Scheme of Work - Maths

Maths Scheme of Work

The Curriculum

The curriculum has been developed by using and widening the National Curriculum in order to produce a broad and balanced progressive, sequential long term plan with consideration of the local area and resource. All aspects of which comply with legislation and national guidance, this includes the teaching of Careers Education, Information, Advice and Guidance (CEIAG) across school.

Maths

The curriculum that is in place is based upon two things:

1) Maths activities that lead to achieving **the school's intent** - to deliver a curriculum which is accessible to all and will inspire **happy, confident, independent learners who are prepared for adulthood.**
2) Maths that is relevant, usable and **supports individual learning needs** of students at Epinay School.

In order for us to achieve this, we have based our scheme of work on the following **3 Key statements** across the academic year.

1. To communicate mathematical needs effectively within the world we live in.
2. To develop functional mathematical strategies to encourage problem solving, accessibility and the functional use of maths in the world around us.
3. To develop confident mathematicians to support students into the world of work.

The **intent** of our maths curriculum is to deliver a curriculum which is accessible to all and will inspire **happy confident independent learners who are prepared for adulthood by:**

- Enabling students to develop their mathematical skills in real life situations they will face in adulthood
- Have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed in a variety of situations
- Encouraging students to take their mathematical knowledge into other situations and continue to add to it when leaving school.
- Giving opportunities to make connections across mathematical ideas to develop fluency, mathematical reasoning and competency in solving problems
- Becoming confident and proficient in the application of mathematics in the context of the wider world and everyday life.
- Be exposed to creative and exciting opportunities which will excite and inspire them; including problem solving
- Experience opportunities across all curricular areas for the development and application of mathematical skills

From the long term plan a scheme of work has been produced and **implemented** which has high and equal aspirations for all learners and incorporates:

- **PFA links**

Scheme of Work - Maths

- **Cultural Capital links**
- **Reading opportunities**
- **Key Vocabulary**
- **Planned differentiation, Resource, Support or activity**

Class groups are based upon English ability; therefore, each maths group has a wide range of abilities. With this in mind, each unit planned has a set of progressive and sequenced skills and knowledge objectives that start from pre stage through to stage 6. The scheme of work has been developed by using key National Curriculum end of year objectives, which have been broken down into small steps to meet the needs of our students. We have renamed these yearly expectations 'stages'. In each class there are students of varying mathematical ability levels, working through the stages at different paces. This allows us to differentiate, challenge and extend all of our children in each class no matter their ability.

Long Term Maths plan

Overview

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Number and Place Value Geometry - Focus on Shape Addition and Subtraction	Multiplication and division Fractions and decimals Money	Addition and Subtraction Time	Geometry – Focus on position and direction Fractions and decimals Multiplication and division	Statistics Measures	Multiplication and division Fraction and decimals

At Epinay school there are a range of pupils with complex needs. 100% of students are diagnosed as having a learning difficulty/disability, within this a large % of pupils are diagnosed as having ASD, MLD and SLD (May, 2022). These developmental disabilities can cause significant social, communication and behavioural challenges. They affect how a person acts and interacts with others, communicates, and learns.

Maths topics have been carefully chosen to reflect this. Students generally have difficulties within the following areas:

- Applying concrete skills to abstract concepts
- Retaining prior knowledge to build upon
- Applying mathematical concepts to word problems - some pupils may be fluent readers but need support to comprehend what they have read and what they need to do.

The scheme of work has been designed to ensure students can develop within these areas, whilst also ensuring that Maths at Epinay is inclusive for all learners, and that they can take part in all lessons through differentiation and support.

Scheme of Work - Maths

Progression of skills and knowledge

Phase 1 – Students work towards meeting phase 1 targets based on child initiated learning and good practice.

Phase 2 & 3 - Students build on the skills knowledge gained in phase 1 and work through progressive objectives

Phase 4 - Students are in a place to use the skills and knowledge gained in phase 2 and 3 to begin an appropriate qualification route, this may be AQA Entry level certificate, Pearson Functional Skills or GCSE dependent upon ability.

Phase 5 - Students are in a place to use the skills and knowledge gained in phase 4 to achieve a higher level of qualification where appropriate. Students will work towards further objectives within relevant progressive qualifications e.g. Functional skills level 1, 2 and/or NOCN Suite of Level 1 and 2 Awards in maths Skills.

The objectives that students meet are logged electronically. Termly progress data is collected, analysed and reported. Phase 1 has their own SOW which reflects relevant PFA links, vocabulary and cultural capital opportunities.

	Autumn Term 1						
	Stage						
	P	1	2	3	4	5	6
Planned PFA Links/SMSC	**Number and place value -** Being able to recognise and write numbers. Understanding of numbers to use in adult life. Solving problems which may be challenging to promote resilience **Shape -** Planned discussion or research into jobs that require use of shape, eg practical jobs, builders, joiners to cut materials into certain shapes. **Addition and subtraction -** Becoming aware of mental calculations which are needed for adult life. Word problems related to real life situations. **Number and place value -** **Shape -** Researching cultural buildings of different shapes. Researching about pyramids. Building own models of famous landmarks.Visit to local landmarks to look at shapes that can be seen in structures. Angel of the north. Stadium of Light. St James Park. Local bridges in the area. Having opportunity to model structures of famous landmarks						
Active Learning Opportunities	**Shape** - Create own worksheet showing control marker numbers and the position of a number to locate. Pupils find the correct number, eg, a 6, then they have to name the shape with the given number of sides and describe the basic properties. To challenge (stage dependent) pupils will sketch a regular and irregular version of each shape, and could also use a key to colour obtuse and acute angles.						

Scheme of Work - Maths

Planned Reading Opportunities	**Number and place value -** Spellings of numbers for homework. Reading numbers as words (stage relevant) Reading of place value problems. **Shape -** Matching names to shapes. Spelling of names of shapes for homework (stage specific) **Addition and subtraction -** Reading of work problems. Reading of key language. Finding key terms in a dictionary. Writing own word problems.						
Notes for topics	**Number and place value -** Every day pupils should be counting, even if it is a shape lesson, count as a starter, need to create counting fluency. **Shape -** When sorting, must be able to distinguish between items, not name them. So could separate circles and triangles, possibly not name them. **Addition and subtraction -**Only work within the numbers that they know. If up to 5 then work within 5. Begin with the concept of adding to and taking away from, do not have to reco if not ready.	**Number and place value -** Spellings of numbers as words to be recognisable but not necessarily 100% accurate. Place value problems to be simple and related to numbers learnt **Shape -** Shapes to be covered listed in key language **Addition and subtraction -** Problems should be 1 step using numbers to 20. Apparatus can be used to assist with word problems.	**Number and place value -** To achieve outcome Spellings of numbers as words to be recognisable but not necessarily 100% accurate. **Shape -** Shapes to be covered in key language from this stage and any previous stages. Lines of symmetry objective covers horizontal and vertical lines as a minimum. **Addition and subtraction -** To achieve word problems outcome, pupils need to select correct operation from mixed addition and subtraction problems. Numbers used should be up to 100. Concentrate on mental calculations as	**Number and place value -** To achieve outcome spellings of numbers as words to be recognisable but not necessarily 100% accurate. Encourage pupils to learn correct spellings through homework activities. Place value problems should cover outcomes from all aspects of place value strand. **Shape -** Shapes to be covered in key language from this stage and any previous stages **Addition and subtraction -** To achieve word problems outcome, pupils need to select correct operation from mixed addition and subtraction problems. Numbers used should be up to 1000 Concentrate on mental calculations as	**Number and place value -** To achieve outcome Spellings of numbers as words to be recognisable but not necessarily 100% accurate. Encourage pupils to learn correct spellings through homework activities. Place value problems should cover outcomes from all aspects of place value strand. **Shape -** Shapes to be covered in key language from this stage and any previous stages. To achieve lines of symmetry objective, pupils must recognise the majority of lines, not only horizontal and vertical. **Addition and subtraction** - Relate problems to mental calculations which pupils have been working on. Pupils need to be able to select correct numbers and operations from more complex questions.	**Number** and place value - Must be evidence of all parts of the objective to achieve, for example, read, write, order and compare numbers. Could be that part highlighted when evidence of two keywords then completed later in the year. Place value problems should cover outcomes from all aspects of place value strand. **Shape -** Shapes to be covered in key language from this stage and any previous stages. Measuring and drawing of angles up to 180 degrees only. **Addition and subtraction -** Relate problems to mental calculations which pupils have been working on. Pupils need to be able to select correct numbers and operations from more complex questions. Objectives including	**Number and place value -** Place value problems should cover outcomes from all aspects of place value strand **Shape -** Pupils should understand rules relating to missing angles from mixed shapes, so that they need to select the number of degrees they are calculating to. **Addition and subtraction -** Relate problems to mental calculations which pupils have been working on. Pupils need to be able to select correct numbers and operations from more complex questions. Objectives including all 4 operations can

Scheme of Work - Maths

			this is what pupils would have been working on, eg, adding and subtracting multiples of 10.	this is what pupils would have been working on, eg, adding and subtracting hundreds, tens and units to a number.		all 4 operations can not be achieved until evidence of this, so may need to revisit later in the year.	not be achieved until evidence of this, so may need to revisit later in the year.
Planned Key Vocabulary (Topic specific)	**Number and place value** 1:1 correspondence, count, same, different, items, numbers, numerals, words, zero, one, two, three, four, five, six, seven, eight, nine, ten to twenty, lots, more, less. **Shape** Shapes, 2D, circle, square, triangle, rectangle, characteristics, flat, round, straight, point. **Addition and Subtraction** Add, addition, plus, more, sum of, altogether, subtract, subtraction, take-away, minus, less, fewer, total, equals, same as, add subtract and equals signs.	**Language from previous stage and:** **Number and place value** Numbers to twenty and beyond. None, count (on/up/to /from/ down) Before, after, many, few, fewer, least, fewest, smallest, greater, lesser, equal to, the same as, pair, units, ones, tens, digit, numeral, figure(s), compare, (In)order/a different order, size. value, between, above, below. **Shape** Cube, cuboid, pyramid, sphere, cone, cylinder, **g**roup, sort, Shape curved, hollow, solid, corner, pointed, face, side, edge Make, build, draw **Addition and subtraction** Number bonds Number line, make,Difference between How many	**Language from previous stages and:** **Number and place value** Ten more/less halfway, odd, even, numbers to one hundred, hundreds, partition, recombine one-, two- or three-digit number place, place value stands for, represents exchange, > greater than < less than symbols. **Shape** Pentagon, hexagon octagon, rectangular, circular, triangular, vertex, vertices, size, bigger, larger, smaller, symmetrical, line of symmetry, fold, match, mirror line, reflection pattern, repeating pattern **Addition and subtraction** Double, near double, half, halve.	**Language from previous stages and:** **Number and place value** Hundred more/less, numbers to one thousand. **Shape** Pentagonal, hexagonal, octagonal, quadrilateral, right-angled, horizontal, vertical, perpendicular and parallel lines. **Addition and subtraction** Inverse relationship, approximate, approximately	**Language from previous stages and:** **Number and place value** Numbers to 10,000. Tenths, hundredths, decimal (places), round (to nearest), thousand more/less than, negative integers, ten thousand, hundred thousand, million, count through zero, consecutive Roman numerals (I to C). **Shape** Heptagon, equilateral triangle, isosceles triangle, scalene triangle parallelogram, rhombus, trapezium, quadrilaterals, hemisphere, prism, triangular prism spherical, cylindrical, tetrahedron, polyhedron, polygon, oblong, rectilinear, construct, sketch, centre, reflect,	**Language from previous stages and:** **Number and place value** Numbers to 1,000,000, powers of 10, ascending/descending order. **Shape** Octahedron Regular and irregular, polygons, congruent, classify **Addition and subtraction** Multi step	**Language from previous stages and:** **Number and place value** Numbers to ten million **Shape** Vertically opposite (angles), circumference, radius, diameter, concentric, arc net, open, closed dodecahedron. **Addition and subtraction** Efficient written method

Scheme of Work - Maths

		more to make..?, how many more is…than..?, how much more is..? How many fewer is…than..?, how much less is..?			reflection, acute and obtuse angles. **Addition and subtraction** Operation, estimate		
Number and Place Value	I can demonstrate an understanding of the concept of 1:1 correspondence e.g. can give a cup to each pupil. I can distinguish between 'one' and 'lots'. I can say the number names to 5 in the correct order with support e.g. by joining in with the teacher. I can say the number names to 5 independently. I can demonstrate the values of numbers by putting the items into sets when asked. I can count to 10. I can count beyond 10. I can identify how many objects there are in a group of up to 10 objects by counting	I can count in multiples of 1 I can write numbers from 1 to 20 in digits I can write numbers from 1-20 in words I can read numbers from 1-20 in digits I can read numbers from 1-20 in words I can count read and write numbers to 100 in numerals Count to and across 100, forwards and back Find 1 more or 1 less than a given number I am beginning to identify numbers in different contexts (tens and units apparatus)	I can write numbers to 100 in numerals and words I can read numbers to 100 in numerals and words I know the place value of each digit in a 2 digit number I can count forward or backwards in 10s from any number I can identify, represent and estimate numbers I can use place value or number facts to solve problems	I can write numbers to 1000 in numerals and words I can read numbers to 1000 in numerals and words I know the place value of each digit in a 3 digit number I can find 10 or 100 more or less than a given number I can identify, represent and estimate numbers I can round numbers with up to 3 digits to the nearest 10 or 100	I can read and **write** numbers to 10 000, in numerals and words I can **read** and write numbers to 10 000, in numerals and words I know the place value of each digit in a 4 digit number I can find 1000 more or less than a given number I can count backwards through 0 to include negative numbers I can identify, estimate and represent numbers I can round any number to the nearest 10, 100 or 1000	I can read, **write** and compare numbers to at least 1,000, 000 I can **read**, write and compare numbers to at least 1,000, 000 I know what each digit represents in numbers up to 1,000,000 I can count forward or back in steps of powers of 10 I can use negative numbers in context and can count forwards/ backwards with positive and negative numbers through 0. I can round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 or 100,000	I can read, **write** and compare numbers to at least 10,000, 000 I can **read**, write and compare numbers to at least 10,000, 000 I can determine the value of each digit in numbers up to 10,000,000 **(split from above objective)** I can use negative numbers in context I can calculate intervals across 0 when using negative numbers I can round any whole number

Scheme of Work - Maths

	using 1-1 correspondence. I can recognise small groups of items on sight (including dice etc). I can demonstrate an understanding that the last number represents the total number of the count. I can read numbers in numerals 0-9. I can write numbers in numerals 0-9. I understand that the number of items remains the same when rearranged (providing that nothing has been added or taken away). I can count to 20.	I am beginning to solve simple number problems (not an objective but application on the above to be used		I can solve number problems and practical problems	I can solve number problems and practical problems	I can solve number problems and practical problems	I can solve number problems and practical problems
Shape	I can recognise some common 2D shapes I can sort objects according to a stated characteristics e.g. triangles and circles. I can name 2D shapes when given a variety.	I can recognise and name 2D shapes I can recognise and name 2D shapes in different sizes I can recognise and name 2D shapes from everyday objects	I can identify and describe the properties of 2D shapes I can compare and sort 2D shapes I can identify lines of symmetry in 2D shapes	I can describe properties of 2D shapes using a correct terminology I can identify horizontal and vertical lines in relation to other lines I can identify perpendicular and parallel lines in relation to other lines	I can compare and classify quadrilaterals and triangles based on properties and sizes	I can distinguish between regular and irregular polygons I can use properties of rectangles to deduce related facts	I can compare and classify geometric shapes based on their properties and sizes I can find unknown angles in triangles, quadrilaterals and regular polygons

Scheme of Work - Maths

		I can recognise and name 3D shapes I can recognise and name 3D shapes in different sizes I can recognise and name 3D shapes from everyday objects	I can identify and describe the properties of 3D shapes I can identify 2D shapes on the surface of a 3D shape I can compare and sort common 3D shapes	(can link with 2D shapes) I can recognise right angles I can draw 2D shapes I can recognise and describe 3D shapes in different orientations I can make 3D shapes using modelling materials	I can identify acute and obtuse angles I can identify lines of symmetry in 2D shapes in different orientations I can complete a simple symmetric figure with respect to a specific line of symmetry I can find the area of rectilinear shapes by counting in here	I know angles are measured in degrees and I can estimate and measure them (up to 180 degrees) I can draw a given angle writing its size in degrees (up to 180 degrees) I can identify 3D shapes, including cubes and cuboids, from 2D representations	I can illustrate parts of a circle including radius, diameter and circumference, and know that the diameter is twice the radius I can recognise, describe and build simple 3D shapes, including making nets
(Pre Stage - Focus on Number if still needed) **Addition and Subtraction (Focus on mental methods)**	I can add 1 to a group of items and indicate how many there are now. I can subtract 1 from a group of items and indicate how many there are now. I can recognise the mathematical symbols of add, subtract and equal to. I can demonstrate an understanding of the mathematical symbols of add, subtract and equals to.	I can read, write and understand calculations with + - = I can show and use number bonds to 20 I can show and use subtraction facts to 20 I can subtract 1 digit numbers to 20 I can add 1 digit numbers to 20.	I can recall and use + and - facts to 20 and use number facts to 100 I can add and subtract a two digit number, 1s and 10s I can show that addition can be done in any order and subtraction can't.	I can add and subtract numbers mentally - 3 digit and ones I can add and subtract numbers mentally - 3 digit and tens I can add and subtract numbers mentally - 3 digit and hundreds I can solve missing number problems for + and -	I can round any number to the nearest 10, 100 or 1000 I can solve mental calculations with increasingly large numbers (addition and subtraction) I can use estimating to check answers to calculations (using rounding to check mental addition/ subtraction) I can solve 2 step subtraction problems (mental calculations)	I can add mentally using increasingly large numbers I can subtract mentally using increasingly large numbers I can use rounding to check answers to calculations and levels of accuracy I can solve multi step addition problems in context, deciding	I can calculate mentally including with mixed operations and large numbers (focus on addition subtraction) I can use estimates to check answers to calculations (rounding and mental addition subtraction) I can solve addition and subtraction multi - step problems (large

Scheme of Work - Maths

		I can solve 1 step problems using addition (using strategies above) I can solve 1 step problems using subtraction (using strategies above)	I can solve simple 1 step problems with addition and subtraction (related to objectives above) I can apply mental strategies to problems	I can solve word problems for + and - (using mental methods above)	I can solve 2 step addition problems (mental calculations)	which operation to use and why I can solve multi step subtraction problems in context, deciding which operation to use and why I can solve problems using **addition, subtraction,** multiplication and division understanding the meaning of the equals sign	number mental calculations) I can use knowledge of the order of operations to carry out calculations involving the 4 operations

	Autumn Term 2						
	Stage						
	P	1	2	3	4	5	6
Planned PFA Links/SMSC	**Multiplication and division =** Discussions around sharing and equality. How are situations made fair? What is fair in the workplace? What happens if something isn't fair, how would you handle a situation? **Fractions and decimals -** Fraction problems linked to everyday situations - ½ price items etc, working out mental calculations linked to adulthood situations. **Money -** Visit a local shop to 'spend' money and receive change. Discussions around needing to pay for items, earning money, getting change. Discussions and research around savings and types of accounts. Visit from Barclays money sense scheme - discussions around jobs in the finance industry. Tasks looking at bank accounts - links to overdrafts, income, expenditure, debts etc. Tasks looking at business accounts - profit and loss Best buy problem solving linked to shopping in adult life. **Money -** Visit to a local bank or building society to see 'behind the scenes'						

Scheme of Work - Maths

Active Learning Opportunities	**Fractions** Pupils locate numbers from the control panel and then find a given fraction. For example, at control marker 1, use the digits in position 1 and 2 on the marker to create a 2 digit number. Find 1/3 of the number they have created. They can find any unit fractions which the numbers allow. To challenge (stage dependant), pupils could find non unit fractions such as 2/3 or 3/5 of a number.						
Planned Reading Opportunities	**Multiplication and division =** Reading of key language. Finding key language in dictionary. **Fractions and decimals -** Reading of fractions problems. Matching fraction words to fractions **Money -** Reading of word problems, reading names of items to be 'bought', writing money related word problems,						
Notes for Topics	**Number and place value -** Every day pupils should be counting, even if it is a shape lesson, count as a starter, need to create counting fluency. **Money -** Coin does not have to be specific or match a price, just the concept of exchange. Beginning to recognise some coins will prepare well for Stage 1.	**Multiplication and division -** Simple number patterns linked to multiples within the stage. Pictorial representations to be used where appropriate. **Fractions and decimals -** Halves and quarters only. Quantities only need to be up to 20 **Money -** Simple money problems relating to small amounts of money.	**Multiplication and division -** Statements to be related to tables relevant to stage **Fractions and decimals -** Simple fraction problems relate to halves, quarters and thirds **Money -** Problems appropriate to stage, calculations should be able to be done mentally where pupils are counting or finding change from simple figures or whole pounds.	**Multiplication and division -** Mathematical statements related to stage 3 tables and below. No need to include remainders until completing word problems later in the year unless it is to add challenge where appropriate. **Fractions and decimals -** Quantities to relate to unit fractions, non unit fractions used to challenge. Word problems must be from a mixed set, where pupils are not simply finding fractions of quantities for every question. Relate to adding and subtracting, finding quantities left over etc. **Money -** Complete addition and subtraction problems	**Multiplication and division -** Mental calculations using place value facts, mixed operations so pupils are not simply following a set process. **Fractions and decimals -** Adding and subtracting fractions to begin to use mixed numbers. When looking at equivalent fractions pupils should be able to decide how to simplify or change to given multiples. **Money -** Problems should be from mixed questions, rather than set of the same style questions.	**Multiplication and division -** Mental calculations from mixed operations. Pupils need to select the correct strategy. key language should be used (factors, prime numbers etc) and learnt by pupils to understand the meaning. **Fractions and decimals -** Pupils should become confident deciding strategy to make fractions equivalent using knowledge of multiples. Any word problems should require pupils to decide if fractions need to be made equivalent to help them solve the problem **Money -** Mixed operations in word problems. Rounding to nearest £ or	**Multiplication and division -** Problem solving needs to be mixed multi step operations using appropriate written or mental methods Algebra introduction using basic methods **Fractions and decimals -** Pupils should be confident identifying when and how to make fractions equivalent in order to compare, add, subtract etc. **Money -** Link to multi step problems in preparation for later exam work. Use of rounding answers to be used to cover rounding to appropriate degree of accuracy, nearest £, nearest 10p etc.

Scheme of Work - Maths

				related to money. Should be from mixed set of questions where operation needs to be selected		nearest 10p will cover rounding decimals	
Planned Key Vocabulary (Topic specific)	**Number and place value** 1:1 correspondence, count, same, different, items, numbers, numerals, words, zero, one, two, three, four, five, six, seven, eight, nine, ten to twenty, lots, more, less. **Money** Money, coin, cost, price, how much? Buy, sell, penny, pence, pound,	**Language from previous stage and: Multiplication and division** Odd, even, count in twos, threes, fives Count in tens (forwards from/backwards from) How many times? Lots of, groups of, Once, twice, three times, five times Multiple of, times, multiply, multiply by, repeated addition, array, row, column, double, halve, share, share equally, group in pairs, threes, etc. Equal groups of, divide, divided by, left, left over. **Fractions** Whole, equal parts, four equal parts, one half, two halves, a quarter, two quarters **Money** Spend, spent, pay change, costs more cheap, costs less, cheaper costs the same as how much	**Language from previous stages and: Multiplication and division** Describe the pattern, describe the rule. facts, inverse, share, share equally, one each, two each, three each … ten each group in pairs, threes … tens equal groups of. **Fractions** two quarters, three quarters, one third, a third, equivalence, equivalent **Money** See previous	**Language from previous stages and: Multiplication and division** Product Multiples of four, eight, fifty and one hundred Scale up **Fractions** Numerator, denominator, unit fraction, non unit fraction compare and order, tenths sixths, sevenths, eighths, tenths... **Money** Estimate	**Language from previous stages and: Multiplication and division** Multiplication facts (up to 12x12), division facts inverse, derive, factors, factor pairs. **Fractions** Equivalent decimals and fractions, hundredths, decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion **Money** Convert, value	**Language from previous stages and: Multiplication and division** Factor pairs, composite numbers, prime number, prime factors, square number, cubed number, formal written method. **Fractions** Proper fractions, improper fractions, mixed numbers, percentage decimal equivalents to half, quarter, fifth, two fifths, four fifths, ratio, proportion, in every, for every percentage, per cent, % **Money** Discount currency	**Language from previous stages and: Multiplication and division** Order of operations, common factors, common multiples **Fractions** Degree of accuracy, simplify **Money** Profit, loss

Scheme of Work - Maths

		…? how many …? total, double.					
Pre stage - Number and place value. **Stages 1 - 6 Multiplication and Division**	I can demonstrate an understanding of the concept of 1:1 correspondence e.g. can give a cup to each pupil. I can distinguish between 'one' and 'lots'. I can say the number names to 5 in the correct order with support e.g. by joining in with the teacher. I can say the number names to 5 independently. I can demonstrate the values of numbers by putting the items into sets when asked. I can count to 10. I can count beyond 10. I can identify how many objects there are in a group of up to 10 objects by counting using 1-1 correspondence.	I can count in 2s I can count in multiples of 2 I can count in 5s I can count in multiples of 5 I can count in 10s I can count in multiples of 10 I can complete simple number patterns	I can count in steps of 2, 3 and 5 from 0. I can recall and use division facts for the 2, 5 and 10 x tables I can recall and use multiplication facts for the 2, 5 and 10 x tables I can calculate mathematical statements for multiplication I can calculate mathematical statements for division	I can count from 0 in multiples of 4 and 8. I can count from 0 in multiples of 50 and 100 I can recall and use multiplication and division facts for the 3x tables I can recall and use multiplication and division facts for the 4x tables I can recall and use multiplication and division facts for the 8x tables I can calculate mathematical statements for multiplication and division facts that i know	I can count in multiples of 6, 7, 9, 25 and 1000 I can recall multiplication and division facts for tables up to 12 x 12 I can use place value, known and derived facts to multiply mentally I can use place value, known and derived facts to divide mentally I can recognise and use factor pairs in mental calculations I can multiply 3 numbers together	I can recognise and use square numbers and cube numbers, and the notation for squared and cubed I can multiply and divide mentally drawing upon known facts I can identify multiples and factors including finding all factor pairs I can solve problems using multiplication and division including knowledge of factors/multiples/squares and cubes I know and use the vocabulary of prime numbers, prime factors and composite numbers I can establish whether a number up to 100 is prime, and	I can solve problems involving any operation I can identify common factors, common multiples and prime numbers I can generate and describe linear number sequences I can find pairs of numbers that satisfy number sentences involving two unknowns Enumerate all possibilities of combinations of two variables I can express missing number problems algebraically

Scheme of Work - Maths

	I can recognise small groups of items on sight (including dice etc). I can demonstrate an understanding that the last number represents the total number of the count. I can read numbers in numerals 0-9.					recall prime numbers up to 19	I can use simple formulae expressed in words
Fractions	I can write numbers in numerals 0-9. I understand that the number of items remains the same when rearranged (providing that nothing has been added or taken away). I can count to 20.	I can find and name half of a shape I can find and name quarter of a shape I can find and name half of an object I can find and name quarter of an object I can find and name half of a quantity I can find and name quarter of a quantity	I can recognise, find, name and write fractions of a shape I can recognise, find, name and write fractions of a set of objects I can recognise, find, name and write fractions of quantity I can recognise, find, name and write fractions of a length I can solve simple problems involving fractions	I can recognise and use fractions as numbers, ¼ + ¾ = 1 I can recognise, name and write fractions for a set of objects I can compare and order fractions with the same denominator I can + and - fractions within 1 whole I can solve problems that involve fractions	I can recognise and write decimal equivalents to ¼, ½, ¾ and a whole. I can recognise, name and write equivalent fractions of a given fraction I can add and subtract fractions with the same denominator	I can recognise mixed numbers and improper fractions, convert from one to the other and write statements >1 as a mixed number I can identify name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths I can add and subtract fractions with the same denominator and related fractions I can compare and order fractions whose denominators are all multiples of the same number I can multiply proper fractions and mixed	I can multiply pairs of proper fractions, writing its answer in its simplest form (¼ x ½ = ⅛) I can divide proper fractions by whole numbers (⅓ / 2 = ⅕) I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions I can compare and order fractions including those >1

Scheme of Work - Maths

						numbers by whole numbers, supported by materials and diagrams	
Money	I can complete a transaction e.g. exchanging a coin for an item during a role-play activity.	I can recognise and know the value of coins and notes I can double single digit numbers (apply to money) Recap 2, 5 and 10 multiples by counting in coins I can compare, describe and solve problems involving measures (related to money)	I can recognise and use symbols for £ and p I can use the < > and = symbols (linked to money) I can compare and order numbers from 0 to 100 (relate to money) I can solve simple problems in a practical context for money	I can add and subtract amounts of money to give change using + and - I can compare and order numbers up to 1000 (related to money) I can solve word problems for + and - (mentally with money)	I can estimate, compare and calculate different measures including money in pounds and pence I can order and compare numbers beyond 1000 (relate to money) I can solve simple measure and money problems involving fractions and decimals to 2 decimal places I can compare numbers with the same number of decimal places (amounts of money)	I can solve problems involving converting between units of money I can read, write, **order** and **compare** numbers to at least 1,000,000 (relating to money) I can use all 4 operations to solve problems involving measure, using decimal notation, including scaling - linked to money I can round decimals with 2 decimal places to the nearest whole number and to 1dp	I can solve problems involving the calculation and conversion of units of measure, using decimal notation to 3 decimal places where appropriate (relate to money) I can convert between different currencies I can read, write, **order** and **compare** numbers to at least 10,000,000 (relating to money) I can solve problems which require answers to be rounded to specified degrees of accuracy (money - nearest whole, 10p etc)

Spring Term 1

Scheme of Work - Maths

	Stage						
	P	1	2	3	4	5	6
Planned PFA Links/SMSC	**Addition and subtraction -** Become confident using strategies to use in a range of situations. Using written addition subtraction strategies needed in working life. Word problems linked to real life situations. **Time -** Learning to tell the time as an important life skill. Visit the local bus station to look at timetables in real life settings. Planning journeys. Reading bus timetables. Working out how long journeys take. Understanding calendars, days of weeks, months of year. Discussions around key dates and National holidays. Discussions around how taking holidays are allocated in a work setting, paid leave etc. **Time -** Go on a visit to another city, look at their local area and transport systems involving timetables.						
Active Learning Opportunities	**Addition and subtraction -** Students use their orienteering map to locate and select different control points. At each one they select, they use 2,3 or 4 digits (stage dependent) in any order to create 2 numbers on their activity sheet and set it out as a column addition or subtraction calculation. They complete calcualtions for 6 different control points.						
Planned Reading Opportunities	**Addition and subtraction -** Reading of word problems. Writing own word problems. Reading key terms. **Time -** Matching times in words to clock faces or digital times. Reading times in words. Reading of time word problems. Reading bus and train/metro timetables with key local places on.						
Notes for topics	**Addition and subtraction -** Pupils need to begin to record. Stampers could be used if pupils are unable to form numbers and symbols or 'build a number sentence' using card symbols etc.	**Addition and subtraction -** Problems should be 1 step using numbers to 20. Apparatus can be used to assist with word problems. **Time -** Times to relate to key language list and objectives relevant for stage. Measuring and recording using equipment such as stopwatches with support. Pupils should be aware of	**Addition and subtraction -** Written methods as a focus. To achieve word problems outcome, pupils need to select correct operation from mixed addition and subtraction problems. Numbers used should be up to 100. Concentrate on written calculations as this is what pupils would have been working on.	**Addition and subtraction -** Pupils need to set out written calculations independently. To achieve word problems outcome, pupils need to select correct operation from mixed addition and subtraction problems. These should relate to 3 digit column addition and subtraction. Rounding to be used to give estimates	**Addition and subtraction -** Relate problems to written calculations which pupils have been working on. Pupils need to be able to select correct numbers and operations from more complex questions. Rounding to be used to give estimates. **Time -** Converting time should be from	**Addition and subtraction -** Relate problems to written calculations which pupils have been working on. Pupils need to be able to select correct numbers and operations from more complex questions. Objectives including all 4 operations can not be achieved until evidence of this, so may need to revisit later in the year.	**Addition and subtraction -** Relate problems to written calculations which pupils have been working on. Pupils need to be able to select correct numbers and operations from more complex questions. Objectives including all 4 operations can not be achieved until evidence of this, so may need to revisit later in the year.

Scheme of Work - Maths

		key terms and show some understanding of what they are.	**Time -** To achieve 5 minute intervals objective pupils must be able to say the time correctly, eg, 25 to 5 rather than 35 minutes past 4. Encourage life skills through use of calendars etc when looking at days and weeks	**Time -** Telling the time from digital and analogue - must be able to say the time correctly and understand what it means. 4.50 on digital clock as 10 to 5. Calculating durations of events should be between any two given times. Encourage use of calendars when looking at days/weeks/months to promote life skills	mixed problems set so that pupils need to select correct strategy	**Time -** Read and create timetables in different formats and answer questions related to these relating to real life situations, eg, use of metro timetables to plan routes.	**Time -** Pupils to calculate using time, eg, journey times, data sets of mixed minutes and ours which they need to convert. Link this to finding the mean. Pupils in this stage will also work on exam style questions in preparation for next phase
Planned Key Vocabulary (Topic specific)	**Addition/ subtraction** Add, addition, plus, more, sum of, altogether subtract, take-away, subtraction, minus, less, fewer, equals to, total, same as, number sentence, add subtract and equals signs, number bonds	**Language from previous stage and:** **Addition/ subtraction** Number line, make, difference between, how many more to make..?, how many more is…than..?, how much more is..? How many fewer is…than..? how much less is..? **Time** Days of the week, Monday, Tuesday … months of the year (January, February ...) seasons: spring, summer, autumn, winter, day, week, weekend, month, year birthday, holiday morning, afternoon,	**Language from previous stages and:** **Addition/ subtraction** Double, near double half, halve **Time** Fortnight. minutes to… minutes past. quarter past/to 5 minute intervals digital/analogue clock/watch, timer.	**Language from previous stages and:** **Addition/ subtraction** Column addition/ subtraction, inverse relationship, approximate, approximately. **Time** Century, leap year. calendar, earliest, latest, months in order A.M P.M Roman numerals (1 to 12) 12-hour clock time, 24-hour clock time	**Language from previous stages and:** **Addition/ subtraction** Operation, estimate inverse. **Time** Millenium, noon, Date of Birth, Roman Numerals to 100	**Language from previous stages and:** **Addition/ subtraction** Multi step **Time** Roman numerals (as years) Timetables	**Language from previous stages and:** **Addition/ subtraction/ Algebra** Efficient written method formula, formulae equation unknown variable **Time** Greenwich Mean Time, British Summer Time, International, Date Line, mean

Scheme of Work - Maths

		evening, night, bedtime, dinner time, playtime today, yesterday, tomorrow before, after, earlier, later, next, first, last midnight, date, now, soon, early, late quick, quicker, quickest, quickly slow, slower, slowest, slowly, old, older, oldest, new, newer, newest takes longer, takes less time how long ago? how long will it be to …? how long will it take to …? how often? always, never, often, sometimes, usually, once, twice hour, o'clock, half past, clock face, watch, hands hour hand, minute hand hours, minutes, seconds					
Addition subtraction focus on written methods	I can use the mathematical symbols of add, subtract and equals to in a number sentence. I can solve number problems involving the addition of single digit numbers up to 10. I can solve number problems involving the subtraction of	I can add 2 digit number to 20 I can subtract 2 digit numbers to 20 I can read, write and understand	I can add 2 digit numbers and 10s, and two, 2 digit numbers I can subtract 2 digit numbers and 10s, and two, 2 digit numbers	I can add numbers with up to 3 digits using an efficient written method I can subtract numbers with up to 3 digits using an effective written method I can estimate the answer to a calculation and use	I can add numbers with up to 4 digits using an efficient written method I can subtract numbers with up to 4 digits using an efficient written method I can estimate to check answers to calculations	I can add numbers with more than 4 digits using efficient written methods I can subtract numbers with more than 4 digits using efficient written methods I can use rounding to check answers to	I can use estimations to check answers to calculations (use written methods with large numbers)

Scheme of Work - Maths

	single digit numbers to 10. I can demonstrate an understanding of the composition of numbers to 5 e.g. 2 + 2 = 4. I can recall number bonds to and within 5. I can demonstrate an understanding of commutative law e.g. 2 + 3= 5 therefore 3 + 2 = 5. I can demonstrate an understanding that the total number of objects changes when objects are added or taken away.	calculations with + - and = I can solve one step problems using addition (written methods) I can solve one step problems using subtraction (written methods)	I can recognise and use the inverse relationship between + and - I can apply written strategies to problems I can solve simple one step problems with addition and subtraction (written)	the inverse operation to check answers I can solve word problems for + and - (written method) I can solve missing number problems for + and - (using the written inverse methods)	I can use inverses to check answers and calculations I can solve 2 step addition problems, deciding which operation to use and why I can solve 2 step subtraction problems, deciding which operation to use and why	calculations and levels of accuracy I can solve multi step addition problems in contexts, deciding which operation to use and why I can solve multi step subtraction problems in contexts, deciding which operation to use and why I can solve problems using addition, subtraction, multiplication and division including understanding the meaning of the equals sign	I can solve addition and subtraction multi step problems I can solve problems using any operation I can express missing number problems algebraically I can use simple formulae expressed in words
Time		I am beginning to measure and record time I know and use words relating to dates such as days, weeks and months	I can use correct standard units to estimate and measure (related to time) I can use different equipment to measure accurately (stopwatch, egg timer)	I know the names and order of the months and number of days in each I know the number of days and weeks in a year/year leap I know the number of seconds in a minute and minutes in an hour	I can solve problems involving converting years to months and weeks to days I can solve problems involving converting hours to minutes and minutes to seconds	I can solve problems converting between units of time I can read and interpret information in tables including timetables	I can calculate mean as an average (Mean journey times ec) Pupils in stage 6 will work on exam style questions relevant to time and timetables

Scheme of Work - Maths

		I can tell the time to the hour I can tell the time to half past the hour I can compare, describe and solve problems involving measures (relating to time)	I can tell and write the time to the nearest quarter hour I can tell and write the time to the nearest 5 minutes I can compare and sequence intervals of time	I can tell and write the time from an analogue clock I can tell and write the time from a 24 hr clock I can compare durations of events I can recognise and write the Roman Numerals from 1 to 12	I can read, write and convert time between analogue and digital 12 hr and 24hr clocks I can read Roman Numerals to 100, and understand how the numeral system has changed.	I can complete information in tables including timetables I can present information using ICT (making timetables) I can read Roman numerals to 1000 (M) I can recognise years written in Roman numerals	
Individual Targets	Focus on targets which will enable pupils to move up to next stage, or targets that are not going to be covered again later in the year through the main Scheme of Work						

	Spring Term 2						
	Stage						
	P	1	2	3	4	5	6
Planned PFA Links/SMSC	**Geometry -** Following directions in the community - pupils to lead on how they would get to local places, eg, local shops, bus station etc. Planned discussion, which jobs require good knowledge of angles? Which jobs require good knowledge of routes - drivers etc. Reading maps in the local area **Fractions and decimals -** Word problems relating to real life situations **Multiplication and division -** Discussions around sharing and equality. Use of scenario cards - what would pupils do if they needed to share out money, items etc, and had some left over, or not enough for everyone? **Geometry -** Visit to local orienteering park - Cornthwaite Park, Souter Lighthouse to use positional language. Visit local landmarks to find different types of angles. Visit a local (or further afield city, eg. York) and use directions to get around it. Use local maps in order to navigate to places of interest.						

Scheme of Work - Maths

Active Learning Opportunities	**multiplication and division -** Use pre planned lessons from Enrich education for times tables pupils are working towards (stage dependant). Pupils will use the maps to locate the given markers - find the required number from the marker, then multiply by the relevant times tables. (These are already set on the downloadable worksheets) HA students - use the short 2 digit x 1 digit pre planned sheets - pupils locate the given marker, find the relevant digits which the sheet asks for then use a short multiplication method to find the answer.						
Planned Reading Opportunities	**Geometry -** Reading directions. Learning spellings to key language relating to position. Reading of compass points. **Fractions and decimals -** Matching decimals and fractions to words. Reading fractions word problems **Multiplication and division -** Reading word problems. Writing own word problems						
Notes for topics	**Geometry -** Any real life items can be used for patterns, if pupils have learnt some basic shapes then reinforce them by creating patterns with them. **Addition and subtraction**- Simple addition and subtraction with emphasis on recognition of the symbols.	**Geometry -** Positional language expected to be known listed in key language list **Fractions and decimals** Fraction problems relate to halves and quarters and numbers to 20 only to achieve objective. **Multiplication and division** Simple problems with very simple language. Use of apparatus to help solve problems where needed	**Geometry -** Positional language expected to be known listed in the key language list. Patterns could include recap on shapes relevant to stage **Fractions and decimals** Simple fractions problems relate to halves, quarters and third only to achieve objective **Multiplication and division -** No remainders need to be included in word problems unless to add challenge. Problems should be related to tables in the stage. Problems should be mixed, where correct operation is selected to solve the problem. I will let you carry on, just skim through	**Geometry -** Positional language expected to be known listed in the key language list. **Fractions and decimals** - Fraction problems from a mixed set of questions where the correct strategy needs to be selected. **Multiplication and division -** Concentrate on written strategies. Remainders should be introduced as needed to solve word problems. Word problems should be set of mixed multiplication/division where pupils need to select correct operation to achieve word problem objectives. Multiplication and division calculations	**Geometry -** Positional language expected to be known listed in the key language list. **Fractions and decimals -** Fraction problems from mixed contexts, not repeated same style questions. Decimal equivalents tenths and hundredths should be mixed to demonstrate understanding. **Multiplication and division** Concentrate on written strategies. Remainders should be included as needed to solve word problems. Pupils should be beginning to show understanding of what the remainders mean, and answer in sentences to show an understanding of their actual answer. Word	**Geometry** Pupils should be able to recall key terms such as translate, reflect etc. Begin to look at 4 quadrants and use **Fractions and decimals** Finding percentages mentally and calculator method should be used to encourage skills needed for adulthood **Multiplication and division** Concentrate on written strategies. Remainders need to be interpreted correctly through full written answer to word problems.	**Geometry -** Missing angles should be identified from different eagles rules, eg, on a straight line, in a full turn, opposite angles etc. **Fractions and decimals -** Pupils should be able to select correct method to simplify or scale up fractions **Multiplication and division** Multiplying and dividing decimals - use rounding to encourage pupils to get an estimate first to ensure realistic answers and correct place value. Problems should be mixed and multi step

Scheme of Work - Maths

				related to tables in the stage and below. Pupils encouraged to answer in sentences to show an understanding of their actual answer.	problems should be set of mixed multiplication/division where pupils need to select correct operation to achieve word problem objectives. Multiplication and division calculations related to all tables.		
Planned Key Vocabulary (Topic specific)	**Geometry** Pattern, materials, simple repeating pattern, copy, continue **Addition/ subtraction** Add, addition, plus, more, sum of, altogether subtract, take-away, subtraction, minus, less, fewer, equals to, total, same as, number sentence, add subtract and equals signs, number bonds	**Language from previous stage and: Geometry (position and direction)** Position, over, under, underneath above, below, top, bottom, side on, in outside, inside, around, in front, behind, front, back beside, next to, opposite, apart, between middle, edge, centre, corner, direction, journey left, right, up, down, forwards, backwards, sideways across, next to, close, near, far, along, through, to, from, towards, away from movement, slide roll, turn stretch, bend. **Fractions** Whole Equal parts, four equal parts One half, two halves A quarter, two quarters	**Language from previous stages and: Geometry (position and direction** Whole turn, half turn, quarter turn, three-quarter turn, route. higher, lower. clockwise, anticlockwise. right angle, straight line. **Fractions** Two quarters, three quarters, one third, equivalence, equivalent. **Multiplication and division** Describe the pattern, describe the rule, facts inverse, share, share equally, left, left over, one each, two each, three each … ten each group in pairs, threes, … tens, equal groups of.	**Language from previous stages and: Geometry (position and direction)** Compass point, north, south, east, west, N, S, E, W, horizontal, vertical, diagonal. angle … is a greater/smaller angle than, acute angle, obtuse angle, degree. **Fractions** Numerator, denominator, unit fraction, non unit fraction, compare and order, tenths, sixths, sevenths, eighths, tenths. **Multiplication and division** Product, multiples of four, eight, fifty and one hundred, scale up, remainders, written strategy.	**Language from previous stages and: Geometry (position and direction)** North-east, north-west, south-east, south-west, NE, NW, SE, SW, translate, translation, rotate, rotation, ruler, set square angle measurer, compass reflection **Fractions** Equivalent decimals and fractions hundredths decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion **Multiplication and division** Multiplication facts (up to 12x12), division facts, inverse, derive, factors, factor pairs	**Language from previous stages and: Geometry (position and direction)** x-axis, y-axis, quadrant, axis of symmetry, reflective symmetry, co - ordinate, protractor, reflex angle **Fractions** Proper fractions, improper fractions, mixed numbers, percentage , decimal equivalents to half, quarter, fifth, two fifths, four fifths, ratio, proportion in every, for every percentage, per cent, % **Multiplication and division** Factor pairs, composite numbers, prime number, prime factors, square number, cubed number, formal written method	**Language from previous stages and: Geometry (position and direction)** Scale factor, 4 quadrants **Fractions** Degree of accuracy, simplify, common factors,multiples **Multiplication and division** Associate, interpret remainders.

Scheme of Work - Maths

		Multiplication and division Odd, even, count in twos, threes, fives, count in tens (forwards from/backwards from) How many times? Lots of, groups of, once, twice, three times, five times, multiple of, times, multiply, multiply by, repeated addition, array, row, column, double, halve, share, share equally, group in pairs, threes, etc. equal groups of, divide, divided by, left, left over.					
Geometry (position and direction)	I can copy a simple pattern using real-life materials. I can continue a simple repeating pattern using real-life materials e.g. apple, orange, apple, orange. I can copy and continue more advanced patterns using real-life materials e.g. apple, apple, orange.	I can order and arrange combinations of objects in shapes and patterns I can describe position, direction and movement	I can order and arrange combinations of objects in patterns I can use mathematical vocabulary to describe position, direction and movement	I can identify right angles I can identify whether angles are greater than or less than a right angle I can recognise angles as a property of shapes and associate angles of turning I know that 2 right angles make a half turn 3 make ¾ of a turn an 4 make a complete turn	I can identify acute and obtuse angles I can compare and order angles up to two right angles by size	I can identify reflex angles I can compare different angles I can identify multiples of 90 degrees I can identify angles at a point on a straight line and half a turn I can identify angles at a point and one whole turn	I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles

Scheme of Work - Maths

					I can describe position on a 2D grid as coordinates in the first quadrant I can plot specified points and draw sides to complete a given polygon I can translate shapes	I can draw shapes using given dimensions and angles Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	I can describe position on the full coordinate grid (all 4 quadrants) I can draw 2D shapes using given dimensions and angles I can draw and translate simple shapes and reflect in the axis Solve problems involving similar shapes where the scale factor is known or can be found
Fractions		I can find and name half of a shape I can find and name quarter of a shape I can find and name half of an object I can find and name quarter of an object I can find and name half of a quantity I can find and name quarter of a quantity	I can recognise find, name and write fractions of a shape I can recognise, find, name and write fractions of a set of objects I can write simple fractions and recognise equivalence I can count in fractions up to 10 starting from any number I can solve simple problems involving fractions	I can recognise name and write fractions for a set of objects I can recognise and show using diagrams, equivalent fractions I can count up and down in tenths I know that tenths arise from dividing an object in to 10 equal parts I can solve problems involving fractions	I can recognise, name and write equivalent fractions of a given fraction I can count up and down in 100ths and recognise that 100ths arise when dividing an object by 100s and dividing tenths by 10. I can recognise and write decimal equivalents to any number of 10th or 100ths	I can identify, name and write equivalent fractions of a fraction, represented visually, including tenths and hundredths I can recognise the % symbol and understand what it means I can write percentages as a fraction I can recognise and use 1000ths and relate them to 10ths, 100ths and decimal equivalents	I can recall and use equivalences between simple fractions,decimals and percentages I can use common factors to simplify fractions and common multiples to express fractions in the same denomination I can associate a fraction with division to calculate a decimal fraction equivalents eg, ⅜ = 0,325

Scheme of Work - Maths

					I can solve simple measure and money problems involving fractions and decimals to 2 decimal places	I can read and write decimal numbers as fractions I can solve problems which require knowing percentage/ decimal equivalents of ½, ¼, ⅕, ⅖, and ⅘, and those with a denominator with a multiple of 10 or 25.	
Pre Stage - Addition & Subtraction **Stages 1 - 6 Multiplication and division**	I can add 1 to a group of items and indicate how many there are now. I can subtract 1 from a group of items and indicate how many there are now. I can recognise the mathematical symbols of add, subtract and equal to. I can demonstrate an understanding of the mathematical symbols of add, subtract and equals to.	I can double single digit numbers I can share and group small amounts I can show multiplication using arrays I can solve simple multiplication problems I can solve simple division problems	I can recognise odd and even numbers I can calculate mathematical statements for X I can calculate mathematical statements for division I can show that the X of 2 numbers can be done in any order I know that division of one number by another cannot be done in any order I can solve 1 step problems involving multiplication and division (2,5,10)	I can use an efficient written method to multiply a two digit number by a 1 digit number I can calculate mathematical statements for multiplication and division facts that I know I can use a short division method to divide a 2 digit number by a 1 digit number I can solve problems using multiplication and division I can solve missing number problems for	I can recall multiplication and division facts for tables up to 12 x 12 I can multiply numbers with up to 3 digits by 1 digit using written method I can use short division method to divide numbers with up to 3 digits by 1 digit I can solve problems involving multiplying and dividing	I can x numbers with up to 4 digits by a 1 or 2 digit number using a formal written method I can divide numbers with up to 4 digits by a 1 digit number using an efficient written method and interpret remainders appropriately for the contect I can solve problems involving addition subtraction **multiplication and division,** understanding the meaning of the equals sign I can solve problems involving scaling by simple fractions and simple rates	I can multiply multi digit numbers up to 4 digits by a 2 digit whole number using a written method I can divide numbers with up to 4 digits by a 2 digit whole number using an efficient written method I can interpret remainders as whole number remainders, fractions or by rounding I can solve problems using any operation I can multiply one digit numbers with up to 2 decimal places by whole numbers I can use written division methods in cases where the answer has up to 2 decimal places

Scheme of Work - Maths

				multiplication and division			

	Summer Term 1						
	Stage						
	P	1	2	3	4	5	6
Planned PFA Links/SMSC	**Data -** Reading of charts and tables used in adult life. Understanding how voting works and how it can be presented. Discussions around votes and democracy. **Measures -** Being able to use different measuring equipment needed in life,rulers, jugs, weighing scales etc. Measure questions related to real life situations, such as measuring for carpets and furniture. Making something in the kitchen requiring measuring of ingredients Discussions around jobs where measure is used more often, builders, joiners, tilers etc. **Data -** Visit to South Shields town hall to see where local council are based and discuss democracy and voting **Measures -** Take part in measuring activities in the local area, opportunity to visit new places such as South Shields football club, Stadium of Light, Beacon of light. Visit Foundation of light to do cookery class - measuring of ingredients.						
Active Learning Opportunities	**Data** Pupils create a template for a tally chart in class with the numbers 0 to 9. They then go around the control markers and tally each time each number appears . They bring the tally chart back to class and then create a graph to display their results. The graph they create will depend on their stage and targets, eg, a pictogram, bar chart, pie chart.						
Planned Reading Opportunities	**Data -** Reading of information from tally charts or surveys. Reading of data from tables. Reading and writing questions to ask others for data collection. Reading and writing of word problems. Reading graphs and axis labels. **Measures -** Reading object labels to measure. Reading of word problems. Reading different units of measure.						
Notes for Topics	**Number and place value -** Every day pupils should be counting, even if it is a shape lesson, count as a starter, need to create counting fluency.	**Data -** Pupils can be given templates to work from in order to show basic understanding **Measures -** To achieve objectives pupils are only required to show a	**Data -** Focus on collecting and recording data with simple categories. Pupils should begin to construct their own tables including titles **Measures -** Use measure as an	**Data -** Pupils should be encouraged to construct their own charts including deciding on titles and labels on axis. Two step questions could include comparing data from two separate charts as	**Data -** Different types of bar charts should be introduced, such as basic composite and grouped bar charts using a range of scales. Comparing data from different charts should be encouraged.	**Data -** Different style timetables should be used encouraging pupils to see a range of styles. Use local timetables relevant to the area in order to promote PFA. Pupils can be given information to create	**Data -** Recap measuring angles and drawing angles up to 360 degrees. Introduce grouped data tables to challenge. **Measures -** Pupils need to know and

Scheme of Work - Maths

	Measures - Pupils to do hands on activities to achieve. Can begin with simple understanding of full and empty, long short, heavy and light.	basic understanding of key language and begin to use relevant equipment to measure.	opportunity to compare numbers and use mathematical symbols (place value strand) Pupils should be able to use language associated with stage to describe measures.	this is part of ELC in later phase. Pupils must be able to read charts with different scales **Measures -** Use measures to compare numbers (place value strand) Measures can all be in the same unit, pupils would not need to convert first. They should be able to measure accurately in all measurements associated with objective, eg cm and mm.	**Measures -** To compare measures pupils may need to convert first. Rounding and comparing decimals (fractions and decimals strand)can be achieved through rounding different measurements to the nearest whole ect.)	their own timetables using ICT **Measures -** Comparing measures should involve measurements with different units, requiring conversion first. Finding the perimeter of composite shapes must include finding missing sides by deducing facts.	recall formula for area of triangles and parallelograms. Be confident deciding how to convert showing a clear understanding of a range of measures. To achieve a problem solving objective, questions must be mixed operation involving different units of measure.
Planned Key Vocabulary (Topic specific)	**Number and place value** 1:1 correspondence, count, same, different, items, numbers, numerals, words, zero, one, two, three, four, five, six, seven, eight, nine, ten to twenty, lots, more, less. **Measures** Big, small, large, little, items, compared	**Language from previous stage and:** **Data** Count, sort, vote, group, set list, table. pictogram, tally. most, least. block graph. **Measures** Measure, measurement, size, guess, estimate, enough, not enough too much, too little, too many, close to, about the same as, roughly, just over, just under, centimetre, metre, length, height, width, depth long, short, tall high, low wide, narrow, thick, thin, longer, shorter, taller, higher, longest,	**Language from previous stages and:** **Data** Represent, group, set list, table label, title most popular, most common, least, popular, least common, key. **Measures** Measuring scale, further, furthest, tape measure, gram contains, temperature degree.	**Language from previous stages and:** **Data** Bar chart, frequency table, Carroll diagram, Venn diagram, label, title, axis, axes, diagram, difference, compare **Measures** Division (On a scale) approximately, millimetre, kilometre, mile, distance apart … between … to … from, perimeter.	**Language from previous stages and:** **Data** Survey, questionnaire, data. line graph. Interpret. **Measures** Unit, standard unit metric unit, breadth, edge, area, covers, square centimetre (cm2), measuring cylinder.	**Language from previous stages and:** **Data** Maximum/minimum value outcome, bar line graph, database **Measures** Imperial unit, square metre (m2), square millimetre (mm2), pint, gallon.	**Language from previous stages and:** **Data** Mean, average pie chart, degrees to represent. **Measures** Yard, foot, feet, inch, inches, circumference, tonne, ounce, pound, centilitre, cubic centimetres(cm3), cubic metres (m3), cubic millimetres (mm3), cubic kilometres (km3)

Scheme of Work - Maths

		shortest, tallest, highest, far, near, close, ruler, metre stick, kilogram, half kilogram, weigh, weighs, balances, heavy, light, heavier than, lighter than, heaviest, lightest, scales, litre, half litre capacity, volume, full empty, more than, less than, half full, quarter full, holds, container.					
Data	**Number and Place Value** I can demonstrate an understanding of the concept of 1:1 correspondence e.g. can give a cup to each pupil. I can distinguish between 'one' and 'lots'. I can say the number names to 5 in the correct order with support e.g. by joining in with the teacher. I can say the number names to 5 independently. I can demonstrate the values of numbers by putting the items into sets when asked.	I can read simple information from a tally chart I can read information from a simple table I can read simple information from a pictogram I can read simple information from a block diagram I can organise information in a simple way	I can interpret and construct simple tally charts I can interpret and construct simple tables I can interpret and construct simple pictograms I can interpret and construct simple block diagrams I can ask and answer simple questions by sorting categories by quantity	I can interpret and present data using tables I can interpret and present data using pictograms I can interpret and present data using bar charts I can use simple scales (eg, 2, 5, 10 units per cm) in pictograms and bar charts	(Recap tables) I can interpret and present data using line graphs I can interpret and present data using bar charts I can solve 'comparison' problems using information presented in bar charts, pictograms, tables and simple line graphs	I can complete information in tables including timetables I can read and interpret information in tables including timetables I can present information using ICT I can solve 'comparison' problems using information presented in line graphs	I can calculate and interpret the mean as an average I can interpret line graphs I can construct line graphs I can interpret pie charts I can construct pie charts

Scheme of Work - Maths

	I can count to 10. I can count beyond 10. I can identify how many objects there are in a group of up to 10 objects by counting using 1-1 correspondence. I can recognise small groups of items on sight (including dice etc). I can demonstrate an understanding that the last number represents the total number of the count. I can read numbers in numerals 0-9. I can write numbers in numerals 0-9. I understand that the number of items remains the same when rearranged (providing that nothing has been added or taken away). I can count to 20.		I can ask and answer questions about totalling I can ask and answer questions when comparing categorical data I can organise information using 'many to one' in pictograms using simple ratio (2,5,10)	I can solve one step problems such as 'How many more? How many fewer?' I can solve two step problems such as 'How many more? How many fewer?' I can interpret data presented in many contexts	I can solve 'sum'' problems using information presented in bar charts, pictograms, tables and simple line graphs I can solve 'difference' problems using information presented in bar charts, pictograms, tables and simple line graphs I can use a range of scales when interpreting and presenting data	I can solve 'sum' problems using information presented in line graphs I can solve 'difference' problems using information presented in line graphs	
Measures	I can identify a big and small item from a	I am beginning to measure and record lengths and heights	I can use the correct standard units to	I can measure, compare, add and	I can convert between different units of	I can convert between different units of	I can read, write and convert between

Scheme of Work - Maths

	selection of two items.		estimate and measure I can use different equipment to measure accurately	subtract lengths (m/cm/mm) I can measure the perimeter of simple 2D shapes	measure (eg. km to m, hr to min) I can find the effect of multiplying and dividing a number by 10 an 100 and identify the value of the digits in the answer I can measure and calculate the perimeter of a rectilinear figure (incl squares in cm and m) I can find the area of rectilinear shapes by counting	measure (eg, km/m, cm/m, kg/g, l/ml) I can x and divide whole numbers and those involving decimals by 10, 100 and 1000 (converting measures) I can measure and calculate the perimeter of composite rectilinear shapes in cm and m I can calculate and compare the area of squares and rectangles	standard units of measure I can multiply and divide numbers by 10, 100 and 1000 where answers are up to 3 dp (converting measures) I can convert between miles and kilometres I can recognise that shapes with same areas can have different perimeters and vice versa I can calculate the area of parallelograms and triangles
		I am beginning to record capacity and volume I am beginning to measure and record mass/ weight I can compare, describe and solve problems involving measures	I can compare and order length, mass, volume/capacity I can read relevant scales to the nearest numbered unit I can compare and order numbers from 0 to 100 (link to measure) I can use the < > and = signs (link to measure)	I can measure compare, add and subtract volume/ capacity (l/ml) I can measure, compare, add and subtract mass (kg/g) I can compare and order numbers up to 1000 (using measures)	I can estimate, compare and calculate different measures, including money n £ and p. (weight, capacity, measure) I can order and compare numbers beyond 1000 (relating to measures) I can compare numbers with the same number of decimal places	I can estimate the area of irregular shapes I can recognise and estimate volume and capacity I can read, write, **order** and **compare** numbers up to 1,000,000 (relating to measures) I understand and use basic equivalences between metric and common imperial units	I can recognise when it is necessary to use the formula for area and volume of shapes I can read, write, **order** and **compare** numbers up to 10,000,000 (relating to measures) I can calculate, estimate and compare volume of cubes and cuboids using standard units, including cm cubed

Scheme of Work - Maths

					I can round decimals with 1 dp to the nearest whole number I can solve simple measures and money problems involving fractions and decimals to 2dp		and cubic metres and extending to other unit (eg mm and km) I can solve problems involving the calculation and conversion of units of measure, including decimal notation to 3 dp where appropriate.

	Summer Term 2						
	Stage						
	P	1	2	3	4	5	6
Planned PFA Links/SMSC	**Multiplications and division -** Knowledge of number and tables which is needed for qualifications and later life. Word problems linked to real life situations to encourage discussions around sharing etc. Percentages linked to real life situations - shopping, best buy problems etc. **Fractions and decimals -** Ratio in real life situations, linked to ingredients for cooking meals at home. Discussions around fractions as sharing, equal parts. What is equal - discuss any relevant current issues related to this.						
Active Learning Opportunities	**Multiplication and division** Use pre planned Enrich templates for multiplication races. Pupils find the control markers, locate the correct number and multiply by their given times tables (stage dependent but all available on the site) For challenge, pupils can then create the inverse division statement for each calculation they complete. If stage 4 or above, pupils can use their knowledge of place value to create 2 further statements for each calculation, e.g 2 x 9 = 18, 20 x 9 = 180, 20 x 90 = 1800.						
Planned Reading Opportunities	**Multiplications and division -** Reading word problems. Writing own word problems. Reading key language, learning spellings of key language. **Fractions and decimals -** Reading of word problems, matching fractions to words.						

Scheme of Work - Maths

Notes for topics	**Addition and subtraction-** Pupils who understand the concept of addition and subtraction should begin to recall number bonds to 5 and 10.	**Multiplications and division -** Simple word problems linked to multiples within the stage. Pictorial representations to be used where appropriate. **Fractions and decimals -** Fraction problems relate to halves and quarters and numbers to 20 only to achieve objective.	**Multiplications and division -** Inverses and word problems to be related to tables relevant to stage **Fractions and decimals -** Simple fractions problems relate to halves, quarters and thirds only to achieve objective	**Multiplications and division -** Concentrate on written strategies. Word problems should be set of mixed multiplication/division where pupils need to select correct operation to achieve word problem objectives. Knowledge of remainders needed to solve word problems. Multiplication and division calculations related to tables in the stage and below. Pupils encouraged to answer in sentences to show an understanding of their actual answer. **Fractions and decimals -** Quantities to relate to unit fractions, non unit fractions used to challenge. Word problems must be from a mixed set, where pupils are not simply finding fractions of quantities for every question. Relate to adding and subtracting, finding quantities left over etc.	**Multiplications and division -** Word problems should cover all tables and involve remainders where appropriate. Written and mental methods related to objectives in stage. Mixed operations so pupils are not simply following a set process. **Fractions and decimals -** Number problems should be mixed involving different topics, e.g. money, measures etc**.**	**Multiplications and division -** Written and mental calculations from mixed operations. Pupils need to select the correct strategy. key language should be used (factors, prime numbers etc) and learnt by pupils to understand the meaning. **Fractions and decimals -** Number problems should be mixed involving different topics, e.g. money, measures etc**.**	**Multiplications and division -** Percentage questions need to involve both calculator and non-calculator methods. Algebra should build on knowledge from and link to sequences. **Fractions and decimals -**Ratio problems should relate to real life situations for PFA.

Scheme of Work - Maths

Planned Key Vocabulary (Topic specific)	**Addition/ subtraction** Add, addition, plus, more, sum of, altogether subtract, take-away, subtraction, minus, less, fewer, equals to, total, same as, number sentence, add subtract and equals signs, number bonds	**Language from previous stage and: Multiplication and division** Odd, even, count in twos, threes, fives, count in tens (forwards from/backwards from), How many times? Lots of, groups of, once, twice, three times, five times, multiple of, times, multiply, multiply by, repeated addition, array, row, column, double, halve, share, share equally, group in pairs, threes, etc, equal groups of, divide, divided by, left, left over **Fractions** Whole Equal parts, four equal parts One half, two halves A quarter, two quarters.	**Language from previous stages and: Multiplication and division** Describe the pattern, describe the rule, facts, inverse, share, share equally, left, left over one each, two each, three each … ten each group in pairs, threes … tens equal groups of. **Fractions** Two quarters, three quarters, one third, equivalence, equivalent.	**Language from previous stages and: Multiplication and division** Product, multiples of four, eight, fifty and one hundred, scale up, remainders, written strategy **Fractions** Numerator, denominator unit fraction, non unit fraction, compare and order, tenths, sixths, sevenths, eighths, tenths.	**Language from previous stages and: Multiplication and division** Multiplication facts (up to 12x12), division facts, inverse, derive factors, factor pairs. **Fractions** Equivalent decimals and fractions, hundredths decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion.	**Language from previous stages and: Multiplication and division** Factor pairs, composite numbers, prime number, prime factors, square number, cubed number Formal written method percent, percentage **Fractions** Proper fractions, improper fractions, mixed numbers, percentage, decimal equivalents to half, quarter, fifth, two fifths, four fifths.	**Language from previous stages and: Multiplication and division** Order of operations, common factors, common multiples, formula, formulae equation unknown variable. **Fractions** Degree of accuracy, simplify, ratio, groupings, equal sharing.
Pre Stage - Addition & Subtraction (Focus on written methods) **Stages 1 - 6 Multiplication and division**	I can use the mathematical symbols of add, subtract and equals to in a number sentence. I can solve number problems involving the addition of single digit numbers up to 10.	I can count in 2s I can count in multiples of 2 I can count in 5s I can count in multiples of 5 I can count in 10s I can count in multiples of 10	I can recall and use multiplication facts for the 2, 5 and 10 times tables I can recall and use division facts for the 2, 5 and 10 times tables I can recognise and use the inverse relationship between	I can recall and use multiplication and division facts for the 3x tables I can recall and use multiplication and division facts for the 4x tables I can recall and use multiplication and division facts for the 8x tables	I can recall multiplication and division facts up to 12 x 12 tables I can multiply together 3 numbers	I can multiply and divide mentally drawing upon known facts I can recognise the % symbol and understand what it means I can identify multiples and factors including finding all factor pairs	I can solve problems involving the calculation of percentages of whole numbers or measures, such as 15% of 360 I can identify common factors, common multiples and prime numbers

Scheme of Work - Maths

	I can solve number problems involving the subtraction of single digit numbers to 10. I can demonstrate an understanding of the composition of numbers to 5 e.g. 2 + 2 = 4. I can recall number bonds to and within 5. I can demonstrate an understanding of commutative law e.g. 2 + 3= 5 therefore 3 + 2 = 5.	I can solve simple multiplication problems I can solve simple division problems	multiplication and division I can solve 1 step problems for multiplication and division	I can use mental strategies to multiply a 2 digit number by a 1 digit number I can solve problems using multiplication and division	I can solve problems multiplying and dividing	I can solve problems using multiplication and division including knowledge of factors/multiples/squares and cubes I know and use the vocabulary of prime numbers, prime factors and composite numbers I can establish whether a number up to 100 is prime, and recall prime numbers up to 19	I can generate and describe linear number sequences I can find pairs of numbers that satisfy number sentences involving two unknowns Enumerate all possibilities of combinations of two variables I can express missing number problems algebraically I can use simple formulae expressed in words
Fractions	I can demonstrate an understanding that the total number of objects changes when objects are added or taken away.	I can find and name half of a shape I can find and name half of a quantity I can find and name half of an object I can find and name quarter of an object I can find and name quarter of a shape I can find and name quarter of a quantity	I can recognise, find, name and write fractions of a length I can recognise, find, name and write fractions of a quantity I can write simple fractions and recognise equivalence I can count in fractions up to 10 starting from any number	I can recognise and use fractions as numbers (¼ + ¾ = 1) I can recognise and show, using diagrams, equivalent fractions I can add and subtract fractions with the same denominator within 1 whole	I can find the effect of dividing a number by 10 and 100 and identify the value of the digits in the answer I can compare numbers with the same number of decimal places I can solve number problems up 3 decimal places	I can multiply and divide whole numbers by those involving decimals by 10, 100 and 1000 I can read, write, order and compare numbers with up to 3 decimal places I can solve number problems with up to 3 decimal places	I can multiply and divide numbers by 10, 100 and 1000 where the answers are up to 3 decimal places I can identify the value of each digit to 3dp I can solve ratio and proportion problems involving the relative sizes or two quantities, including similarity

Scheme of Work - Maths

		I can solve simple half problems I can solve simple quarter problems	I can solve simple problems involving fractions	I can compare and order fractions with the same denominator I can solve problems that involve fractions	I can round decimals with 1 decimal place to the nearest whole number	I can round decimals with 2 decimal places to the nearest whole number and to 1 decimal place	I can solve ratio or proportion problems involving unequal sharing or grouping
Individual targets	Focus on targets which will enable pupils to move up to the next stage, or targets that are not going to be covered at the beginning of the following year.						