# SUBJECT: Science

## **UNIT:** P5 Forces

and thinking distances.

Thinking distance is

drugs, alcohol.

affected by tiredness,





Gravity is affected by mass and weight. In the equation we can see that mass and weight are directly proportional. An objects centre of mass is the point where weight is acting.

touching; friction, air resistance, tension, Non-contact forces occur when objects are not

### Work Done and Energy Transferred

When a force acts on an object and makes it move, work is done. Energy transferred and

> When weight and air resistance are equal and balanced an object has reached terminal velocity and can no longer

**Required Practical: Hooke's Law Dependent variable-** extension (m) Control variables- type of spring Conclusion- Increasing the force on the spring increases the extension at a rate that is directly proportional until it's elastic limit. The gradient of the line is the spring

#### **Required Practical: Acceleration Dependent variable-** acceleration (m/s<sup>2</sup>) Control variables- same total mass, surface area **Conclusion-** increasing the force on an object increases acceleration at a rate that is directly proportional.

**Ambitious Vocabulary** Scalar Vector Resultant

Velocity Displacement

### **Resultant Force**

A single force that describes all forces acting on an object. If the resultant force is 0N then the object could be stationary or moving at a constant velocity. If the resultant force is any other number the object is accelerating/decelerating.





#### Newton's Laws

 $1^{st}$  law – if the resultant force on an object is 0N the object is either stationary or moving at a constant speed.  $2^{nd}$  law – F = m x a 3<sup>rd</sup> law – when two objects interact the forces acting on one another are always equal and opposite.