



The Sutton Academy

Knowledge Rich Curriculum Plan

Year 10 Foundation – 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
<p>To learn how to calculate speed, distance and time</p>	<ul style="list-style-type: none"> •Students will know that $Speed = \frac{distance}{time}$ •Students will know that $Time = \frac{distance}{speed}$ •Students will know that $Distance = Speed \times Time$ •Students will know the formula triangle for speed, distance and time •Students will know how to solve basic SDT problems where the time is an integer number of hours and all units correspond •Students will know how to make simple conversions for minutes to decimal hours - they will know that 30 minutes is 0.5 hours and 15 minutes is 0.25 hours •Students will know how to calculate speed, distance or time given the two other variables including where the time needs to be converted into a decimal number of minutes or hours •Students will know how to calculate speed, distance or time using two variables where they need to convert time written in hours and minutes to a decimal •Students will know how to calculate average speed given distance and time for multi-stage journeys •Students will need to know how to solve more complex problems involving speed, distance and time 	<p>Speed – the rate at which someone or something moves or operates or is able to move or operate.</p>	<ul style="list-style-type: none"> • Students should already know how to convert from minutes to hours and minutes 	
<p>To learn how to draw and interpret distance-time graphs</p>	<ul style="list-style-type: none"> •Students will know how to draw distance–time graphs. •Students will know how to work out time intervals for graph scales. •Students will know how to find the total time taken of individual sections of a distance–time graph. •Students will know how to find the speed of individual sections of a distance–time graph. •Students will know how to find the total distance in individual sections of a distance–time graph. •Students will know how to interpret information presented in a range of linear and non-linear graphs; •Students will know how to interpret graphs with negative values on axes; •Students will know how to interpret gradient as the rate of change in distance–time and speed–time graphs, graphs of containers filling and emptying, and unit price graphs. 	<p>Gradient – the change in height divided by the horizontal distance.</p>	<ul style="list-style-type: none"> • Students need to know how to find the difference between two times 	
<p>To learn how to write and simplify ratio</p>	<ul style="list-style-type: none"> •Students will know that a ratio describes and represents the relationship between two or more quantities. •Students will know how to represent the division of a quantity in the form of a ratio. •Students will know how to interpret and express a situation in the form of a ratio. •Students will know how to simplify ratios in their simplest form. •Students will know how to simplify ratios in the form of 1 : n or n : 1. •Students will know how to convert fractions into ratios and vice versa. •Students will know how to understand and express the multiplicative relationship between two quantities as a ratio or a fraction. 	<p>Ratio - in mathematics, a ratio indicates how many times one number contains another.</p> <p>Simplify – make (something) simpler or easier to do or understand.</p>	<ul style="list-style-type: none"> • Students should already know how to find common factors 	

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To learn how to share in a ratio	<ul style="list-style-type: none"> •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 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 ratio problems with context. 	Share – split up between parts	<ul style="list-style-type: none"> • Students need to know how to use the bus stop method 	
To learn how to scale up recipes	<ul style="list-style-type: none"> •Students will know how to scale up recipes. Students will know that to scale up recipes they should find the recipe for one person and then scale up; or they will find the recipe for a common factor of people and then scale up. 	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	<ul style="list-style-type: none"> • Students will need to know how to multiply and divide 	
To learn how to identify the best buy	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> • Students will need to know how to find the lowest common multiple of two numbers 	
To learn how to convert between different currencies	<ul style="list-style-type: none"> •Students will know how to convert between different currencies. 	Currency – a system of money in general use in a particular country. Convert – change/ swap to	<ul style="list-style-type: none"> • Students will need to know how to multiply decimals • Students will need to know how to divide decimals 	
To learn how to solve problems involving real life graphs	<ul style="list-style-type: none"> •Students will know how to draw straight line graphs for real-life situations, including ready reckoner graphs for example; conversion graphs, fuel bills graphs, fixed charge and cost per unit etc... •Students will know how to use and interpret ready reckoner graphs. 		<ul style="list-style-type: none"> • Students will need to know how to calculate gradient and identify the y-intercept of a given graph 	
To learn how to solve direct proportion problems	<ul style="list-style-type: none"> •Students will know what direct proportion is •Students will know how to solve direct proportion problems 	Direct Proportion – If two things are directly proportional then if one increases, so does the other, if one decreases, then so does the other	<ul style="list-style-type: none"> • Students will need to know what is meant by proportion and how to represent it as a ratio. 	