



5. Probability	Content of the Unit	Assumed prior learning (tested at the beginning of the unit)
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Number of lessons (between 8&12)	<ul style="list-style-type: none"> • Explore probability • Frequency Trees • Two way tables • Experimental Probabilities • Possibility Spaces 	<ul style="list-style-type: none"> • Understand the probability scale. That probability is measured on a linear scale from impossible (0) to certain (1). • Understand the notion of events being mutually exclusive. • Can list outcomes • Can calculate probabilities by summing the number successful outcomes and dividing by the total number of possible outcomes. • Is familiar with and can use Venn diagrams. • Is familiar with and can use tally and bar charts. • Is familiar with and can use pictograms.
Assessment points and tasks	Written feedback points	Learning Outcomes (tested at the end and related to subject competences)
Pre test Post test (half term exams/ mock exams)	Diagnostic marking (TF)-(green sticker)-(PF)/(SF) Traffic lighting of exam papers For diagnostic marking use the topics in the adjacent 'Learning Outcomes' box. Use diagnostic marking in revision lesson.	<ul style="list-style-type: none"> • Draw and calculate probabilities using two-way tables. • Draw and calculate probabilities using sample space diagrams. • Interpret probabilities based on experimental data. • Predict and calculate probabilities using experimental data. • Calculate probabilities using probability trees involving only independent events. • Calculate probabilities using probability trees involving both independent and dependent events.

Lesson	Clear learning intentions	Clear success criteria	Hook	Presentation of content	Guided practice	Independent practice (homework)	Closure
1	Recap knowledge of earlier work on probability.	<ul style="list-style-type: none"> • To be clear on what mutually exclusive and exhaustive means 	Match definition to key terms. Mutually exclusive Exhaustive.	GCSE FOUNDATION PAGE(S) 380-382 KEY POINT 1, 3, 4 & 5. Q5, 9, 10	GCSE Foundation book, Pg 380-382 Mathswatch Clip 90 and 91		Q13 p383



		<ul style="list-style-type: none"> ● Calculate simple probabilities from equally likely events. 		& 11			
2	Be able to record and calculate probabilities using two way tables.	<ul style="list-style-type: none"> ● Can draw and complete a two way table. ● Can use table to calculate probabilities. ● Can draw conclusions relating to real life. 	GCSE Foundation p382 Q2	GCSE Foundation P382-385 Key point 7 and Example 1	GCSE FOUNDATION P382-384 Q3-5 & 7 Mathswatch Clip 85		Exam style question. GCSE Foundation P383 Q6.
3	Possibility Spaces	Can Draw Sample Space Diagrams Can use sample space diagrams to calculate probabilities	List all possible outcomes of rolling two dices. Is there a systematic way of doing this? Is there a short hand way of recording this? How many outcomes are there?	GCSE Foundation p384-385 Power Point	GCSE Foundation P384-p385 Q8-Q11		Draw a sample space diagram for rolling two dice and summing the results. Discuss the origins of the phrase 'lucky 7'. Why might it have come about in dice games?
4	Find, interpret and	Can	Practise	GCSE Foundation	GCSE Foundation	HW active learn	Exam style



	predict probabilities based on experimental data.	interpret probabilities based on experimental data. Can use experimental data to calculate and predict probabilities.	multiplication by fractions calculations. GCSE Foundation. P385 Q1	P385-388 Key point 8 Key point 9 Mathswatch	P385-387 Q3-8 Challenge: Q9-10		question GCSE foundation P387 Q11
5.	Use and understand Tree diagrams	Calculate probabilities using tree diagrams and frequency trees. Understand independent events.	GCSE Foundation P390 Q1 (listing events)	GCSE Foundation p390-394 Key point 13 Key point 14 Example 3 Mathswatch clip 153	GCSE Foundation Q4-Q12 P390-394 Q6-11		Exam Style Question
6.	Harder Tree Diagrams	Understand when events are not independent. Use Tree diagrams when events are not necessarily independent.	GCCSE Foundation P394 Q4	GCSE Foundation P394-397 Key Point 16 Example 4 Mathswatch Clip	GCSE Foundation p394-397 Q4-8		Mini white boards Could use fill in the blanks Exam Style Question



				154			
7. Homework Review lesson	Review pupils' successes and areas to improve. Enable peer support pairs/groups to improve from prior performance	HW Review. Allow time to complete peer and self-feedback.					Review mathswatch scores and analysis of Qs



8	Review and Revision	Children can use diagnostic marking to help with revision.		Mathswatch	GCSE Foundation P399-400 Extension p401-406	Active learn.	Discuss Sicherman Dice
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6. Proportional Reasoning	Content of the Unit	Assumed prior learning (tested at the beginning of the unit)
<p>Number of lessons (between 8&12)</p>	<ul style="list-style-type: none"> • Explore the uses of ratio • Investigate the connection between ratio and proportion • Solve problems involving proportional reasoning <p>The Bar Model is a powerful strategy for pupils to ‘re-present’ a problem involving ratio. NCETM: The Bar Model NCETM: Multiplicative reasoning NCETM: Departmental workshops: Proportional Reasoning NRICH: Ratio or proportion? STEM multiplicative-relationships-mini.(requires sign in)</p>	<ul style="list-style-type: none"> • Describe a comparison of measurements or objects using the language ‘a to b’ • Describe a comparison of measurements or objects using ratio notation a:b • Use ratio notation to describe a comparison of more than two measurements or objects • Convert between different units of measurement • State a ratio of measurements in the same units • Simplify a ratio by cancelling common factors • Identify when a ratio is written in its lowest terms • Find the value of a ‘unit’ in a division in a ratio problem • Divide a quantity in two parts in a given part: part ratio • Divide a quantity in two parts in a given part: whole ratio <p>Express correctly the solution to a division in a ratio problem</p>
Assessment points and tasks	Written feedback points	Learning Outcomes (tested at the end and related to subject competences)
<p>Pre test Post test (half term exams/ mock exams)</p>	<p>Diagnostic marking (TF)-(green sticker)-(PF)/(SF) Traffic lighting of exam papers</p> <ul style="list-style-type: none"> • Show me a set of objects that demonstrates the ratio 3:2. And another, and another ... • Convince me that the ratio 120mm:0.3m is equivalent to 2:5 • Always / Sometimes / Never: the smaller number comes first when writing a ratio • Many pupils will want to identify an additive relationship between two quantities that are in proportion and apply this to other quantities in order to find missing amounts • Some pupils may think that a multiplier always has to be greater than 1 • When converting between times and units, some pupils may base their working on 100 minutes = 1 hour • Show me an example of two quantities that will be in proportion. And another. And another ... • (Showing a table of values such as the one below) convince me that this information shows a proportional relationship 	<ul style="list-style-type: none"> • express the division of a quantity into two parts as a ratio; apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations) • identify and work with fractions in ratio problems • understand and use proportion as equality of ratios • express a multiplicative relationship between two quantities as a ratio or a fraction <ul style="list-style-type: none"> • relate ratios to fractions and to linear functions



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6	9							
10	15							
14	21							
<ul style="list-style-type: none"> • Which is the faster speed: 60 km/h or 10 m/s? Explain why. 								

Lesson	Clear learning intentions	Clear success criteria	Hook	Presentation of content	Guided practice	Independent practice (homework)	Closure
2	Write a ratio to describe a situation	<ul style="list-style-type: none"> ● Use ratio notation. ● Write a ratio in its simplest form. ● Solve problems using ratios. 	Match definitions to key terms Ratio Multiplier Speed Unitary method Units Compound unit <small>NCETM: Glossary</small>	GCSE FOUNDATION PAGE(S) 314 KEY POINT 1 & Q2	GCSE Foundation book, Pg 314-316 pages 332-333 (Using the bar method)		Exam style question 14 GCSE Foundation book, pages 343
2	Identify ratio in a real-life context	<ul style="list-style-type: none"> ● Convert units of weight, length, capacity and time. ● Use index notation. ● Work out areas of rectangles and volumes of cubes 	GCSE Foundation Knowledge check: Q-11 P 313-4	GCSE FOUNDATION PAGE(S) 316 Example 1	GCSE FOUNDATION Q8-12 P319-320 Q5 P321		Traffic lights and WWW/EBI (SF-ORANGE STICKER)



3	Find a relevant multiplier in a situation involving proportion	<p>Find whole number and fractional multiplier</p> <p>use a multiplier to find missing values in a proportion problem</p> <p>Identify when a set of numbers are in proportion</p> <p>set up a proportional reasoning table when solving problems</p>	<p>GCSE Foundation Warm up: Q1-4 P 326</p>	<p>Common approaches <i>All pupils are taught to set up a 'proportion table' and use it to find the multiplier in situations involving proportion</i></p> <p>GCSE FOUNDATION PAGE(S) 326</p> <p>Example 6</p>	<p>KM: Proportion for real</p> <p>KM: Investigating proportionality (REQUIRES LAPTOPS)</p> <p>Standards Unit: N6 Developing proportional reasoning</p>		<p>GCSE Foundation book, Compare pupil responses</p> <p>pages 343</p>
4.	Use fractions fluently in situations involving ratio or proportion	<p>Convert between f/p/r</p> <p>Represent problems using fractional notation</p>	<p>GCSE Foundation Warm up P 323</p> <p>KM: Maths to Infinity: Fractions, decimals, percentages, ratio, proportion</p>	<p>GCSE FOUNDATION PAGE(S) Key point 5 Q4 complete as an example</p>	<p>GCSE Foundation Q4-Q12 P323-4</p>	my maths	Mini whiteboards



5.	Understand the connections between ratios and fractions	Establish connection between ratio parts and resulting fractions and vice versa	KM: Maths to Infinity: Fractions, decimals, percentages, ratio, proportion	Making connections	Worksheets in hyperlink below (see activities and notes)		Who wants to be a millionaire?
6. Homework Review lesson	Review pupils successes and areas to improve Enable peer support pairs/groups to improve from prior performance						Review my maths scores and analysis of Qs
7	Value for money	Use the unitary method to solve proportion problems. ● Solve proportion problems in words. ● Work out which product is better value for money	Maths Watch Clip 41	Example Practice qs clip 41	CLICK LINK FOR RELATED WORKSHEET		10 ticks
8	Exchanging Money	Use ratios to convert between units of currency Calculate the exchange rate	Maths Watch Clip 105	Example Practice qs Clip 105	CLICK LINK FOR RELATED WORKSHEET GCSE FOUNDATION BOOK: Q10-12	my maths	www/ebi against success criteria
9.	Ratios fractions and graphs	Writing a ratio as a linear function is new	Mathswatch Clip 107	Example Practice qs Clip 107	CLICK LINK FOR RELATED WORKSHEET		GCSE FD progression charts



		content. Be able to establish the link between abstract algebra, $y = mx + c$, and real life applications of graphs, such as gradient and price/kg					
10 Check up lesson	Revision of objectives learnt throughout the topic.	Formative assessment on the core objectives, grouped by topic.			GCSE Foundation book: unit test L Q 1-13 P341 Learning review KM: 8M5 BAM Task (INC MASTERY INDICATORS)		The final question: 'How sure are you of your answers?' encourages students to reflect on their level of confidence, and helps them to choose their next step: Strengthen, Extend or Problem solving Peer feedback – yellow sticker www/ebi- USING LERNING REVIEW MASTERY



Stratford School Academy
Schemes of Work

							INDICATORS
11 Half term Assessment 2- Revision				1 MIN REVISION CLIP	EXAM REVISION QS Mathswatch: Ratio 1F ASSESSMENT		
12. Half term Assessment 2							