Warm Up

1. How far from the base of a 500. m tall bridge did a ball land if it was kicked horizontally at a speed of 7.25 m/s?
2. What is the final velocity of a ball that was thrown downward at a speed of 25 m/s and covered a distance of 150 m?
3. What is the velocity of a penny that was dropped off a building that is 250.0 m tall?

Targets

- I can explain what force is.
- I can explain how forces interact with each other.

Force and Motion

Force

- A force is a push or pull exerted on an object.
- Forces can cause objects to speed up, slow down, or change directions.
- Because of this, force is a vector.

- Force can cause an object with mass to accelerate.
- Because of this, force is measured in kg x m/s^2. This is converted into one (SI) unit called the Newton (N).

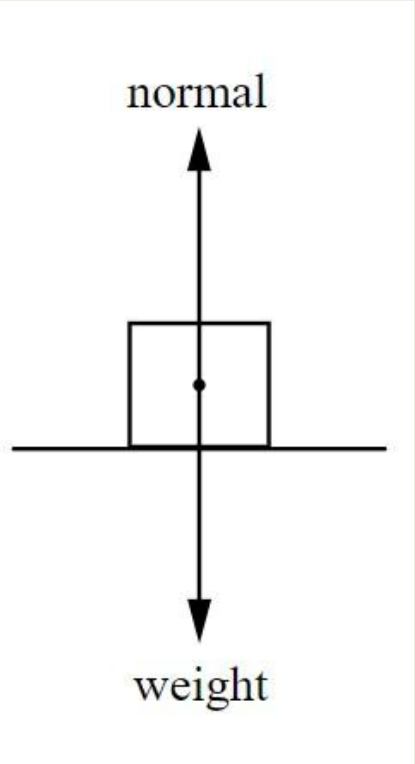
- Forces can combine to form an overall force called the net force.
- With force being a vector, a magnitude and direction are associated with force.

- Balanced forces are two or more forces that have a net force of zero.
- Unbalanced forces are two or more forces that have a net force greater than zero and will cause the object to accelerate in a direction.

Forces of Motion

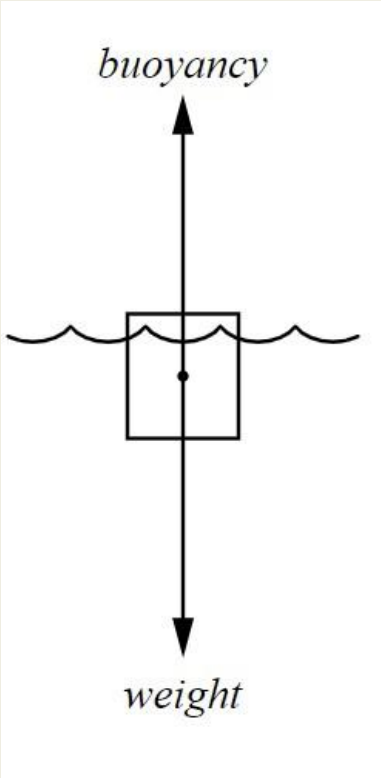
- Any time two objects are in contact with each other, they exert a force on each other.
- The normal force is the perpendicular contact force exerted by a surface on another object.
- The normal force, in a balanced system, will be equal to the weight of the object.

A book on a desk



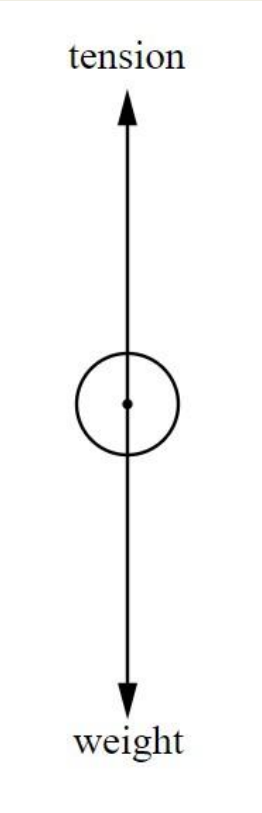
https://physics.info/newton-first/

Person floating in water



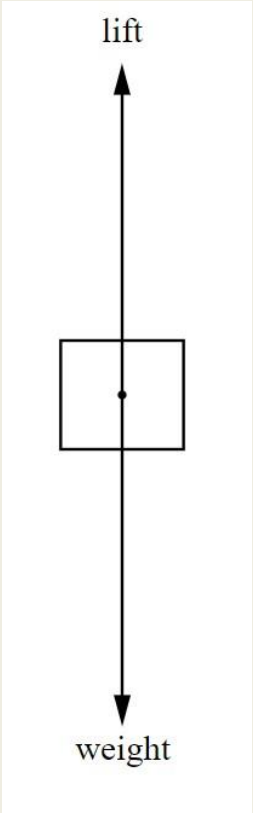
https://physics.info/newton-first/

Wrecking ball hanging



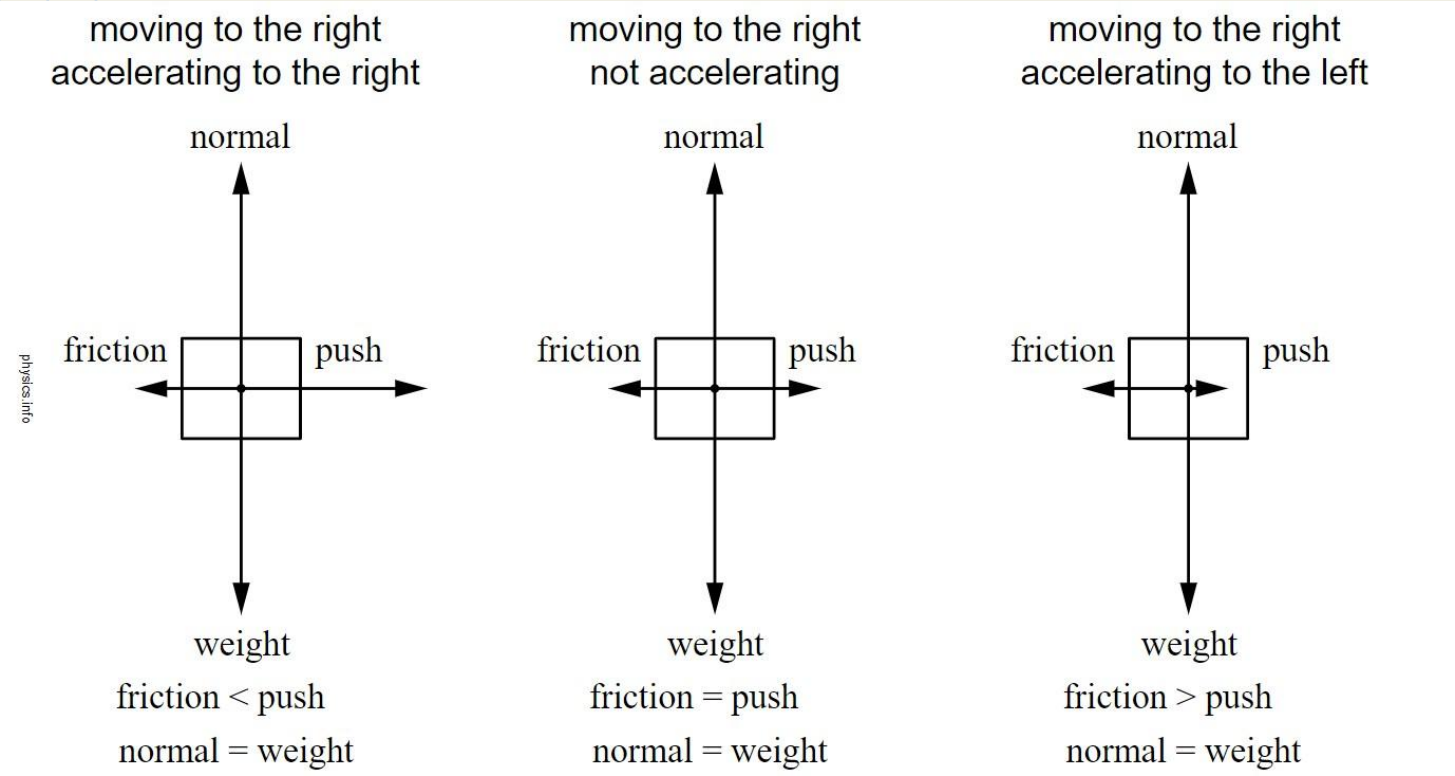
https://physics.info/newton-first/

Helicopter hovering



https://physics.info/newton-first/

A person pushing a wagon



https://physics.info/newton-first/

Summary

- Force is a push or pull on an object.
- Combining forces will produce a net force
- Force is a vector.
- Force exists as balanced and unbalanced.

Assignment

- Using a force gauge, determine the force needed to move ten objects around the classroom.
- Create a data table of your information.