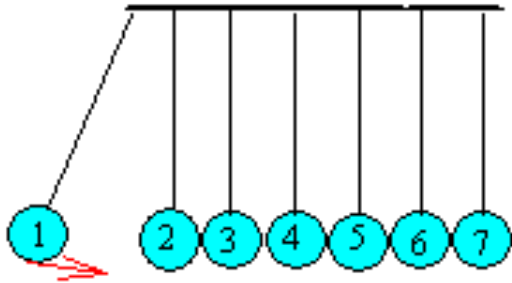
$$P = MV$$

MOMENTUM EQUALS THE  
MASS MULTIPLIED BY  
THE VELOCITY  
OF THE OBJECT

# 14. Law of conservation of momentum

- The rule that in the absence of outside forces the total momentum of objects that interact does not change.

If the momentum lost by one object is gained by another object, then the total amount is constant.



# 15. Buoyant force

- The upward force exerted by a fluid on a submerged object.

