



The Sutton Academy

Knowledge Rich Curriculum Plan

Course/Unit



Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Prior Knowledge: <i>In order to know this students, need to already know that...</i>	Assessment
LO: To learn how to manipulate functions of time.	<ul style="list-style-type: none"> • <i>Students will know how that velocity-time graphs represent the motion of a particle travelling In a straight line,</i> • <i>Students will know how to find missing unknowns from an equation.</i> • <i>Students will know how to manipulate a quadratic to find time.</i> • 		Students will need to know how to factorise a quadratic. Students will need to know how to substitute into a formula.	
LO: To learn how to use differentiation to find missing values.	<ul style="list-style-type: none"> • <i>Students will know that if displacement s, is expressed as a function of t, then velocity v can be expressed as $v = \frac{ds}{dt}$</i> • <i>Students will know that if the velocity is expressed as a function of t, then the acceleration, a can be expressed as $a = \frac{dv}{dt} = \frac{d^2s}{dt^2}$</i> • <i>Students will know how to use differentiation to find the velocity.</i> • <i>Students will know how to use differentiation to find the acceleration .</i> 		Students will need to know how to differentiate Students will need to know how to substitute into a formula.	
LO: To learn how to use calculus to determine maximum and minimum values of displacement, velocity and acceleration	<ul style="list-style-type: none"> • <i>Students will know how to find the maximum and minimum displacement using calculus.</i> • <i>Students will know how to find the maximum and minimum velocity using calculus.</i> • <i>Students will know how to find the maximum and minimum acceleration using calculus.</i> 		Students will need to know how to find the maxima and minima of a function using calculus. Students will need to know how to differentiate.	
LO: Students will know how to integrate to find velocity and displacement	<ul style="list-style-type: none"> • <i>Students will know that $s = \int v dt$</i> • <i>Students will know that $v = \int a dt$</i> • <i>Students will know how to use integration to find unknowns.</i> • 		Students will need to know how to integrate. Students will need to know to substitute into a formula.	
LO: Students will learn how to derive the formulae for motion with constant acceleration using calculus.	<ul style="list-style-type: none"> • <i>Students will know how to use differentiation to find the equations of motion.</i> • <i>Students will know how to integrate to find the equations of motion.</i> 		Students will need to know how to differentiate. Students will need to know how to integrate Students will need to know the equations of motion	