Matter in Motion

All objects in the universe are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples:

Motion – a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over time

How do you tell if something is moving?

* Reference point –

Speed –

Measured in:

Average speed =

Velocity –

* Constant only if \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Constant velocity is always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Two ways velocity can change:

* Resultant velocity –
* In the same direction =
* Opposite directions =

Acceleration –

An object accelerates if \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_ change

Positive acceleration –

Negative acceleration –

Average acceleration =

Measured in:

Centripetal acceleration –

Force –

All forces have \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Expressed in units called:

Force is always exerted \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Net force –

* If in same direction =
* If in opposite directions =

Balanced forces – net force of \_\_\_\_\_\_\_\_\_\_\_\_\_

* Examples:

Unbalanced forces – net force of \_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Examples:

Friction -

Caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the surfaces touching each other

Depends on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ pressing them together

* + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the surface, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the friction
  + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the force, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the friction

Two types of friction

Kinetic friction –

Sliding –

Rolling –

Static friction –

As soon as the object starts \_\_\_\_\_\_\_\_\_\_\_\_\_, static friction changes to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Harmful friction:

Helpful friction:

Ways to reduce friction



Ways to increase friction



Gravity –

Discovered by –

The Law of Universal Gravitation –

1. Gravitational force \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as mass \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Gravitational force \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as distance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Weight –

* Measured in:

Mass –

* Measured in: