

What does my subject look like in each of the pathways?

Engage	Discovery	Develop	Deepen
<p>Students are able to experience the sensory aspects of maths. Enjoying a concrete learning approach, using physical objects, pictures and songs to engage with the pre-key stage maths curriculum. Older students in KS4 and KS5 would be working towards AQA Unit Awards. Students will have a mathematical progression of skills through the exploration of sensory experiences.</p>	<p>Students working on the Discovery pathway will be building their mathematical skills. Recognising numbers and applying those numbers in real life situations to solve simple problems. Older students would be working towards an Entry Level One qualification. Students will be able to communicate their progression of mathematical skills through concrete and pictorial activities.</p>	<p>Students are developing their mathematical knowledge and building their foundation skills. This pathway follows the National Curriculum and allows students the opportunity to understand all areas of the maths curriculum. Older students on the Develop pathways will be working towards Entry Level Certificates or the Level One in Number and Measure. There will be a progression of mathematical skills as students develop and build their knowledge through academic years working towards appropriate qualifications.</p>	<p>Students are deepening their mathematical knowledge and demonstrating that they are able to apply skills and knowledge to progress towards accreditation as they move through school. Older students on this pathway will be working towards Level One Number and Measure and GCSE. The progression of mathematical skills is built upon throughout each academic year until students are confident and competent learners in the maths topic areas.</p>

What does my subject look like in each of the pathways, for each of our drivers?

	Engage	Discovery	Develop	Deepen
Communication	Students will communicate using speech, ACC, gestures, signs and symbols to show their involvement in mathematical based activities and express their level of enjoyment. This may include immersive play, number songs and exploring a variety on mathematical areas through different teaching methods e.g. using objects to discover shape and sizes.	Students will expand their ability to use speech, AAC, gestures, signs and symbols to show there enjoyment of maths. They start to recognise the importance of language in mathematical based activities, and how one skill builds on to the next e.g. counting numbers to 10 will help with money skills or time.	Students are developing their mathematical knowledge and understanding so they are able to use the correct terminology in the right context and be able to apply their knowledge to achieve learning outcomes e.g. say and write numbers up to 100 or fill in the blanks during a number song.	Students will be able to communicate their knowledge of maths in a variety of circumstances, whether it be in class, during assessment, or in the real world. Students strive to enhance their skills and knowledge so they have a strong skill set as the move through, and beyond the educational setting e.g. handling money or sitting an exam.
Independence	Students start to explore different mathematical skills so they can show interest in how maths can be used in day to day life. Using objects and pictures to learn new mathematical skills and knowledge e.g. matching objects to pictures.	Students will start to independently engage with various mathematical activities. They will start to explore different concepts by using objects and pictorial references to develop skills and knowledge e.g. recognising numbers and amounts	Students will be able to independently work during lessons to show their developing mathematical knowledge. They will be able to show that they are understanding concepts and able to apply these skills in real world scenarios e.g. sharing an apple in two halves	Students can confidently showcase their mathematical knowledge by independently thinking for themselves. Students will be able to apply the skills they have learnt with little or minimal support. This may be in terms of assessment and educational progression, or in real world circumstances e.g. students are able to buy ingredients and weigh them to cook a meal.

Resilience	Students will start to develop an understanding of numbers. They will recognise that maths is a subject that will always be covered in school and links to routines in and outside of school e.g. time - now and next	Students will actively be able to explore and discover how numbers are used in both the classroom and in the real world e.g. Discover through cause and effect toys that their actions have a consequence to develop their problem solving skills.	Students are able to show they are developing a knowledge of how maths is used outside of the educational context and start to build their confidence in real life scenarios e.g. identifying the number on the correct bus	Students will deepen their understanding of real world maths, and apply the skills and knowledge they have developed through school, confidently and independently. Students will be able to tackle a range of math related life skills so they are prepared for adulthood e.g. manage money going into a bank account.
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What does my subject look like in each of the Newman sites?

Whiston	Dinnington	NAR
All students are in EYFS, KS1 or KS2 and have one maths lesson each day. Children are taught in their class groups, and follow the appropriate outcomes for the curriculum pathway. Children are taught small steps so they are building their mathematical knowledge and skills so they can work through the curriculum pathway they are on, or progress to the next pathway.	All students are in KS3, KS4 or KS5 at our Dinnington site. Students are building on the skills and knowledge they have learn previously, and will now be working towards accreditation. Students continue to be taught on the appropriate curriculum pathway, and this will reflect the level of accreditation they are working towards. This will range from AQA Unit Awards to GCSE, preparing students for adulthood and moving onto the next stage.	All students based at NAR will be KS3, KS4 or KS5. Generally students will be primarily working on the Develop or Deepen pathway, and will be working towards a Level one or GCSE qualification. Students attending NAR will generally join us as they are entering KS3 so there will be work done to plug gaps in previous knowledge, and to further build the skills needed to work towards accreditation and moving on to work or further education.

1 Year Cycle

	Engage	Discovery	Develop	Deepen (Primary)	Deepen (Secondary)
Autumn 1	Shape Discover 2d and 3d shapes by handling, stacking, matching and sorting	Shape Sort objects and shapes and describe how they have been sorted	Number Place Value counting backwards and forwards	Number Place Value Counting forwards and backwards in steps – counting in multiples	Number Understand and represent Number including decimals, measures and positive and negative number
	Shape Moving objects of different size and weight	Measurement Understanding big and small and knowing the difference	Number Place Value Read and write number to 100	Number Place Value Identify, represent and estimate numbers using different representations	Number Calculations The four operations
	Number Matching Numbers	Number Place Value Showing awareness of number activities and counting	Number Use Place Value and compare Identify one more or one less than a number	Number Use Place Value and Compare Order and compare numbers beyond 1000	Number Calculations Multiples, factors, primes and prime factorisation
	Number Discover numbers in different environments	Number Place Value Counting up to 10	Number Place Value and rounding Use Place Value and Number facts to solve problems	Number Place Value and Rounding Round numbers to a required degree of accuracy i.e. 10,100,1000,10,000	Number Order of operations, inverse operations, roots and powers
Autumn 2	Number Acknowledge numbers to 3 through exploratory learning	Number Use Place Value and Compare numbers within 0 - 20	Addition and Subtraction Recall, Represent and Use Recall and use addition and subtraction facts up to 20	Addition and Subtraction Recall, Represent and Use Estimate answer, using either inverse to check or rounding	Number Understand fractions and decimals Working with ratios and fractions Convert fractions and decimals

	Number Create numerals through mark making	Number Use numbers 1,2,3 in different activities	Addition and Subtraction Calculations Add and subtract one and two digit numbers to 20	Addition and Subtraction Calculations Add and subtract numbers with up to or more than 4 digits	Algebra Understanding notation Function machines, simplifying and interpret simple expressions
	Addition and Subtraction Show interest in the changes in quantity	Addition and Subtraction Show changes in quantities up to 10	Addition and subtraction Solve problems Solve problems with addition and subtraction, including mental methods	Addition and subtraction Solve problems Solve two step or multi-step problems	Algebra Equivalence and proof Expanding brackets, changing the subject and manipulate algebraic expressions
Spring 1	Addition and Subtraction Placing a range of objects in groups	Addition and Subtraction Adding by counting on	Multiplication and Division Recall, represent and use Recall and use multiplication facts for 2's, 5's, and 10's	Multiplication and Division Recall, represent and use Recall tables up to 12 x12 Identify, multiples, factors and factor pairs	Algebra Solve equations Form and solve equations and inequalities
	Addition and subtraction Placing and removing objects	Addition and subtraction Add one and remove one	Multiplication and Division Calculations Calculate mathematical statements or multiplication and division	Multiplication and Division Multiply numbers with up to or beyond 4 digits by a one or two digit number Algebra Generate and describe number sequences Express missing number problems	Algebra Graphs $y = mx + c$
	Multiplication and Division Discover changes of amount through pictorial representation	Multiplication and Division Demonstrate awareness of different quantities	Multiplication and Division Solve problems Solve problems involving multiplication and division	Multiplication and Division Solve problems Solve problems with division and multiplication using knowledge of factors and multiples Solve combined operations using addition, subtraction, multiplication and division	Algebra Sequences Nth term

Spring 2	Multiplication and Division Handling different quantities, by placing objects into groups or lines	Multiplication and Division Making sets of 3	Fractions Recognise, find and name a half as one of two equal parts and a quarter as one of four equal parts	Fraction, Decimals and Percentages Fractions Identify, name and write equivalent fractions including mixed numbers and improper fractions Compare and order fractions, Use common factors to simplify fractions and solve problems	Ratio, Proportion and Rates of change Multiplicative relationships Scale drawings, conversion graphs and enlargements
	Multiplication and Division Respond to different patterns or changes in patterns	Multiplication and Division Making sets of 5	Fractions Recognise and write Recognise, find, name and write fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{1}{3}$	Fraction, Decimals and Percentages Decimals Read and write decimal numbers as fractions Rounding to 2dp Solve problems up to 3dp	Ratio, Proportion, Rate of change Ratio and Rates Understand and use ratio notation, ratios and fractions
	Fractions Explore shapes as a whole	Fractions Identifying shapes as a whole or a half	Fractions Compare Equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ Write simple fractions $\frac{1}{2}$ of 6 = 3	Fractions, Decimals and Percentages Recall and use equivalences between simple fractions, decimals and percentages Ratio and proportion Solve problems with calculation of percentages	Probability Probability scale, sample spaces and frequency tree
Summer 1	Fractions Discover two halves make a whole	Fractions Compare big and small objects, halves and wholes	Measurements Solve problems for length and height, mass and weight, capacity and volume	Measurements Convert between different units Use all four operations for solve problems involving measure	Geometry and Measure Perimeter, area and volume Perimeter, area and volume of polygons, including circles, trapeziums, compound shapes and prisms
	Fractions Recognise half an item, such as half an apple, or half a	Fractions Share physical items between two people so they get half each	Measurement Money Recognise and know the value of different	Measurement Money Use all four operations to solve problems involving	Geometry and Measure Construct and transform geometric figures Work with scale factors

	sandwich		denominations and symbols for £ and p	measure e.g. money	Similarity and enlargement Rotational symmetry
	Measurements Handle objects of differing length and mass whilst using appropriate language or responses	Measurement Money Use coins in shopping, 1p,5p or 10p	Measurement Time Sequence chronological events Tell and write the time to five minutes, including half past and quarter past/to	Measurement Time Read, write and convert time between 12 and 24 hour clock Convert between units of time	Geometry and measure Shape properties Properties of 2d and 3d shapes Parts of a circle
	Measurement Money Experience handling coins through role play and going out in the community	Measurement Time I can answer simple questions linked to time	Measurement Length, mass and capacity Use and read thermometers Compare and solve practical problems using different units of measurement	Measurement Perimeter, Area and Volume Calculate perimeter and area on rectilinear shapes Estimate volume and capacity	Geometry and measure Angles Angles on a point, straight line, vertically opposite and parallel lines Bearings
Summer 2	Measurement Time Discover the sequence of events using now and next and first and then	Measurement Use language more less, most, least, how many, hot, cold, heavy, light or show examples	Geometry Identify and describe 2d and 3d shapes	Geometry Compare and classify 2d shapes Identify lines of symmetry Name parts of a circle Angles and Line Identify and draw given angles	Geometry and measure Pythagoras and Trigonometry Understand use Pythagoras theorem Use trigonometry to find missing sides Prove geometric facts
	Measurement Temperature Handle objects of different temperatures while being introduced to the words hot and cold	Shape Talk about properties of different shapes and objects	Geometry Position and Direction Describe position, direction and movement	Geometry Position and Direction Identify and describe the movement of a 2d shape on a grid	Statistics Represent and interpret data Construct and interpret different charts and tables
	Shape Changing differing sized and shaped objects and moving in and out of containers	Shape Turn an object quarter, half and full turns	Statistics Present and interpret Pictograms, tally charts and simple tables	Statistics Present and Interpret Complete, read and interpret information in tables and graphs	Statistics Statistical measures Finding averages

			Statistics Solve problems Ask and answer simple questions by counting the number of objects	Statistics Solve problems Solve comparison, sum and difference problems using information on a graph	Statistics Bivariate Data Scatter graphs
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N.B. The curriculum will be taught in the above sequence the majority of the time, however there may be occasions where topics are taught concurrently. This would occur when there is more than one teacher teaching a class, and teaching separate topics allows each teacher to take ownership of that particular topic, spending time revisiting and consolidating when necessary. Teachers would always ensure students had the skills needed to learn and engage with the chosen topic, and that the progression of knowledge and skills will not be impacted by this change in sequence delivery.

Similarly the timescales may not always be strictly adhered to as individual teachers may feel more or less time is needed to be spent on a topic, therefore the termly timescales are a guideline. It is down to individual teacher discretion to determine the length of time, and this will vary from group to group dependent on their need and which pathway they are on, however the teacher will continue to follow the sequence of topics and will cover all topics each year, and this would be reflected on medium term planning.

For the Engage and Discover pathways, the first topics are focusing on shape and measurement rather than number, this is due to children's first mathematical development occurring as they seek to make patterns, make connections, and recognise relationships as they learn about sorting and matching, and develop an understanding of shape, space and measures.

Curriculum document for development

Flightpath

Focus area within the subject:

Engage	Discovery	Develop	Deepen		
<p>Students will be following a sensory based curriculum where they can engage in Maths through experiencing sensory aspects of each topic area. Students will use concrete object, pictures and songs to build their interests in maths.</p>	<p>Students on the discovery pathways will primarily follow the small steps to gradually build their knowledge of maths skills. They will work towards AQA unit awards where they can build a bank of awards that cover all topics of the curriculum pathways or they will create portfolio of evidence for the Entry Level 1 qualification.</p>	<p>Students on the Develop pathway are taking a more academic approach to maths, but may still utilise concrete and pictorial concepts to help build understanding. Students on this pathway would be working towards Entry Level 2 or 3 or Level 1.</p>	<p>Students on the Deepen pathway will be working towards the higher level accreditation in school, being able to apply abstract concepts to answer questions across the whole curriculum. These students will be confident with exam style questioning and reasoning and will have continued to develop and build on skills and knowledge throughout the key stages.</p>		
<p>AQA Unit Awards Variety of AQA unit awards hyperlinked on planning documents – following the topic sequence.</p>	<p>Entry Level 1 AQA Entry Level Certificate in Maths</p>	<p>Entry Level 2 AQA Entry Level Certificate in Maths</p>	<p>Entry Level 3 AQA Entry Level Certificate in Maths</p>	<p>Level 1 Edexcel Level One Number and Measure</p>	<p>GCSE (AQA) AQA GCSE Mathematics Paper One – Non-Calc Paper Two – Calc Paper Three - Calc</p>

How are children achieving in each of the pathways? How do you know, quantitative and qualitative? What actions are you taking as a result of the analysis? How are you ensuring that staff have the subject knowledge to teach your subject?

Engage	Discovery	Develop	Deepen
<p>Students in EYFS and Primary are monitored throughout the year via a learning journey that is completed by teaching and support staff. Students' progress will be tied to the learning outcomes that have been developed against the 5 areas of the Engagement Model.</p> <p>Progress is currently not quantitative but is qualitative through teacher assessment.</p>	<p>Students on the Discovery pathway are assessed against the Pre-Newman Tracker. They are given a quantitative score through teacher assessment.</p> <p>The curriculum topics are sequenced to match all other pathways but the outcomes are set to be achievable for these children, but still having ambitious goals. Children will be using mainly concrete, and some pictorial concepts to demonstrate their understanding of mathematical topics. Children may receive Success at Arithmetic interventions if this is beneficial. White Rose Maths is used as an additional resource tool to deliver small steps.</p>	<p>Students on the Develop pathway continue to be teacher assessed against the Newman Tracker or via assessment on sites such as Education City or White Rose Maths. In secondary students may sit an Entry Level assessment. These results will both be quantitative and will show progress as children progress through the pathway. Students are starting to develop independence in the subjects and requiring less support when completing tasks. Student will also show that their reasoning and comprehension skills have developed. Children may receive Success at Arithmetic interventions if this is beneficial.</p>	<p>Students on the Deepen pathway are showing the most independence in the subject. These students will be working confidently in Primary and towards higher level accreditation such as Level One or GCSE.</p> <p>These students show progress through assessment, which would be quantitatively measured. All staff will be following the whole school planning documents, supported by the White Rose Maths content so that all students are receiving high quality, well planned lessons.</p>