

## Chapter 10 - Forces

### What is a force?

A force is \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Forces are described by the \_\_\_\_\_ and \_\_\_\_\_ in which they act.

The strength of a force is measured in a unit called a \_\_\_\_\_ (\_\_\_\_\_).

A \_\_\_\_\_ and a \_\_\_\_\_ act in opposite directions.

### Notating Forces

Forces are often represented visually by an \_\_\_\_\_. The \_\_\_\_\_.

5 N push



2 N pull



1 N pull



### Combining Forces

\_\_\_\_\_ forces are often acting on an object \_\_\_\_\_.  
The combination of all simultaneous forces is called the \_\_\_\_\_.

When forces are acting in the \_\_\_\_\_ direction, net force is found by \_\_\_\_\_ the strength of the individual forces.

6 N      &      12 N      =      18 N

When forces are acting in the \_\_\_\_\_ direction, they combine by \_\_\_\_\_, and the net force acts in the direction of \_\_\_\_\_.

6 N      &      12 N      =      6 N

If two \_\_\_\_\_, \_\_\_\_\_ forces combine, there is \_\_\_\_\_ net force.

### Calculation practice

Eddie and Caroline are both pushing on a filing cabinet. Eddie is pushing with 10 N of force to the right, while Caroline is pushing with 8 N of force to the left. What is the net force?

10 N      &      8 N      =      2 N

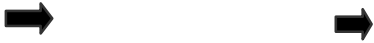
Caroline and Natalie both push in opposite directions with the 8 N of force.

$$8 \text{ N} \quad \& \quad 8 \text{ N} \quad = \quad 0 \text{ N}$$



### Independent Practice

$$12 \text{ N} \quad \& \quad 7 \text{ N} \quad =$$



$$9 \text{ N} \quad \& \quad 6 \text{ N} \quad =$$



$$12 \text{ N} \quad \& \quad 8 \text{ N} \quad =$$



$$7 \text{ N} \quad \& \quad 7 \text{ N} \quad =$$



### Are there different types of forces?

\_\_\_\_\_ – the force of attraction between two objects.

\_\_\_\_\_ – the force that resists the movement of an object.

\_\_\_\_\_ - an object that has the ability to stretch and return to its original shape creates kinetic energy when it returns.

\_\_\_\_\_ – an object in motion tends to remain in motion and an object at rest tends to remain at rest.

\_\_\_\_\_ – the attraction and repulsion of objects because of charged electrons

\_\_\_\_\_ – the force that makes an object follow a curved path.