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**Knowledge Rich Curriculum Plan**

Year 11 Higher+ Ratio and Proportion



| **Lesson/Learning Sequence**  | **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 solve problems involving ratio** | * Students will know how to share an amount in a 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.
* Students will know how to solve more complex ratio problems including those which involve percentages and fractions
* Students will know how to combine two ratios in the form a:b, b:c etc. and use them for comparison between three parts.
 | **Ratio** - in mathematics, a ratio indicates how many times one number contains another. **Share** – split up between parts | * Students should already know how to express a worded situation in the form of a ratio
* Students should already know how to simplify ratio to their simplest form and write a ratio in the form 1 : n or n : 1
* Students should already know how to share an amount in a given ratio
* Students should already know how to write parts of a ratio as fractions
 | Exam Prep 4 |
| **To learn how to solve more complex problems involving ratio** | * Students will know how to solve more complex problems involving ratio
* Students will know how to solve problems involving converting ratio into fractions
* Students will know how to solve algebraic ratio problems where they are required to form and solve equations involving algebraic fractions
 | **Lowest Common Multiple** – the smallest number that is in both numbers multiplication tables | * Students need to know how to solve equations involving fractions
 | Exam Prep 4 |
| **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**Proportion –** a part, share, or number considered in comparative relation to a whole |  | Exam Prep 4 |
| **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
* 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 step equations in the form a = bx, a = bx2 etc.
 | Exam Prep 4 |
| **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
* 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
 | Exam Prep 4 |
| **To learn how to solve more complex direct and inverse proportion problems** | * Students will know how to solve more complex problems involving direct and inverse proportion algebraically
* Students will know how to form equations by combining expressions for algebraic and inverse proportion
 | **Direct Proportion –** If two things are directly proportional then if one increases, so does the other, if one decreases, then so does the other**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 solve algebraic direct and inverse proportion problems
 | Exam Prep 4 |