******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 |
| See, explore and discuss models of common 2D and 3D shapes with varied dimensions and presented in different orientations (for example, triangles not always presented on their base). | 1G–1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to oneanother. | 2G–1 Use preciselanguage to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities anddifferences in properties. | 3G–1 Recognise rightangles as a property of shape or a description ofa turn, and identify right angles in 2D shapes presented in differentorientations. |  | 5G–1Compare angles,Estimate and measure angles in degrees (°) anddraw angles of a givensize |  |
| Select, rotate and manipulate shapes for a particular purpose, for example: • rotating a cylinder so it can be used to build a tower • rotating a puzzle piece to fit in its place |  |  |  |  | 5G–2 Compare areas and calculate the area of rectangles (including squares) using standardunits. |  |
|  | 1G–2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particularorientations. |  | 3G–2 Draw polygons byjoining marked points,and identify parallel andperpendicular sides. | 4G–1 Draw polygons,specified by coordinatesin the first quadrant, andtranslate within the firstquadrant. |  | 6G–1 Draw, compose,and decompose shapes according to given properties, including dimensions, angles and area, and solve relatedproblems. |
|  |  |  |  | 4G–2 Identify regularpolygons, includingequilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. |  |  |
|  |  |  |  | 4G–3 Identify linesymmetry in 2D shapespresented in differentorientations. Reflectshapes in a line ofsymmetry and complete asymmetric figure orpattern with respect to aspecified line ofsymmetry. |  |  |

|  |
| --- |
| N**ATIONAL CURRICULUM** |
| Identifying Shapes and their Properties |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: ‘sides’, ‘corners’; ‘straight’, ‘flat’, ‘round’. | 1G–1 recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles]
* 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].
 | 2G–1 identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line  |  | 4G–2 identify lines of symmetry in 2-D shapes presented in different orientations  | identify 3-D shapes, including cubes and other cuboids, from 2-D representations  | recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) |
| Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. |  | i2G–1 identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces  |  |  |  | illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius |
|  |  | identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] |  |  |  |  |
| Drawing and Construction |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Combine shapes to make new ones – an arch, a bigger triangle, etc. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. | 1G–2 |  | 3G–2 draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them | 4G–3 complete a simple symmetric figure with respect to a specific line of symmetry | draw given angles, and measure them in degrees (o)  | 6G–1 draw 2-D shapes using given dimensions and anglesrecognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties |
| **Comparing and Classifying** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Select, rotate and manipulate shapes to develop spatial reasoning skills.  | compare and sort common 2-D and 3-D shapes and everyday objects |  | compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes  | use the properties of rectangles to deduce related facts and find missing lengths and angles  | compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons distinguish between regular and irregular polygons based on reasoning about equal sides and angles | compare and sort common 2-D and 3-D shapes and everyday objects |
| **Angles** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | recognise angles as a property of shape or a description of a turn |  | 5G–1 know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles |  |
|  |  |  | 3G–1 identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle | identify acute and obtuse angles and compare and order angles up to two right angles by size  |  5G–1 identify: * angles at a point and one whole turn (total 360o)
* angles at a point on a straight line and ½ a turn (total 180o)
* other multiples of 90o
 | recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
|  |  |  | identify horizontal and vertical lines and pairs of perpendicular and parallel lines |  |  |  |
| **Position, Direction and Movement** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Describe a familiar route. | describe position, direction and movement, including half, quarter and three-quarter turns. | use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)  |  | 4G–1 describe positions on a 2-D grid as coordinates in the first quadrant  | 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  | describe positions on the full coordinate grid (all four quadrants) |
| Discuss routes and locations, using words like ‘in front of’ and ‘behind’. |  |  |  | 4G–1 describe movements between positions as translations of a given unit to the left/right and up/down  |  | draw and translate simple shapes on the coordinate plane, and reflect them in the axes.  |
| • Understand position through words alone – for example, “The bag is under the table,” – with no pointing. |  |  |  | 4G–1 plot specified points and draw sides to complete a given polygon |  |  |
| Pattern |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like ‘pointy’, ‘spotty’, ‘blobs’, etc. Extend and create ABAB patterns – stick, leaf, stick, leaf.Notice and correct an error in a repeating pattern. Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then…’ |  | order and arrange combinations of mathematical objects in patterns and sequences |  |  |  |  |
| **Comparing and Estimating Measurement** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Make comparisons between objects relating to size, length, weight and capacity. | compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]
* mass/weight [e.g. heavy/light, heavier than, lighter than]
* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]

time [e.g. quicker, slower, earlier, later]  | compare and order lengths, mass, volume/capacity and record the results using >, < and =  |  | estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring) | 5G–2 calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes (also included in measuring) | 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. |
|  |  |  |  |  | estimate volume (e.g. using 1 cm3 blocks to build cubes and cuboids) and capacity (e.g. using water) |  |
|  | sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] | compare and sequence intervals of time  | compare durations of events, for example to calculate the time taken by particular events or tasks |  |  |  |
|  |  |  | estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o’clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time) |  |  |  |
| **Measuring and Calculating** |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | measure and begin to record the following: * **lengths and heights**
* **mass/weight**
* **capacity and volume**
* **time** (hours, minutes, seconds**)**
 | choose and use appropriate standard units to estimate and measure **length/height** in any direction (m/cm); **mass** (kg/g); **temperature** (°C); **capacity** (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels | measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml)  | estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing)  | use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling. | solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate (appears also in Converting)  |
|  |  |  | measure the **perimeter** of simple 2-D shapes  | measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres  | measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres  | recognise that shapes with the same areas can have different **perimeters** and vice versa  |
|  | recognise and know the value of different denominations of **coins and notes** | recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to make a particular valuefind different combinations of coins that equal the same amounts of moneysolve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change | add and subtract amounts of **money** to give change, using both £ and p in practical context.  |  |  |  |
|  |  |  |  | find the area of rectilinear shapes by counting squares  | calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes *recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)* (copied from Multiplication and Division) | calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [e.g. mm3 and km3].recognise when it is possible to use formulae for area and volume of shapes |
| Telling the Time |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.  | tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. | tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks  | read, write and convert time between analogue and digital 12 and 24-hour clocks(appears also in Converting) |  |  |
|  | recognise and use language relating to dates, including days of the week, weeks, months and years | know the number of minutes in an hour and the number of hours in a day. (appears also in Converting) | estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o’clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating) |  |  |  |
|  |  |  |  | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting) | solve problems involving converting between units of time |  |
| Converting |
| EYFS/Development matters/ Previous knowledge | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time) | know the number of seconds in a minute and the number of days in each month, year and leap year  | convert between different units of measure (e.g. kilometre to metre; hour to minute)  | convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) | use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places  |
|  |  |  |  | read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)  | solve problems involving converting between units of time  | solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating)  |
|  |  |  |  | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time) | understand and use equivalences between metric units and common imperial units such as inches, pounds and pints  | convert between miles and kilometres  |

|  |
| --- |
| 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 |
| Properties of shapeShape, pattern Flat, curved, straight, round, hollow, solidSort, make, build, drawSize, bigger, larger, smallerSymmetrical, pattern, repeating pattern, match2-D shape Corner, side, rectangle (including square), circle, triangle3-D shape Face, edge, vertex, vertices cube, pyramid, sphere, cone, Position and directionPosition, over, under, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, beside, next to, opposite, apart, between, middle, edge, corner Direction, 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 Whole turn, half turnMeasure, size, compare Guess, estimate Enough, not enoughToo much, too little, too many, too few, nearly, close to, about the same as, just over, just underLength Metre Length, height, width, depth Long, short, tall, high, low, wide, narrow, thick, thin, longer, shorter, taller, higher, longest,, shortest, tallest, highest Far, near, closeWeight Weigh, weighs,, balances heavy, light, heavier than, lighter than, heaviest, lightest, scales Capacity and volume Full, empty, half full, holds, containerTime, days of the week, day, week, birthday, holiday, morning, afternoon, evening, night, bedtime, dinner time, playtime, Today, yesterday, tomorrowBefore, after, next, last, now, soon, early, late Quick, quicker, quickest, quickly, slow, slower, slowest, slowly Old, older, oldest, new, newer, newestTakes longer, takes less timeHour, o’clock, clock, watch, hands, MoneyMoney, coin, penny, pence, poundPrice, cost, buy, sell, spend, spent, pay | Symmetry symmetrical pattern point, pointed cuboid, cylinder underneath centre journey,, quarter turn,, three-quarter turn measurement roughly Centimetre Ruler, metre stickKilogram, half kilogram litre, half litre, capacity, volumemore than, less than, quarter full, weekend, month, year, months of the year, date, seasons, midnight earlier, later, first, how long ago? how long will it be to..? how long will it take to …? how often? always, never, often, sometimes, usually, once, twicehalf past, quarter past,, quarter to, clock face, hour hand, minute hand, hours, minutes dear, costs more, cheap, costs less, cheaper, costs the same as, how much …?, how many …?total | , surface line symmetryrectangular circular triangular, pentagon, hexagon, octagon route higher, lower clockwise, anti-clockwise right angle, straight line measuring scalefurther, furthest tape measure gram millilitre contains Temperature, degreefortnight, 10, 15 … minutes past digital/analogue clock/watch, timer, seconds bought sold, | perimeter, pentagonal hexagonal octagonalQuadrilateral, right-angled, parallel, perpendicular, hemisphere, prism, triangular prism Compass point, north, south, east, west, N, S, E, W, horizontal, vertical, diagonalangle … is a greater/smaller angle than, acute angle, obtuse angle division approximately Millimetre kilometre, mile distance apart … between … to … from Perimetercentigrade century, calendar earliest, latest, a.m, p.m Roman numerals, 12-hour clock time, 24-hour clock time | , line, construct, centre sketch angle, right-angled base, square-basedReflect, reflection, regular, irregular2-D, two-dimensional oblongrectilinear,equilateral triangle, isosceles triangle, scalene triangle, heptagon, parallelogram, rhombus, trapezium, polygon3-D, three-dimensionalspherical cylindrical, tetrahedron, polyhedron north-east, north-west, south-east, south-west, NE, NW, SE, SW, translate, translation rotate, rotation, degree, ruler, set square, angle measurer, compass reflectionunit, standard unit, metric unit breadth Edge area, covers, square centimetre (cm2) heavier/lighter, heaviest/lightest leap year, millennium, date of birth noon, timetable, arrive, depart | protractor coordinate octahedron axis of symmetry, reflective symmetry congruent radius, diameter discount, currency,, pint, gallon square metre (m2), square millimetre (mm2) imperial unit | , circumference, concentric, arc, net, open, closed, intersecting, kite,intersection, dodecahedronnet, open, closedplane reflex angle, profit, loss Greenwich Mean Time, British Summer Time, International Date Line centilitre, cubic centimetres(cm3), cubic metres (m3), cubic millimetres (mm3), cubic kilometres (km3) pound, ounce, Tonne, circumference, yard, foot, feet, inch, inches |