

Unit 3 Physics - Section 3.1

Even if the forces acting on a body are balanced in the sense that they do not cause the body to change speed, what can they still do?	<i>They can still make the body turn.</i>
What do we call the turning effect of a force?	A moment
How do we calculate the size of the turning effect of a force?	Moment (Nm) = Force (N) x Perpendicular distance (m) from the line of action of the force to the axis of rotation
What is the unit of a moment of a force if the distance it acts from the line of action is measured in centimetres?	N cm
What is the unit of a moment of a force if the distance it acts from the line of action is measured in metres?	Nm
What can we think of the centre of mass of a body as?	It is that point at which the mass of the body may be thought to be concentrated.
How practically can you test for the centre of mass of a body?	If a body is supported directly under its centre of mass it will balance.
If suspended, how a body will come to rest?	With its centre of mass directly below the point of suspension.
Where is the centre of mass of a symmetrical body?	It is along the axis of symmetry.
What do we know about a body that is not turning?	If a body is not turning, the total clockwise moment must be exactly balanced by the total anticlockwise moment about any axis
What is true about a stable object?	It does not topple easily.
What will make an object topple?	If the line of action of the weight of a body lies outside the base of the body there will be a resultant moment and the body will tend to topple.
What makes a body stable?	A wide base and a low centre of gravity.
Describe how to find the centre of mass of a thin sheet of a material	Suspend the mass freely and use a plumb line to mark the line of equal weight. Then suspend from another point and do the same thing. Then repeat again. The point where the lines cross is the centre of mass/gravity.
How can you analyse the stability of bodies?	By considering their tendency to topple. The wider the base and the lower the centre of gravity the more stable they are.
What is a moment?	It is the turning effect of a force. It is the product of the force and the perpendicular distance from its line of action to the turning point (axis of rotation).
What is the scientific name for the pivot point?	The fulcrum.
What is the centre of mass of a body?	It is the point at which the mass of the body may be thought to be concentrated.
What do you know must be true if a body is not turning?	The total clockwise moment must be exactly balanced by the total anticlockwise moment about any axis.
What will happen if the line of action of the weight of a body lies outside its base?	There will be a resultant moment and the body will tend to topple.