**Unit 10: Forces**

A force is an effect from push or pull actions.

**Types of forces**

* **Contact forces –** one object exerts force on the other, involving physical contact between the two objects.
* **Non-contact forces –** force that act between the space of two objects but doesn’t involve physical contact between them.

**Newton’s laws of motion**

**Newton’s First law**

If **no** **external force** is acting on an object (**at rest**):

* **The object remains at rest**

If **no external force** is acting on an object (**at motion**):

* **The object will remain moving at a constant speed in a straight line.**

**Newton’s Second law**

For an object with mass where external forces act upon it, we can measure the **net force** via the product of their mass and acceleration.

Formula:

**Newton’s Third law**

For every action there is an equal but opposite reaction.

**Effects of forces**

Force applied to stationary objects can make it:

* **Move**
* **Change shape**

Force applied to moving objects can make it:

* **Go faster**
* **Go slower**
* **Or change its direction.**

**Force-Extension Graph:**

To examine the effect of force on a spring we use line graphs to represent the data.

The **end of the straight line** **part** in the diagram is called the ***limit of proportionality****.*

The limit until which a string can bend until it’s damaged is called the ***elastic limit.***

**Activity 1**

**Question 1**

String 2 will not go back to its original shape.

**Question 2**

Inertia is the resistance to change of velocity.

**Question 3**

If no external force is acting upon an object at rest the object will remain stationary. If an object is moving and no external force is acting upon it then the object will remain moving in a straight line.

**Question 4**

For every action there is an equal but opposite reaction.

**Question 5**