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Curriculum planning template

Subject: Maths Year 8 Ability Mixed

Half term 1 / weeks	**Half-term 1 (week 1-2)**	**Half-term 1 (weeks 3)**	**Half-term 1 (weeks 4)**	**Half-term 1 (weeks 5)**	**Half-term 1 (weeks 6)**	**Half-term 1 (week 7)**	**Half-term 1 (week 8)**
Topic	Primes, factors and multiples	Handling data	Coordinates	Sequences	**<u>Ratio</u>** and proportion	Retention and re-teach	Linear graphs
Topic overview **Pupils will learn…**	To recall number properties such as factors, multiple, powers and roots and apply them to real world contexts such as Hcf and lcm	Students will explore different types of data and will be able to use and understand a range data handling skills	To understand what coordinates are, how to plot them, and how the relationship between them is used to describe graphs.	Students should be able to identify sequences and the rules they work to.	To understand and use ratio in a range of context. To find and use percentages including percentage change.	Focus on the process of reteach and retention, knitting together the learning in reaction to the assessments completed	To draw and understand straight line graphs understanding and using $y = mx + c$
Components	a) Students be able to recap key types of numbers: squares, cubes, roots, primes. b) Students to be able to construct prime factor trees and list numbers as a product of its prime factors. c) Students to be able put prime factors into Venn diagrams and understand how to find both Hcf and lcm. d) Students to be able work through problem solving and practice at deciding if lcm or Hcf is the method.	**a) Students to be able to calculate the mode, median, mean and range of a given dataset.** **b) <u>Students to be able to work out the mean and median from a frequency table.</u>** **c) <u>Students to be able to work out the mean and median from a grouped frequency table.</u>** d) Students to understand how to design and use data collection methods, know the differences between types of data, and know how we can use data to test a hypothesis. e) Students be able to show how to use a tally. f) Students to be able to plot bar charts and dual bar charts. g) Students to be able to represent data in a pictogram. h) Students to be able to plot missing co-ordinates on a scatter graph and use a scatter graph to estimate values using a line of best fit. i) Students to be able to represent a dataset in a pie chart.	a) Students be able to plot a coordinate on 4 quadrants. b) Students be able to find the midpoint of a line segment, using diagrams and the formula. c) Students be able to represent x = a and y = c. d) Students be able to use diagrams and a set of axes. Show drawing a triangle and $m = \frac{(y2-y1)}{(x2-x1).}$	a) Students to be able to, when given a sequence can find the next term by recognising the pattern. b) Students to be able to, from a sequence find the nth term of a sequence. c) Students to be able to understand that n represents any term in a sequence and can use this to answer questions about this. d) Students to be able to apply the above principles to picture sequences. e) Students to be able to find the next term of quadratic, Fibonacci, triangular sequence etc.	a) Students be able express one quantity as a percentage of another. b) Students be able to calculate percentage increase and decrease using a calculator and without. c) Students be able to calculate the original amount when given part of it and its percentages. d) Students be able to calculate percentage change: increase/decrease/profit/loss using. e) Students be able to: calculate simple interest. Calculate compound interest. Calculate depreciation. f) Students be able to compare amounts and value for money using proportion and division g) Interpret what a:b and a:b:c means, simplifying ratios, including ratios where one or both units need converting. h) To share/divide and amount into a given ratio, when	Staff complete a program of adaptive reteaching on specific topics based on the individual/class needs within their groups. Regular assessments are used to identify gaps in learning. Any gaps found are then addressed in lessons to help support learning and retention. Clear areas for improvement are monitored by individual staff and at a departmental level.	a) Students to be able to recap of negative numbers (all operations) b) Students to be able to substitute numbers into equations including negative numbers. c) Students to be able to change the subject of various equations and formulae. d) Students to be able to plot horizontal and vertical lines e.g. $y = -3$ $x = 4$ and lines such as $y = x$ e) Students to be able to substitute and plotting linear graphs from a table of values. f) Students be able to plot two linear graphs and understand the intersection between the two g) Students to be able to find the equation of the line from a diagram given

		j) <u>Students to be able to represent a data set in a stem and leaf diagram.</u>			either the total, one person's share, or the difference in shares is known.		
What pupils should already know (prior learning components)	Students should be confident at describing and giving explain of types of number (odd, even, prime, etc). A02 questions using get students to explain how they know, push that a prime number only has 2 factors. Students should be confident with basic arithmetic with numbers (add, subtract, multiply and divide integers) check understanding is strong of place value.	Students should already understand how to read scales, count and tally, plot coordinates, and measure and draw angles.	The structure of a set of axes. Positive and negative numbers. How to plot in the first quadrant.	Good mental arithmetic is needed to start sequences. Students should be able to recognise patterns, know the importance of times tables (i.e. the 3 times table is the sequence that increase by 3 each time).	Students should be confident at fractions and percentages conversions and be able to calculate fractions of amounts.	All the half term content will have been covered by this point. Staff will use departmental tracking documents to analyse the gaps in learning from the most recent assessments and all previous assessments. The ability to structure and breakdown a problem-solving question as exemplified in the TFI questions throughout the course.	Students should be confident in substituting positive and negative values into an equation/formula. Students should be able to plot co-ordinates in 4 quadrants and solve linear equations to find an unknown variable
Transferrable knowledge (skills)	The topic will build students' confidence with basic number skills. These skills underpin almost all of subsequent mathematics. This is particularly the case with confidence with negative values which will be used repeatedly in any unit that uses substitution and formulae.	Although the skills in this unit are relatively discreet with each diagram having its own methods, an over-arching link should be used to discuss the use of data illustration and its role in wider life. Other charts and diagrams will be added to the portfolio later.	This unit develops the understanding of what a coordinate is. This allows students to understand how create and plot a coordinate using a table of values. Once this is grasped move to understanding the role of these in terms of $y = mx + c$. This then moves to finding the gradient from points and using this with m = (y2-y1)/(x2-x1) to find gradient. A strong understanding of coordinates also links to vectors and transformations.	The creation and use of formulae in this unit will be used in other contexts that are unrelated, however sequences will be extended into quadratics and Fibonacci.	Ratio will be used in numerous multi step questions throughout the course. A grounding her is essential to accessing these questions. Percentage change will be used again in harder questions involving % change as well as with compound and simple interest.	This activity should serve to highlight and address areas of weakness in teaching and learning or retention. This early intervention to understand specific key areas for improvement or development. This should help to build confidence and improve students' ability to answer these and directly sequential problems.	The topic will build students' confidence with basic formula manipulation. It is where students begin making sense of the abstract algebra studied previously by linking it to visual representation. Elements of this unit will be built on when learning about quadratic graphs in y11. The gradient aspects will be used further in variable rates of change.
Key vocabulary pupil will know and learn	Addition, subtraction, multiply, divide, cube, square, factor, integer, powers, reciprocal, common, prime.	Data, discrete, continuous, table, two-way, interpret, pictogram, key, mean, median, mode, range, average, spread, scatter, estimate, plot, tally	Coordinates, quadrants, line segment, plot, draw, straight line, linear, interpreting, gradient, y-intercept, axes	Patterns, sequence, arithmetic, geometric, generate, term, consecutive,	Ratio, simplify, express, divide, share, calculate, amount, fractions, percentages, difference		Coordinates, querants, line segment, plot, draw, straight line, linear, interpreting, gradient, $y = mx + c, Y -$intercept, real life graph, simultaneous, solve, root, solution, subject.
Assessment activities	Weekly Sparx homework linked to the curriculum. End of unit reflection. Summative assessment 7	Weekly Sparx homework linked to the curriculum. End of unit reflection. Summative assessment 7	Weekly Sparx homework linked to the curriculum. End of unit reflection.	Weekly Sparx homework linked to the curriculum. End of unit reflection. Summative assessment 7	Weekly Sparx homework linked to the curriculum. End of unit reflection. Summative assessment 7	AfL and adaptive teaching will continue to support staff to assess the address areas.	Weekly Sparx homework linked to the curriculum. End of unit reflection. Summative assessment 8

			Summative assessment 7				
Resources available	Sparx codes a) M227, m698 b) M108 c) M529, m365 d) U751, u250	Sparx codes a) M287 b) M493 c) M597 d) M460 e) M644 f) M769 g) M574, m165 h) M210	Sparx codes a) M616, m230 b) M622 c) M797	Sparx codes a) M381 b) M991 c) M991 d) M241 e) M981	Sparx codes a) M235 b) M437 c) M528 d) M533 e) U332 f) M681 g) M885 h) M525	Before any assessments are completed, revision and guidance materials are provided for students to assist in independent study.	Sparx codes a) M106, m288 b) M797 c) M184 d) M932 e) M932, m843 f) M658 g) M544
Notes						This is an important point in the curriculum plan that enables individual teachers to review the gaps in learning for the classes they teach. The half-termly assessments are used to track students' progress and enable teachers to react quickly to any gaps in knowledge and prepare students for the next assessment. The feedback and modelling of the exam answers enables students to pick up exam techniques and the ability to communicate effectively.	