

Physics Chapter 5 part 1 : Forces

Scalar and Vector quantities	
Scalar quantity	Only has a size
Vector quantity	Has a size and a direction
Acceleration	Rate of change of an objects velocity over time. Vector
Average speed	The distance moved by an object divided by the time taken for this to happen. Scalar
Instantaneous speed	The rate at which an object is moving at a given moment in time. Scalar
Velocity	Speed in a given direction. Vector
Displacement	The length and direction of the straight line from the initial position of an object to its position at a later time. Vector
Distance	The length of the path along which an object moves. scalar.

Equations of motion	
SUVAT	s = displacement u = initial velocity v = final velocity a = acceleration t = time
Momentum	A property of any moving object. Mass x Velocity
Speed	Distance/time
Acceleration	Change in speed/time

Representing Motion	
velocity-time graph	A graph that can be used to plot the velocity of an object versus time.
distance-time graph	A way of summarising the motion of an object by showing how far it has moved from its starting point at every instant during its journey.

Forces	
Air resistance	The force exerted on an object by the air, when it moves through it.
Force	A push or a pull.
Non contact force	A force that involves objects that are not physically touching
Friction	A force that opposes motion between two surfaces that are in contact
Interaction pair	A pair of forces that are equal in strength, but opposite in direction.
Reaction	The force exerted by a hard surface on an object that presses on it.
Resultant force	The sum, taking their directions into account, of all the forces acting on an object.
Contact force	A force that involves objects that are physically touching
Weight	The affect of gravity on mass. On earth 9.8N/Kg
Uniform acceleration of a falling object under gravity	9.8 m/s/s

Newtons Laws of motion	
Newtons first law	If the resultant force is 0 - the object remains stationary or is travelling at a constant speed
Newtons second law	$F = ma$
Newtons third law	For every action there is an equal sized force in the opposite direction
Inertia	the property of an object to remain in a constant state unless acted on by an external resultant force
Mass	How much matter an object is made up of. Kg

Stopping distance	
Braking distance	The distance it takes to brake and stop
Thinking distance	The distance it takes to react and press the brake pedal
Stopping distance	Braking distance + thinking distance