High Tunstall College of Science Curriculum Intent

Subject: Physics Year: 11

Thread 4—Forces

	Physics thread 4	Progress		
Topic	**Key ideas**	**R**	**A**	**G**
Forces	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 calculate work done			
	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 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 Newton's 1st and 2nd Laws of motion			
	I can investigate the effect of force and mass on acceleration			
	I can explain Newton's 3rd Law			
	I understand what is meant by terminal velocity, and can apply this to different situations			
	I can explain what is meant by thinking, braking and stopping distance, and can give factors that affect these			

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Lesson	Learning Focus	Assessment	Key Words
1	What are resultant forces 1?	Interpretation of force diagrams and calculation of resultant force	Resultant, motion, vector
2	What are resultant forces 2?	Correct calculation of forces acting in different directions	Resultant, motion, vector
3	What is work done?	Calculations of work done	Work, energy
4	What happens when you stretch a spring?	Explanation of spring constant and calculations involving this	Spring constant, extension, directly proportional
5	Forces and elasticity RPA	Completion of RPA and conclusions made	Elastic, inelastic, limit of proportionality
6	Are speed and velocity the same?	Differentiated questions calculating speed	Speed, distance, time, velocity
7	What do distance time graphs show?	Interpretation of distance time graphs	Distance, time, gradient
8	What is acceleration?	Calculation of acceleration and deceleration	Acceleration, velocity
9	What do velocity time graphs show?	Completion of exam questions looking at velocity time graphs	Velocity, gradient, area
10	What are Newton's 1st and 2nd Law?	Application of the Laws to specific situations	Force, speed, motion, acceleration, mass
11	RPA Acceleration	Completion of RPA activity	Force, speed, motion, acceleration, mass
12	What is Newton's 3rd Law?	Explanation and application of the third law	Equal, opposite
13	What happens when something falls?	Completion of differentiated tasks looking at terminal velocity in different situations	Terminal velocity, opposing
14	What is stopping distance?	Identification of factors affecting stopping distance and application to real life context	Braking distance, thinking distance, stopping distance
15	What is momentum?	Calculation of momentum and application to real life contexts	Momentum