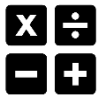
Curriculum Content Map

Subject: Mathematics

Year group: 10H

	TERM 1		TERM 2		TERM 3	
Unit title & description	Decimals HCF and LCM Indices Standard form Ratio 1	Solving linear equations Expanding brackets Factorising into double brackets Sequences	Equations of lines Quadratic, Cubic and Reciprocal graphs Area and Perimeter Limits of accuracy	Circles Circle theorems Rearranging formulae Simultaneous equations	Cumulative frequency graphs and Box plots Histograms Ratio 2	Transformations Similarity and Congruence
Sequencing - Why is this taught and now?	These topics are revisited (as a spiral curriculum) building on from the learning in the previous year.		The understanding of prior algebra learnt is extended to now work with equations of lines and graphs. Area and perimeter incorporates the use of algebra to form and solve equations.	The topic of circles build on the learning from the previous year and is extended into circle theorems. At this point the algebra skills will be at a level for students to work on more complex areas of rearranging and simultaneous equations.	In the previous topic students will have looked at and plotted simultaneous graphs, this is now extended into plotting Cumulative frequency graphs. Ratios are working with here due to the complexity of questions within the topic.	The end of year topics are both shape based and incorporate the prior learning of equations of lines and ratio and proportion.
Knowledge 	- To be able to convert decimals to fractions and percentages and vice versa. - To be able to order decimals, fractions and percentages. - To be able to write a recurring decimals as a fraction. - To be able to find the highest common factors for pairs and triples of numbers. - To be able to find the lowest common multiple for pairs and triples of numbers. - To know and apply the indices rule to simplify expressions. - To be able to write down numbers in the form of a stated base. - To be able to write numbers in standard form. - To be able to convert between standard form and ordinary values.	- To be able to solve multi step equations including with an unknown on both sides. - To be able to solve equations using area, perimeter and angle problems. - To be able to expand double brackets. - To be able to triples double brackets. - To be able to factorise quadratic expressions with a coefficient equal to 1. - To be able to factorise quadratic expressions with a coefficient not equal to 1. - To be able to solve quadratic equations by factorising. - To know that quadratic equations have two solutions. - To be able to factorise using the difference between two squares.	- To be able to write the equation of a line from a graph. - To be able to write the equation of a line from 2 points. - To be able to write the equation of a line from a point and a given gradient. - To be able to write the equation of a line of parallel and perpendicular lines. - To be able to use the equation of a line to find a point on the line. - To be able to find the y values from a quadratic equation. - To be able to plot a quadratic graph from an equation. - To be able to find the coordinates of a turning point using a quadratic graph. - To be able to estimate roots using a quadratic graph. - To be able to plot simple cubic graphs.	- To be able to find the area of a sector. - To be able to find the arc length. - To be able to recognise the circle theorems. - To be able to use the circle theorems to solve problems. - To be able to use circle theorems to prove results. - To be able to change the subject of an equation or formulae. - To be able to change the subject of an equation or formulae using factorising. - To be able to solve linear simultaneous equations using elimination. - To be able to solve linear simultaneous equations using substitution.	- To be able to draw cumulative frequency graphs. - To be able to estimate values from cumulative frequency graphs. - To be able to find averages and measures of spread using cumulative frequency graphs. - To be able to draw box plots. - To be able to use box plots to estimate values. - To be able to compare and contrast box plots. - To be able to draw histograms. - To be able to complete a frequency table from a histogram. - To be able to find averages histograms. - To be able to use ratios to find an amount. - To be able to solve problems with ratios.	- To be able to reflect a shape using a line of symmetry. - To be able to find a line of symmetry and describe a reflection. - To be able to translate a shape using a vector. - To be able to write a vector to describe a translation. - To be able to rotate a shape. - To be able to find the centre of rotation and describe a rotation. - To be able to enlarge a shape using a centre of rotation. - To be able to find a scale factor and describe an enlargement. - To be able to complete mixed transformations. - To be able to find the scale factor of similar shapes. - To be able to find missing lengths of similar shapes.

	- To be able to multiply and divide with standard form. - To be able to add and subtract with standard form. - To be able to write ratios from amounts including those in different units. - To be able to simplify ratios and find equivalent ratios. - To be able to write ratios in the form n:1 or 1:n. - To be able to write ratios as fractions and vice versa. - To be able to share an amount using a ratio.	- To be able to find a term in a quadratic sequence using the nth term rule. - To be able to find the nth term of a quadratic sequence.	- To be able to plot reciprocal graphs. - To be able to find the area of compound shapes. - To be able to solve problems involving area and perimeter. - To be able to solve problems involving area and perimeter using algebra. - To be able to identify interval errors. - To be able to find the upper and lower bound. - To be able to solve problems involving limits of accuracy.			- To be able to find missing lengths of similar shapes. - To be able to find the scale factor of areas of similar shapes. - To be able to find the area of similar shapes. - To be able to find the scale factor of volumes of similar shapes. - To be able to find the volumes of similar shapes. - To be able to recognise congruent shapes. - To be able to prove two shapes are similar.
Skills 	Use of numerical and conceptual knowledge. Applying and combining knowledge from different areas of mathematics. Use of mathematical equipment. Problem solving and reasoning; and interpreting questions.					
Retrieval practice Prior knowledge and skills that are revisited	Do nows are structured with questions, from last lesson, last week and last month.		A retrieval lesson is taught on each topic taking into account any gaps identified by topic tests, 1 or 2 weeks after completing teaching of the topic.			
Literacy including extended writing 	Key words highlighted in lessons. Interpret information from worded problems and be able to apply relevant techniques based on key words. Guided reading task set for homework once a fortnight highlighting an interesting area of mathematics.					
Numeracy 	All lessons are mathematics based and therefore require numeracy.					
Enrichment learning 	Students will be given opportunities in lesson to develop soft skills such as teamwork, independence, initiative and responsibility. .	Higher attainers to complete the parallel challenges.	UKMT maths challenge to be completed			
British values 	British values are not taught in specific topics but in all lessons teacher expectations of students is that they show mutual respect, respect personal liberty, follow academy rules and therefore respect the rule of law and show respect towards each other and value each other's contributions.					

Character 	Students challenged to justify their answers and explain their reasoning. Students supported in developing the communication skills required. Students to be encouraged to learn from their mistakes through follow-up tasks. Students encouraged to take pride in their work.		
Careers 	Explicit reference will be made throughout the course to careers related to the combination of topics studied. Examples include: • Medicine, • Social sciences • Pharmacy • Engineering • Logistics • Finance		
Assessment opportunities 	AFL strategies embedded into each and every lesson via use of multiple choice questions and/or mini whiteboard work.	Unit tests to be completed at the end of teaching each individual topic highlighting depth of understanding and areas requiring further work.	Cumulative AP assessments completed and levelled for students to assess their progress.
Personalised challenge for all: SEND, HPA	Tasks suitable for students of different levels or prior attainment including challenge for higher attainers		