Curriculum Map

Subject: STEM (L2 Maths)
Year: 11

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Content	Number	Number and measures	Shape and space	Handling data	Handling data Revision
Knowledge	NS18, NS19, NS20	NS28, NS29, M10, M11, M12	M13, M14, M15, M16, M17, M18, M19	H6, H7, H8	H9, H10, H11
Key Terms	Fractions Decimals Percentages Ratios Formulas in words Formulas using letters BIDMAS Function machine Mixed Number Negative number Convert Improper fraction Approximate Mixed number	Direct proportion Inverse proportion Money Units Speed Density Mass Speed Diameter Dimension Simple interest Compound interest Radius Semicircle Pi Profit Imperial and metric systems	Perimeter Nets Surface area Plans and elevations Volume. Scale drawings Coordinates Angles in 2D shapes Front elevation Bearing Map scale Gradient Plan view Protractor Quadrilateral Side elevation Front elevation Cylinder Halfway point	Range Median Mode Mean Average Most common Most popular Least popular Consistency	Grouped frequency tables Probability Scatter diagrams Axis Line graph Correlation Scatter diagram Tally chart Unlikely Likely Certain Correlation Even chance Impossible Average Fair die Strong correlation Weak correlation

					No correlation Outcome Discrete data Random
Skills	Being able to read, write, order and compare positive and negative numbers of any size. To be able to carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation. To be able to evaluate expressions and make substitutions in given formulae in words and symbols.	To be able to understand and calculate using ratios, direct proportion and inverse proportion. To be able to follow the order of precedence of operators, including indices. To be able to calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting. To be able to convert metric and imperial units of length, weight and capacity using a) a conversion factor and b) a conversion graph.	To be able to calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except for triangles and circles). To be able to use formulae to find volume and surface areas of 3-D shapes, including cylinders (formulae to be given for 3-D shapes other than cylinders). To be able to calculate actual dimensions from scale drawings and	To be able to calculate the median and mode of a set of quantities. To be able to estimate the mean of a grouped frequency distribution from concrete data. To be able to use mean, median, mode and range to compare two sets of data.	To be able to work out the probability of combined events including the use of diagrams and tables, including two-way tables. To be able to express probabilities as fractions, decimals and percentages. To draw and interpret scatter diagrams and recognise positive and negative correlation.

		To be able to calculate using compound measures including speed, density and rates of pay.	create a scale diagram given actual measurements. To be able to use coordinates in 2-D , positive and negative, to specify the position of the points. To understand and use common 2-D representations of 3-D objects. To be able to draw 3-D shapes including plans and elevations. To be able to calculate values of angles and/or coordinates with 2-D and 3-D shapes.		
Key Questions	1. Convert the fraction into a decimal number and percentage.	1. Which process is more profitable? 2. Work out how much money	1. What is the plan view of this shape? 2. Draw a net of the	1. What is the average? 2. What is the mode of the data?	What is the probability of this happening? What is the probability of this happening?

	2. Order the numbers in an ascending/descending order. 3. Evaluate the expression, when n= ... 4. Use the worded formula to work out e.g cost of renting a car per day.	the item cost before the sale. 3. Which process is more profitable? 4. How much does the item cost including VAT? 5. What is the best value for money? 6. Which team is more efficient? 7. How many more workers do we need to complete the task?	shape. 3. Find the bearing of A from B. 4. What is the size of the angle? 5. Which angle is bigger? 6. How long is the distance in real life? 7. How long will this distance be on the map? 8. What is the scale of the drawing? 9. What is the surface area of this shape? 10. What is the perimeter of the shape? 11. Draw the side elevation of this shape.	3. What is the median? 4. What is the range? 5. What is the most popular result? 6. What is the most common result?	How likely is it? What is the correlation? What type of graph would be suitable to represent the data? Is there an anomaly?

Assessment	C5 Externally Set Assignment	Functional Skills Mathematics Level 2 Mock Exam C5 Teacher Devised Assignment	Functional Skills Mathematics Level 2 Exam C6 Externally Set Assignment	C6 Teacher Devised Assignment	Functional Skills Mathematics Level 2 Exam (additional opportunity)
Literacy/ Numeracy	Being able to read a number described in words and formulae described in words. Being able to understand a different meaning of certain common words used also in Maths, e.g. improper, mixed,substitution, symbol, etc.	Expanding a student's vocabulary by learning mathematical terminology such as direct and inverse proportion, indices, precedence, budget, capacity, conversion factor, tax, discount.. Understanding a different meaning of common words such as a compound interest, discount, rates of pay. Reading comprehension of long, worded questions which combine topics from different fields, such as science, maths, business.	Expanding yet further a student's vocabulary by learning mathematical terminology such as elevation, gradient, plan, coordinates. Understanding a different meaning of common words such as a net, composite shape.	Building up a student's vocabulary by learning mathematical terminology such as mode, median, average. Understanding a different meaning of common words such as a mean, common, most popular, least popular.	Further expansion of a student's vocabulary by learning mathematical terminology such as axis, scatter diagram, tally chart, a fair die, discrete data.. Understanding a different meaning of common words such as certain, even chance, impossible, weak and strong correlation.

SMSC/Character	Being able to compare prices and work out the best value for money. Being able to work out the tax. Ability to compare which process is more efficient. Ability to make decisions about managing a process in order to make it most effective.	Realisation that there are economical differences between different jobs. To be able to work out which process is more profitable. Being able to recognise the gradient of the terrain. Ability to work out the length of a journey based on the speed they will be travelling at and therefore being independent and reliable traveller. Being able to estimate profit when undertaking an activity.	Being able to read maps and drawings. Being able to prepare drawings by using a correct scale. Being able to plan a journey by reading a map and working out distances.	Ability to interpret data and being able to recognise the most popular/common data. Ability to work out the average when planning personal expenses. Ability to recognise the range of e.g. prices of an item when deciding to make a big purchase.	Being able to read and understand graphs in the media. Ability to interpret data and create their own opinion about it. Realisation that some data don't follow a pattern and being able to recognise this anomaly. Ability to access the chance of something happening, e.g. rainfall while on holiday.
Enrichment	Club - Barrington Stoke Young Editors after		Club - Barrington Stoke Young Editors after		Club - Barrington

opportunities and futures	school on Fridays at 3.10pm.		school on Fridays at 3.10pm. Holocaust Memorial Day speaker with National Literacy Trust.		Stoke Young Editors after school on Fridays at 3.10pm.
Rationale	Applying and expanding the Level 1 knowledge in the field of working with whole numbers, decimals, fractions and percentages.	Applying mathematical operations in more complicated, worded, money questions.	Applying the ability to handle relationships between measurements of various kinds, use angles and coordinates when involving position and direction and make use of geometric properties in calculations with 2D and 3D shapes and understand the relationship between them.	The students will be able to calculate, analyse, compare and interpret appropriate data sets, tables, diagrams and statistical measures, such as common averages (mean , median, mode) and spread (range).	At this stage students will be able to construct, interpret and evaluate a range of statistical diagrams. They will be able to calculate and interpret probabilities. By now they will be able to use statistics to compare sets of data and identify patterns and trends from data as well as recognise simple correlation.