******High View Primary Learning Centre**

Mathematics Curriculum

Our aim is for the pupils to have a comprehensive and cohesive mathematics education so that they leave High View as competent mathematicians. This will be achieved by using the DFE’s Ready to Progress Criteria as the foundations before moving to the National Curriculum objectives. Where the RTP (Ready to Progress) meets the NC (National Curriculum) objectives, these will be indicated with the reference numbers in the objectives. All objectives will be covered by the time the children leave Year 6 ensuring that they are fully prepared to continue their education.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | FS1 | FS2 | Year1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Autumn | Number rhymes and songsCounting, ordinality and cardinalityShape SizePattern NumeralsCapacityPositional language‘More’  | Counting, ordinality and cardinalitySubitisingCompositionAddition and subtractionOne more/one less than ShapeLengthWeight  | Place ValueAddition and SubtractionShape | Place ValueAddition and subtractionMoneyMultiplication and division | Place valueAddition and subtractionMultiplication and division | Place ValueAddition and subtractionPerimeterMultiplication and division | Place valueAddition and subtractionStatisticsMultiplication and divisionPerimeter and area | Place value4 operationsFractionsPosition and direction |
| Spring | Number rhymes and songsCounting, ordinality and cardinalityShapeSizeCapacityMore and lessMoney Days of the weekLengthPositional languagePattern | Counting, ordinality and cardinalitySubitisingCompositionAddition and subtractionOne more/one less thanShapeCapacityMoneyPatternEstimation | Addition and subtractionPlace ValueLength, heightWeight and volume | Multiplication and divisionShapeStatisticsFractionsLength and height | Multiplication and divisionStatisticsMoneyLength and perimeterfractions | Multiplication and divisionAreaFractionsDecimals | Multiplication and divisionFractionsDecimals and percentages | DecimalsPercentagesAlgebraMeasurementPerimeter area and volumeRatio |
| Summer | Number rhymes and songsCounting, ordinality and cardinalityShapeSequencing eventsCalculatingSeparatingMore than / fewer tham Sorting and classifyingRoutes and locationsWeight  | Counting, ordinality and cardinalitySubitisingCompositionAddition and subtractionMoneySharingDoublingHalvingCapacity | Multiplication and divisionFractionsPosition and directionPlace valueMoneytime | Position and directionProblem solvingTimeMeasurementinvestigations | FractionsTimeShapeMass and capacity | DecimalsMoney/TimeStatisticsShapePosition and direction | DecimalsShapePosition and directionConverting unitsVolume | ShapeProblem solvingStatisticsinvestigations |

|  |
| --- |
| Ready to Progress |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | 2MD–1 Recogniserepeated additioncontexts, representingthem with multiplicationequations and calculatingthe product, within the 2, 5 and 10 multiplicationtables. | 3MD–1 Apply knownmultiplication and division facts to solve contextual problems with differentstructures, includingquotitive and partitivedivision. | 4MD–1 Multiply anddivide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. | 5MD–1 Multiply anddivide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1hundredth times the size. | 6AS/MD–1 Understandthat 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships(multiplicativerelationships restricted tomultiplication by a wholenumber). |
|  |  | 2MD–2 Relate groupingproblems where thenumber of groups isunknown to multiplicationequations with a missingfactor, and to divisionequations (quotitivedivision). |  | 4MD–2 Manipulatemultiplication and divisionequations, andunderstand and apply thecommutative property ofmultiplication. | 5MD–2 Find factors and multiples of positive wholenumbers, includingcommon factors andcommon multiples, and express a given number as a product of 2 or 3factors. | 6AS/MD–2 Use a given additive or multiplicativecalculation to derive or complete a relatedcalculation, usingarithmetic properties,inverse relationships, and place-valueunderstanding. |
|  |  |  |  | 4MD–3 Understand andapply the distributiveproperty of multiplication. | 5MD–3 Multiply anywhole number with up to 4 digits by any one-digit number using a formalwritten method | AS/MD–3 Solveproblems involving ratio relationships. |
|  |  |  |  |  | 5MD–4 Divide a number with up to 4 digits by a one-digit number using aformal written method, and interpret remaindersappropriately for thecontext. | 6AS/MD–4 Solveproblems with 2unknowns. |

|  |
| --- |
| **NATIONAL CURRICULUM** |
| Multiplication and Division Facts  |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| . | *count in multiples of twos, fives and tens* (copied from Number and Place Value) | *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value) | *count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) | *count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) | *count forwards or backwards in steps of powers of 10 for any given number up to* *1 000 000* (copied from Number and Place Value) | *count in multiples of twos, fives and tens* (copied from Number and Place Value) |
|  |  | recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers  | recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables  | recall multiplication and division facts for multiplication tables up to 12 × 12 |  |  |
| Mental Calculations |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods) | 4MD–1 use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers  | multiply and divide numbers mentally drawing upon known facts | 6AS/MD–1 perform mental calculations, including with mixed operations and large numbers  |
|  |  | 2MD–1show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot |  | 4MD–2 recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)  | 5MD–1 multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | *associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)* (copied from Fractions) |
| **Written Calculations** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|   |  | 2MD–1/ 2MD–2 calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs  | 3MD–1 write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Mental Methods) | 4MD–3 multiply two-digit and three-digit numbers by a one-digit number using formal written layout  | 5MD–3 multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers | 6AS/MD–2 multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication  |
|  |  |  |  |  | 5MD–4 divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context  | 6AS/MD–2 divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context |
|  |  |  |  |  |  | *use written division methods in cases where the answer has up to two decimal places* (copied from Fractions (including decimals)) |
| **PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  |  | recognise and use factor pairs and commutativity in mental calculations (repeated)  | 5MD–2 identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbersestablish whether a number up to 100 is prime and recall prime numbers up to 19 | identify common factors, common multiples and prime numbers use common factors to simplify fractions; use common multiples to express fractions in the same denomination (copied from Fractions) |
|  |  |  |  | recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) | calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3  | recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) |
| Ratio and Proportion |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  |  |  |  | AS/MD–3 solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts  |
|  |  |  |  |  |  | solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison  |
|  |  |  |  |  |  | solve problems involving similar shapes where the scale factor is known or can be found  |
|  |  |  |  |  |  | solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. |
| **ORDER OF OPERATIONS** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  |  |  |  | use their knowledge of the order of operations to carry out calculations involving the four operations |
| INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | *estimate the answer to a calculation and use inverse operations to check answers* (copied from Addition and Subtraction)  | *estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction)  |  | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy |

|  |
| --- |
| VOCABULARYThese are the words that pupils will know, use and understand.The pupils will know, use and understand the words in their current year group and the prior years.  |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Sharing, doubling, halving, Number patterns | array multiplication, multiply, multiplied byMultiple, division, dividing, grouping | groups of, times, once, twice, three times … ten times, repeated addition divide, divided by, divided into share, share equally, left, left over, one each, two each, three each … ten each, group in pairs, threes … tens Multiplication table, multiplication fact, division fact, row, column | factor product remainder | Inverse, square, squared cube, cubed | Quotient | Unknown, ratioPartEqual parts ScaleQuantityRelativeFactorSimplest formEquivalent |