


Subject	Year	Month	
Mathematics	9	April	
Topic:			
SIMULTANEOUS EQUATIONS			5 LESSONS
Content (Intent)			
Prior Learning Y7 <ul style="list-style-type: none"> Solve linear equations Expanding brackets Y8 <ul style="list-style-type: none"> Solve linear equations (with unknown on both sides) Plotting graphs of functions of the form $y=mx+c$ Y9 <ul style="list-style-type: none"> Solve inequalities Straight line and quadratic graphs 		Future Learning <ul style="list-style-type: none"> Solving algebraically simultaneously a linear equation and a quadratic equation Understand that tangents give repeated roots Understand that the value of the discriminant of the derived quadratic equation is linked to how the graphs intersect 	
Objectives <ul style="list-style-type: none"> Understand that there are an infinite number of solutions to the equation $ax + by = c$ ($a \neq 0, b \neq 0$) Read solutions or estimate from graphs (links nicely with previous topic) <ul style="list-style-type: none"> ✓ 2 straight line graphs ✓ 1 straight line combined with a quadratic Solve two linear simultaneous equations in two variables <ul style="list-style-type: none"> ✓ addition - no multiplication required ✓ subtraction - no multiplication required ✓ mixed addition or subtraction - no multiplication required ✓ multiplication of one equation required ✓ multiplication of both equations required <p>Derive and solve two simultaneous equations from worded problems</p>		For teaching purposes Possible questions <ul style="list-style-type: none"> Show me a solution to the equation $5a + b = 32$. And another. Show me a pair of simultaneous equations with the solution $x = 2$ and $y = -5$. And another. Kenny and Jenny are solving the simultaneous equations $x + 4y = 7$ and $x - 2y = 1$. Kenny thinks the equations should be added. Jenny thinks they should be subtracted. Who do you agree with? Explain why. Possible Misconceptions <ul style="list-style-type: none"> may not multiply all coefficients, or the constant may think that it is always right to eliminate the first variable may struggle to deal with negative numbers correctly 	
Pedagogical notes (implementation)		How will understanding be assessed & recorded (Impact)	
Common approaches <i>Students are taught to label the equations (1) and (2), and label the subsequent equation (3)</i> <i>Teachers use graphs (i.e. dynamic software) to demonstrate solutions to simultaneous equations at every opportunity</i>		9BAM11 Simultaneous equations Exams in May	
		How can parents help at home?	
		MathsWatch clips Qualification GCSE : 140, 162, 211 Qualification KS3: A24a, A24b, A26a, A26b, A26c	
Further reading/discussion			
Reading / Enrichment KM: Stick on the Maths ALG2: Simultaneous linear equations NRICH: What's it worth? NRICH: Warmasnug Double Glazing NRICH: Arithmagons	Literacy Equation Simultaneous equation Variable Manipulate Eliminate Solve Derive Interpret	Numeracy Links	Careers Links Engineers Air Traffic Control Road Designers Aircraft Designers Computer programmers