



The Sutton Academy

# Knowledge Rich Curriculum Plan

Year 11 Higher – Ratio and Proportion

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
<b>To learn how to solve problems involving sharing in a ratio</b>	<ul style="list-style-type: none"> <li>Students will know how to share an amount in a given ratio</li> <li>Students will know how to find quantities within a ratio when the value of one part is given.</li> <li>Students will know how to find quantities within a ratio when the difference between two parts is given.</li> <li>Students will know how to solve more complex ratio problems including those which involve percentages and fractions</li> </ul>	<p><b>Ratio</b> - in mathematics, a ratio indicates how many times one number contains another.</p> <p><b>Share</b> – split up between parts</p>	<ul style="list-style-type: none"> <li>Students should already know how to express a worded situation in the form of a ratio</li> <li>Students should already know how to simplify ratio to their simplest form and write a ratio in the form <math>1 : n</math> or <math>n : 1</math></li> <li>Students should already know how to write parts of a ratio as fractions</li> </ul>	Exam Prep 4
<b>To learn how to solve more complex problems involving ratio</b>	<ul style="list-style-type: none"> <li>Students will know how to combine two ratios in the form a:b, b:c etc. and use them for comparison between three parts.</li> <li>Students will know how to solve problems involving converting ratio into fractions</li> </ul>	<p><b>Lowest Common Multiple</b> – the smallest number that is in both numbers multiplication tables</p>	<ul style="list-style-type: none"> <li>Students should already know how to write parts of a ratio as fractions</li> <li>Students will need to know how to multiply fractions</li> <li>Students will need to know how to add fractions</li> <li>Students will need to know how to find the LCM of two numbers</li> </ul>	Exam Prep 4
<b>To learn how to solve real life problems involving direct proportion</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Students will know how to find the best buy in more complex scenarios where percentage discounts or fractions are also involved</li> <li>Students will know how to convert between different currencies using multiplication and division.</li> <li>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</li> </ul>	<p><b>Proportion</b> – a part, share, or number considered in comparative relation to a whole</p> <p><b>Direct Proportion</b> – If two things are directly proportional then if one increases, so does the other, if one decreases, then so does the other</p> <p><b>Value</b> – how much money something is worth</p> <p><b>Multiple</b> – a number that is in the given number's multiplication tables</p> <p><b>Factor</b> – a number that will divide into the given number without leaving a remainder.</p> <p><b>Currency</b> - a system of money in general use in a particular country.</p> <p><b>Convert</b> – change/ swap to</p>	<ul style="list-style-type: none"> <li>Students will know how to calculate fractions of amounts</li> <li>Students will know how to calculate percentages of amounts</li> </ul>	Exam Prep 4
<b>To learn how to solve real life problems involving inverse proportion</b>	<ul style="list-style-type: none"> <li>Students will know the difference between direct and inverse proportion</li> <li>Students will know how to solve real life problems involving inverse proportion without using algebra (e.g. number of worker problems etc.)</li> </ul>	<p><b>Inverse</b> – Opposite</p> <p><b>Inverse Proportion</b> – If two things are inversely proportional then as one increases the other decreases or vice versa</p>		Exam Prep 4

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<b>To learn how to solve algebraic direct proportion problems</b>	<ul style="list-style-type: none"> <li>Students will know how to solve algebraic direct proportion problems by writing an algebraic statement in the form <math>y = kx</math> before substituting in given values to find the value of <math>k</math> and then using the resultant formula to find further missing values.</li> <li>Students will know that <math>k</math> is known as the constant of proportionality</li> <li>Students will know how to solve algebraic direct proportion problems involving powers and roots</li> </ul>	<p><b>Direct Proportion</b> – If two things are directly proportional then if one increases, so does the other, if one decreases, then so does the other</p> <p><b>Constant</b> – a quantity or parameter that does not change its value whatever the value of the variables</p>	<ul style="list-style-type: none"> <li>Students will need to know how to substitute numbers into formulae</li> <li>Students will need to know how to solve simple step equations in the form <math>a = bx</math>, <math>a = bx^2</math> etc.</li> </ul>	Exam Prep 4
<b>To learn how to solve algebraic inverse proportion problems</b>	<ul style="list-style-type: none"> <li>Students will know how to solve algebraic inverse proportion problems by writing an algebraic statement in the form <math>y = k/x</math> before substituting in given values to find the value of <math>k</math> and then using the resultant formula to find further missing values.</li> <li>Students will know that <math>k</math> is known as the constant of proportionality</li> <li>Students will know how to solve algebraic inverse proportion problems involving powers and roots.</li> </ul>	<p><b>Inverse Proportion</b> – If two things are inversely proportional then as one increases the other decreases or vice versa</p> <p><b>Constant</b> – a quantity or parameter that does not change its value whatever the value of the variables</p>	<ul style="list-style-type: none"> <li>Students will need to know how to substitute numbers into formulae</li> <li>Students will need to know how to solve one step equations involving fractions</li> </ul>	Exam Prep 4