## High Tunstall College of Science Curriculum Intent

Subject: Physics Year: 11

## Thread 4—Forces



	Physics thread 4		Progress		
Торіс	Key ideas	R	Α	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				
	I can explain what momentum is and how to calculate change in momentum				
	I can explain what a moment is and how this can be calculated				
	I can explain how gears and levers work				
	I can explain pressure in fluids				
	I can use and manipulate equations to calculate pressure				

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Lesson	Learning Focus	Assessment	Key Words	
1	What are resultant forces 1?	Interpretation of force diagrams and cal- culation 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 calcu- lations involving this	Spring constant, ex- tension, directly pro- portional	
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, gradi- ent	
8	What is acceleration?	Calculation of acceleration and decelera- tion	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 situa- tions	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 con- text	Braking distance, thinking distance, stopping distance	
15	What is momentum?	Calculation of momentum and application to real life contexts	Momentum	
16	How do we calculate changes in momentum?	Calculation of momentum and application to real life contexts	Momentum	
17	What are moments?	Calculation of moments and exam ques- tions	Moments, pivot, ful- crum	
18	How do gears and levers work?	Application of understanding to real life context	Gear, levers, fulcrum, moment	
19 and 20	What is pressure?	Calculations involving pressure and appli- cation to real life context	Pressure, Boyle's law, depth, amospheric	