Knowledge Rich Curriculum Plan

Year 9 Prime – Ratio and Proportion

Lesson Objective	Intended Knowledge: *Students will know that…*	Tiered Vocabulary	Prior Knowledge: *In order to know this, students need to already know that…*	Assessment
To learn how to share an amount into a ratio	• Students will know how to represent a ratio using boxes or bars • Students will know how to share a quantity into a two-part given ratio. • Students will know how to share a quantity into a three-part given ratio. • Students will know how to find quantities within a ratio when the value of one part is given. • Students will know how to find quantities within a ratio when the difference between two parts is given.	**Ratio** - in mathematics, a ratio indicates how many times one number contains another. **Share** – split up between parts	• Students should already know how to write, simplify and compare fractions including writing them in the form 1 : n or n : 1. • Students should already know how to convert fractions into ratios and vice versa.	Mini-Assessment 5
To learn how to solve ratio problems	• Students will know how to find quantities within a ratio when the value of one part is given. • Students will know how to find quantities within a ratio when the difference between two parts is given. • Students will know how to combine two ratios in the form a:b, b:c etc. and use them for comparison between three parts. • Students will know how to solve more complex, worded problems including those involving fractions, percentages, money etc. **Opportunities for Challenge:** • Students will know how to solve more complex ratio problems including those where they need to write a ratio as a fraction		• Students need to know how to share an amount using a ratio. • Students need to know how to simplify ratios.	Mini-Assessment 5
To learn how to solve problems involving recipes	• Students will know how to solve more complex problems involving recipes	**Proportion –** a part, share, or number considered in comparative relation to a whole **Direct Proportion –** If two things are directly proportional then if one increases, so does the other, if one decreases, then so does the other	• Students should already know how to scale up simple recipes. For example, take a recipe for two people and make it for four people or take a recipe for 8 people and make it for 2 people etc.	Mini-Assessment 5
To learn how to identify best buys	• Students will know how to find the best buy by either finding the value of one item for each option or finding the value of a common multiple of each item. • Students will know how to find the best buy in more complex scenarios where percentage discounts or fractions are also involved	**Value –** how much money something is worth	• Students will need to know how to find the lowest common multiple of two numbers	Mini-Assessment 5
To learn how to convert currencies	• Students will know how to convert between different currencies using multiplication and division • Students will know how to solve problems involving converting currencies • Students will know how to convert currencies using a conversion graph by drawing lines from a given currency on one axis to the line on the graph and then across/down to convert to the other currency • Students will know how to convert currencies using a conversion graph for currencies that are not necessarily marked on the axes of the graph. They will know that to do this they need to find a factor of the amount that they wish to convert, read this off the graph and then scale it up to determine the conversion for the actual amount.	**Currency –** a system of money in general use in a particular country. **Convert –** change/ swap to	• Students will need to know how to plot coordinates and draw straight line graphs	Mini-Assessment 5

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To learn how to solve real life problems involving inverse proportion	• Students will know the difference between direct and inverse proportion • Students will know how to solve real life problems involving inverse proportion without using algebra (e.g. number of worker problems etc.)	Inverse – Opposite Inverse Proportion – If two things are inversely proportional then as one increases the other decreases or vice versa	• Students will need to know how to multiply and divide	Mini-Assessment 5
To learn how to solve algebraic direct proportion problems	• Students will know how to solve algebraic direct proportion problems by writing an algebraic statement in the form y = kx before substituting in given values to find the value of k and then using the resultant formula to find further missing values. • Students will know that k is known as the constant of proportionality **Opportunities for Challenge:** • Students will know how to solve algebraic direct proportion problems involving powers and roots	Direct Proportion – If two things are directly proportional then if one increases, so does the other, if one decreases, then so does the other Constant – a quantity or parameter that does not change its value whatever the value of the variables	• Students will need to know how to substitute numbers into formulae • Students will need to know how to solve simple one step equations in the form a = bx	Mini-Assessment 5
To learn how to solve algebraic inverse proportion problems	• Students will know how to solve algebraic inverse proportion problems by writing an algebraic statement in the form y = k/x before substituting in given values to find the value of k and then using the resultant formula to find further missing values. • Students will know that k is known as the constant of proportionality **Opportunities for Challenge:** • Students will know how to solve algebraic inverse proportion problems involving powers and roots.	Inverse Proportion – If two things are inversely proportional then as one increases the other decreases or vice versa Constant – a quantity or parameter that does not change its value whatever the value of the variables	• Students will need to know how to substitute numbers into formulae • Students will need to know how to solve one step equations involving fractions	Mini-Assessment 5