Lesson Plan: Linear Algebra – 3 Act Task
Shenton College, August 2018

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YEAR: 7 HPL	STRAND: Number and Algebra	TOPIC: Linear and non-linear relationships

In the Classroom

PURPOSE / LEARNING INTENTIONS	Finding a linear equation from given information
KEY QUESTIONS	What is going on? What do you want to know? What information do you need?
WARM UP	Discuss what a 3-Act Task is and what they are going to do
EXPLICIT TEACHING & LEARNING	Use the PowerPoint to show the videos and to set up the task Give time for: • Discussion • Working • Summing up/solution
REFLECTION	Anything else they now want to know? What did you learn? Can you model a similar situation that would use the same method?
RESOURCES	PowerPoint

Curriculum Connections

AT LEVEL 7	**Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (ACMNA178)** • plotting points from a table of integer values and recognising simple patterns, such as points that lie on a straight line **Solve simple linear equations (ACMNA179)** • solving equations using concrete materials, such as the balance model, and explain the need to do the same thing to each side of the equation using substitution to check solutions investigating a range of strategies to solve equations
PROFICIENCIES	**Level 7** • **understanding** includes describing patterns in uses of indices with whole numbers, recognising equivalences between fractions, decimals, percentages and ratios, plotting points on the Cartesian plane, identifying angles formed by a transversal crossing a pair of lines, and connecting the laws and properties of numbers to algebraic terms and expressions • **fluency** includes calculating accurately with integers, representing fractions and decimals in various ways, investigating best buys, finding measures of central tendency and calculating areas of shapes and volumes of prisms • **problem-solving** includes formulating and solving authentic problems using numbers and measurements, working with transformations and identifying symmetry, calculating angles and interpreting sets of data collected through chance experiments • **reasoning** includes applying the number laws to calculations, applying known geometric facts to draw conclusions about shapes, applying an understanding of ratio and interpreting data displays.

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WHAT CAME BEFORE AT LEVEL 6	**Continue and create sequences involving whole numbers, fractions and decimals. Describe the rule used to create the sequence (ACMNA133)** • identifying and generalising number patterns • investigating additive and multiplicative patterns such as the number of tiles in a geometric pattern, or the number of dots or other shapes in successive repeats of a strip or border pattern looking for patterns in the way the numbers increase/decrease **Explore the use of brackets and order of operations to write number sentences (ACMNA134)** • appreciating the need for rules to complete multiple operations within the same number sentence
WHAT COMES NEXT AT LEVEL 8	**Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193)** • completing a table of values, plotting the resulting points and determining whether the relationship is linear • finding the rule for a linear relationship **Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)** • solving real life problems by using variables to represent unknowns
VOCABULARY	Variable(s), dependent, independent, line of best fit, coordinates, axes, data
ASSESSMENT/ SUCCES CRITERIA	Students able to calculate the weight of each item