High Tunstall College of Science Curriculum Intent

Subject: Physics Year: 10

Thread 4—Forces

	Physics thread 4	Progress		
Topic	**Key ideas**	**R**	**A**	**G**
Forces	I can identify scalar and vector quantities			
	I can calculate displacement			
	I can explain the difference between mass and weight			
	I can explain how forces act on an object and calculate resultant forces			
	I can calculate resultant forces that are not opposite to each other (HT)			
	I can explain what happens when you stretch a spring and calculate spring constant			
	I can plan an experiment to investigate forces and elasticity			
	I can calculate turning forces and moments			
	I can explain how levers and gears work			
	I can calculate pressure in solids, liquids and gases			
	I can calculate speed and compare this to velocity			
	I understand what is shown by a distance time graph			
	I can calculate acceleration			
	I understand what is shown by a velocity time graph			
	I can explain what is meant by thinking, braking and stopping distance, and can give factors that affect these			

High Tunstall College of Science Curriculum Intent

Subject: Physics Year: 10

Thread 4—Forces

Lesson	Learning Focus	Assessment	Key Words
1	What are scalar and vector quantities?	Identification of scalar and vector quantities and calculation of displacement	Scalar, vector, distance, displacement
2	Are mass and weight the same?	Calculation of weight on different planets	Mass, weight, gravity
3	What are resultant forces 1?	Interpretation of force diagrams and calculation of resultant force	Resultant, motion, vector
4	What are resultant forces 2?	Correct calculation of forces acting in different directions	Resultant, motion, vector
5	What happens when you stretch a spring?	Explanation of spring constant and calculations involving this	Spring constant, extension, directly proportional
6	Forces and elasticity RPA	Completion of RPA and conclusions made	Elastic, inelastic, limit of proportionality
8	What are turning forces?	Calculation of moments and equilibrium of moments	Moments
9	How do levers and gears work?	Application of moments to explain the use of levers and gears	Moment, leaver, gear, fulcrum
10	How do we calculate pressure?	Calculation of pressure and application to real life contexts	Pressure, force, area
11	Are speed and velocity the same?	Differentiated questions calculating speed	Speed, distance, time, velocity
12	What do distance time graphs show?	Interpretation of distance time graphs	Distance, time, gradient
13	What is acceleration?	Calculation of acceleration and deceleration	Acceleration, velocity
14	What do velocity time graphs show?	Completion of exam questions looking at velocity time graphs	Velocity, gradient, area
15	What is stopping distance?	Identification of factors affecting stopping distance and application to real life context	Braking distance, thinking distance, stopping distance