

Mathematics

Year Group 8

Autumn Term 1

Number of Weeks	Proportional Reasoning
2	Ratio and scale
2	Multiplicative change
2	Multiplying and dividing fractions
Reasons behind order of topic in this half term	
<ul style="list-style-type: none"><li>• This unit focuses on the meaning of ratio and the various models that can be used to represent ratios. Based on this understanding, it moves onto sharing into a ratio using diagrammatic representations alongside the abstract methods. After this students look at simplifying and equivalent ratio as well as linking ratios with fractional parts.</li><li>• When looking at multiplicative change, we use the previous units knowledge to link ratio with the concept of scaling. This involves proportion and conversion graphs. Links with maps are also made throughout, using contextualised problem solving whenever possible.</li><li>• Students from Y6 generally have little experience of multiplying and dividing fractions, in the last unit students will look at multiple representations so see what underpins algorithms. Once this link has been made, students will go through the formal techniques of multiplying and dividing fractions with an emphasis on understanding a reciprocal and its uses.</li></ul>	

Mathematics

Year Group 8

Autumn Term 2

Number of Weeks	Representations
3	Working in the Cartesian plane
2	Representing data
1	Tables & Probability
Reasons behind order of topic in this half term	
<ul style="list-style-type: none"><li>• Building on the knowledge of co-ordinates at KS2, students look formally at algebraic rules for straight lines. They explore the notation of gradient and intercepts. The main focus is drawing a straight line using a function, the interpretation of <math>m</math> and <math>c</math> from an equation is looked at further in Y9.</li><li>• Students are introduced to the idea of linear correlation and look at the differences between discrete and continuous data.</li><li>• From the Y7 content, students will further extend their ideas of probability, looking further into sample space diagrams and their uses.</li></ul>	

Mathematics

Year Group 8

Spring Term 3

Number of Weeks	Algebraic techniques
4	Brackets, equations and inequalities
1	Sequences
1	Indices
Reasons behind order of topic in this half term	
<ul style="list-style-type: none"><li>Students will build on their experience of equivalence from Y7 and look at expanding and factorising a single bracket. All students will extend tier knowledge of solving equations to now involve brackets. Bar models are used to facilitate the understanding of those processes. Students will also learn to solve formal inequalities building on their solving equations skills.</li><li>Sequences are further built upon as students look at the inclusion of algebraic expressions.</li><li>Finally, in this block, students will look at expressions involving indices. The laws of indices will be covered further on in the year.</li></ul>	

Mathematics

Year Group 8

Spring Term 4

Number of Weeks	Developing Number
3	Fractions and percentages
1.5	Standard index form
1.5	Number sense
Reasons behind order of topic in this half term	
<ul style="list-style-type: none"><li>• This unit focuses on the relationships between fractions and percentages, including decimal equivalents, and using these to calculate percentage increase and decrease. Financial maths is developed through contexts whenever possible.</li><li>• Knowledge of standard form is introduced to the students in the form of powers of ten. The use on context is important to make students aware of the notation and its uses.</li><li>• Lots of basic number skills will be revisited to support the recall for all students in a variety of contexts. Estimation is a key focus as well as the conversion of units of measure.</li></ul>	

Mathematics

Year Group 8

Summer Term 5

Number of Weeks	Developing Geometry
3	Angles in parallel lines and polygons
2	Area of trapezia and circles
1	Line symmetry and reflection
Reasons behind order of topic in this half term	
<ul style="list-style-type: none"><li>• This unit builds on prior knowledge of angle notation from Y7, extending into parallel and complex missing angle problems. Links are then made to closely connect properties of polygons and quadrilaterals.</li><li>• Having covered area in Y7, students are introduced and are encouraged to explore the area of trapezia and circles.</li><li>• The teaching of reflection is split into rotation and translation to ensure students attain a deep understanding of the differences of the two. Students have the opportunity to revisit and enhance their knowledge of special triangles and quadrilaterals.</li></ul>	

Mathematics

Year Group 8

Summer Term 6

Number of Weeks	Reasoning with Data
4	The data handling cycle
2	Measures of location
Reasons behind order of topic in this half term	
<ul style="list-style-type: none"><li>• Much of the statistic content in KS3 is a continuation of the work done in primary school. A particular focus in this unit is how to compare different distributions. There is an emphasis on exploring misleading graphs, the collection of data and criticising questionnaires.</li><li>• Students have previously studied the mean and median earlier in KS3. At this stage students are introduced to the mode and when to apply each average in a given situation.</li><li>• Consideration to outliers and considering what effect these have on measures are investigated.</li></ul>	

Reasons behind order of topics in this Year
All of the topics in the maths scheme maths can be interwoven and linked in one way or another. These topics are in the current order to allow the students to build upon previous knowledge. Without the pre-requisite knowledge from the topic before, it is very difficult for students to attempt problems solving tasks or develop a mastery of the topic.

--