

Forces and Motion (Physics)

Year 8, Spring Term

<i>You will be taught</i>	<i>You should know</i>
how to determine the speed of a moving object and to use the quantitative relationship between speed, distance and time	about the timing of moving bodies to measure speed ; the relationship between speed, distance and time ($S=D/T$); how to use this for simple calculations
that the weight of an object on Earth is the result of the gravitational attraction between its mass and that of the Earth	that there is a gravitational force of attraction between any two masses; that this force causes bodies to fall towards the centre of the Earth; that the weight of a body is the pull of gravity on it and that it can be measured with a newton spring balance (newton meter)
that unbalanced forces change the speed or direction of objects and that balanced forces produce no change in the movement of an object	the concept of constant speed and of speeding up and of slowing down , without a formal definition of acceleration ; that forces can start things moving, stop things moving, speed things up, slow things down, change the shape of an object, change the direction of a moving object that forces can act in different directions ; for every force there is an opposite force about experiments and calculations with springs [<i>Elastic and limit of proportionality will not be examined</i>]
ways in which frictional forces, including air resistance, affect motion [e.g. <i>streamlining cars, friction between tyre and road</i>]	about the force of friction, including air resistance , and that these act to slow things down (parachutes, brakes, etc); that energy is transferred as heat when these forces act the different stopping distances as listed in the Highway Code [<i>You do not have to memorise the different stopping distances</i>]
that forces can cause objects to turn about a pivot	about the use of levers to change direction and magnitude of a force and their use in simple machines [e.g. <i>crowbars, pliers, scissors</i>]
the principle of moments and its application to situations involving one pivot	about the action of levers , including simple calculations involving moments about a single pivot; moment = distance from pivot x force
the quantitative relationship between force, area and pressure and its application [e.g. <i>the use of skis and snowboards, the effect of sharp blades, hydraulic brakes</i>].	the relationship between force, area and pressure ; how to use this for simple calculations involving: pressure = force / area

http://www.bbc.co.uk/schools/ks3bitesize/science/physics/forces_motion_intro.shtml