|  |  |  |
| --- | --- | --- |
|  | Summer 1 | Summer 2 |
| Nursery  (Birth to Five) | **Range 5**  **Comparison**  **• Compares two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. You’ve got two, I’ve got two. Same!**  **Counting**  **• May enjoy counting verbally as far as they can go**  **• Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5.**  **• Uses some number names and number language within play, and may show fascination with large numbers**  **• Begin to recognise numerals 0 to 10**  **Cardinality**  **• Subitises one, two and three objects (without counting)**  **• Counts up to five items, recognising that the last number said represents the total counted so far**  **(cardinal principle)**  **• Links numerals with amounts up to 5 and maybe beyond**  **• Explores using a range of their own marks and signs to which they ascribe mathematical**  **meanings**  **Composition**  **• Through play and exploration, beginning to learn that numbers are made up (composed) of smaller numbers**  **• Beginning to use understanding of number to solve practical problems in play and meaningful activities**  **• Beginning to recognise that each counting number is one more than the one before**  **• Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same**  **Spatial Awareness**  **• Responds to and uses language of position and direction**  **• Predicts, moves and rotates objects to fit the space or create the shape they would like**  **Shape**  **• Chooses items based on their shape which are appropriate for the child’s purpose**  **• Responds to both informal language and common shape names**  **• Shows awareness of shape similarities and differences between objects**  **• Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes**  **• Attempts to create arches and enclosures when building, using trial and improvement to select blocks**  **Pattern**  **• Creates their own spatial patterns showing some organisation or regularity**  **• Explores and adds to simple linear patterns of two or three repeating items, e.g. stick, leaf (AB) or stick, leaf, stone (ABC)**  **• Joins in with simple patterns in sounds, objects, games and stories dance and movement**  **predicting what comes next**  **Measures**  **• In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items**  **• Recalls a sequence of events in everyday life and stories** | |
| Reception  (Birth to Five) | * Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0 * Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints * Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning) * Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes * Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build   White Rose Maths  Week 1,2,3 – To 20 and Beyond  Number:  WWK: how to build and identify numbers to 20.  **WWK: how to build numbers beyond 10.**  **WWK: strategies for counting on and back beyond 10.**  WWK: counting patterns beyond 10.  **WWK: how 100 can be arranged using ten ten frames.**  WWK: how to recognise numbers more than or less than 100.  Spacial Awareness:  **WWK: how to select and rotate shapes to fill a given space.**  **WWK: that a triangle has three sides.**  WWK: that shapes can have four sides.  WWK: how to select and rotate shapes to fit an outline.  Week 4, 5, 6 – First, Then, Now  Number:  **WWK: that the quantity of a group can be changed by adding more.**  **WWK: that the quantity of a group can be changed by taking away.**  Spacial Awareness:  **WWK: that shapes can be combined and separated to create new shapes.** | * Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and “+” or “-“ * Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints * May enjoy making simple maps of familiar and imaginative environments, with landmarks * Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy * Becomes familiar with measuring tools in everyday experiences and play   White Rose Maths  Week 7, 8, 9 – Find My Pattern  Number:  **WWK: that double means ‘twice as many’.**  **WWK: how to recognise when items are shared equally.**  **WWK: how to make equal groups.**  **WWK: that some quantities will share equally into two groups and some will not (even and odd).**  Spacial Awareness:  **WWK: how to use positional language to describe where items are in relation to other items.**  Week 10, 11, 12 – On the Move  Problem Solving:  **WWK: strategies for solving problems (stories, children’s own ideas, real problems that arise as they play).**  **WWK: the relationships between numbers and shapes.**  Spatial Reasoning:  **WWK: that we can make maps and plans to represent places.** |
| Year 1  (National Curriculum) | **Multiplication and Division**   * Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.   WWK: how to count in 2s.  WWK: how to count in 10s.  WWK: how to count in 5s.  WWK: how to recognise equal groups.  **WWK: how to add equal groups.**  **WWK: how to make arrays.**  **WWK: how to make doubles.**  **WWK: how to make equal groups – grouping.**  **WWK: how to make equal groups – sharing.**  **Fractions**   * Recognise, find and name a half as one of two equal parts of an object, shape or quantity. * Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.   WWK: how to recognise a half of an object or a shape.  **WWK: strategies to find a half of an object or a shape.**  WWK: how to recognise a half of a quantity.  **WWK: how to find a half of a quantity.**  WWK: how to recognise a quarter of an object or a shape.  **WWK: strategies to find a quarter of an object or a shape.**  WWK: how to recognise a quarter of a quantity.  **WWK: strategies to find a quarter of a quantity.**  **Position and Direction**   * Describe position, direction and movement, including whole, half, quarter and three-quarter turns.   **Describe Turns**  **WWK: how to describe position – left and right.**  **WWK: how to describe position – forwards and backwards.**  **WWK: how to describe position – above and below.**  **WWK: ordinal numbers.** | **Place Value**   * Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. * Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. * Given a number, identify one more and one less. * Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.   **WWK how to count from 50 to 100.**  WWK: multiples of ten to 100 (60, 70, 80, 90 and 100).  **WWK: how to partition into tens and ones.**  **WWK: how to use a number line to 100.**  **WWK: how to calculate 1 more, 1 less (numbers 50 – 100).**  WWK; how to compare numbers with the same number of tens.  **WWK: how to compare any two numbers (up to 100).**  **Money**   * Recognise and know the value of different denominations of coins and notes.   **WWK: and understand the term unitising and apply this to coins.**  **WWK: and recognise coins.**  **WWK: and recognise notes.**  **WWK: how to count in coins.**  **Time**   * Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. * Recognise and use language relating to dates, including days of the week, weeks, months and years. * Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.   **WWK: how to use “before”, “after”, “first”, “next” and “finally” to describe, sort and order events.**  **WWK: the days of the week.**  **WWK: the months of the year.**  WWK: that hours are longer than minutes and minutes are longer than seconds.  **WWK: how to tell the time to the hour.**  **WWK: how to tell the time to the half hour.** |
| Year 2  (National Curriculum) | **Fractions**   * Recognise, find, name and write fractions 1/3 , 1/4 , 2/4 and 3/4 of a length, shape, set of objects or quantity. * Write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and ½.   **WWK: how to identify the whole and the parts of a whole.**  WWK: how to recognise equal and unequal parts.  WWK: how to recognise a half.  **WWK: strategies to find a half of a quantity.**  WWK: how to recognise a quarter.  **WWK: strategies to find a quarter of an amount.**  WWK: how to recognise a third.  **WWK: strategies to find a third of an amount.**  WWK: strategies to find the whole.  WWK: what unit fractions are.  WWK: what non-unit fractions are.  **WWK: how to recognise the equivalence of a half and two-quarters.**  WWK: how to recognise three-quarters.  WWK: strategies to find three-quarters of a set of objects or a number.  WWK: how to count in fractions up to a whole.  **Time**   * Compare and sequence intervals of time. * 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. * Know the number of minutes in an hour and the number of hours in a day.   WWK: O’clock and half past.  **WWK: quarter past and quarter to.**  **WWK: how to tell the time past the hour.**  **WWK: how to tell the time to the hour.**  WWK: how to tell the time to 5 minutes.  **WWK: the number of minutes in an hour.**  **WWK: the number of hours in a day.** | **Statistics**   * Interpret and construct simple pictograms, tally charts, block diagrams and tables. * Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. * Ask-and-answer questions about totalling and comparing categorical data.   **WWK: how to make tally charts to record data.**  **WWK: how to interpret simple tables.**  **WWK: how to interpret block diagrams.**  WWK: how to draw pictograms (1–1).  WWK: how to interpret pictograms (1–1).  **WWK: how to draw pictograms (2, 5 and 10).**  **WWK: how to interpret pictograms (2, 5 and 10).**  **Position and Direction**   * **Order and arrange combinations of mathematical objects in patterns and sequences.** * **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).**   **WWK: how to use the language of position.**  **WWK: the language to use to describe movement.**  **WWK: the language to use to describe turns.**  **WWK: how to describe movement and turns.**  **WWK: how to describe shape patterns with turns.** |
| Year 3  (National Curriculum) | **Fractions B**   * Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. * Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. * Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7 ]. * Solve problems that involve all of the above.   **WWK: strategies to add fractions.**  **WWK: strategies to subtract fractions.**  **WWK: how to partition the whole.**  **WWK: how to find unit fractions of a set of objects.**  **WWK: how to find non-unit fractions of a set of objects.**  WWK: strategies for reasoning with fractions of an amount.  **Money**   * Add and subtract amounts of money to give change, using both £ and p in practical contexts.   **WWK: how to use pounds and pence notation.**  **WWK: how to convert pounds and pence.**  **WWK: strategies for adding money.**  **WWK: strategies for subtracting money.**  **WWK: strategies to find change.**  **Time**   * Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. * Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o’clock, am/pm, morning, afternoon, noon and midnight. * Know the number of seconds in a minute and the number of days in each month, year and leap year. * Compare durations of events [for example, to calculate the time taken by particular events or tasks].   WWK: the Roman numerals to 12.  WWK: how to tell the time to 5 minutes.  **WWK: how to tell the time to the minute.**  WWK: how to read time on a digital clock.  **WWK: how to use am and pm.**  **WWK: the equivalent value for years, months and days.**  WWK: the relationships between weeks and days and days and hours.  WWK: strategies to find durations when given start and end times.  WWK: strategies to use durations to find start or end times.  **WWK: the relationship between minutes and seconds.**  **WWK: practical applications for units of time.**  WWK: strategies to solve problems with time. | **Shape**   * Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. * Recognise angles as a property of shape or a description of a turn. * Identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle. * Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.   **WWK: that angles describe the size of a turn.**  **WWK: what the term right angle means.**  WWK: how to compare angles.  WWK: how to measure and draw straight lines accurately.  **WWK: the terms horizontal and vertical and be able to draw lines appropriately.**  **WWK: how to identify parallel and perpendicular lines.**  WWK: the names of 2D shapes and how to describe them.  **WWK: how to draw polygons.**  WWK: the names of 3D shapes and how to describe them.  **WWK: how to make 3-D shapes.**  **Statistics**   * Interpret and present data using bar charts, pictograms and tables. * Solve one-step and two-step questions [for example ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables.   **WWK: how to interpret pictograms.**  WWK: how to draw pictograms.  **WWK: how to interpret bar charts.**  WWK: how to draw bar charts.  **WWK: how to collect and represent data.**  **WWK: how to interpret information from two-way tables.** |
| Year 4  (National Curriculum) | **Decimals B**   * Recognise and write decimal equivalents of any number of tenths or hundreds. * Recognise and write decimal equivalents to 1/4 , 1/2 , ¾. * Round decimals with 1 decimal place to the nearest whole number. * Compare numbers with the same number of decimal places up to 2 decimal places. * Solve simple measure and money problems involving fractions and decimals.   WWK: how to make a whole with tenths.  WWK: how to make a whole with hundredths.  **WWK: how to partition numbers with up to two decimal places into their place value parts.**  WWK: strategies to flexibly partition decimals.  **WWK: strategies to compare decimals.**  WWK: strategies to order decimals.  **WWK: how to round to the nearest whole number.**  **WWK: halves and quarters as decimals.**  **Money**   * Estimate, compare and calculate different measures, including money in pounds and pence.   **WWK: how to write money using decimals.**  **WWK: how to convert between pounds and pence.**  WWK: how to compare amounts of money.  **WWK: strategies to estimate with money (rounding).**  **WWK: strategies to calculate with money.**  **WWK: how to solve problems with money.**  **Time**   * Read, write and convert time between analogue and digital 12- and 24-hour clocks. * Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days.   **WWK: the relationship between years, months, weeks, and days.**  **WWK: the relationship between hours, minutes, and seconds.**  **WWK: how to convert between analogue and digital times.**  **WWK: how to convert to the 24-hour clock.**  **WWK: how to convert from the 24-hour clock.** | **Shape**   * Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. * Identify acute and obtuse angles and compare and order angles up to 2 right angles by size. * Identify lines of symmetry in 2-D shapes presented in different orientations. * Complete a simple symmetric figure with respect to a specific line of symmetry.   WWK: and understand angles as turns.  **WWK: how to identify angles (including acute and obtuse).**  **WWK: how to compare and order angles.**  WWK: how to name and describe a triangle.  WWK: how to name and describe quadrilaterals.  **WWK: the names of different polygons (irregular and regular).**  **WWK; how to identify lines of symmetry.**  **WWK: strategies to complete a symmetric figure.**  **Statistics**   * Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. * Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.   **WWK: how to interpret charts.**  **WWK: how to solve comparison, sum and difference problems involving discrete data.**  **WWK: how to interpret line graphs.**  **WWK: how to draw line graphs.**  **Position and Direction**   * Describe positions on a 2-D grid as coordinates in the first quadrant. * Describe movements between positions as translations of a given unit to the left/right and up/down. * Plot specified points and draw sides to complete a given polygon.   **WWK: how to describe position using coordinates.**  WWK: how to plot coordinates.  **WWK: how to draw 2-D shapes on a grid.**  **WWK: how to translate on a grid.**  **WWK: how to describe translation on a grid.** |
| Year 5  (National Curriculum) | **Shape**   * Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. * Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. * Draw given angles, and measure them in degrees (°). * Identify:  1. angles at a point and 1 whole turn (total 360°) 2. angles at a point on a straight line and half a turn (total 180°) 3. other multiples of 90°  * Use the properties of rectangles to deduce related facts and find missing lengths and angles. * Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.   WWK: how to understand and use degrees.  WWK: how to classify angles.  WWK: how to estimate angles.  **WWK: how to measure angles up to 180°.**  **WWK: how to draw lines and angles accurately.**  **WWK: how to calculate angles around a point.**  **WWK: how to calculate angles on a straight line.**  **WWK: strategies to calculate missing lengths and angles in shapes.**  **WWK: what is meant by regular and irregular polygons.**  WWK: the names of the 3-D shapes and be able to give examples of properties.  **Position and Direction**   * 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.   **WWK: how to read and plot coordinates.**  **WWK: strategies for problem solving with coordinates.**  **WWK: what translation is and be able to translate points and shapes.**  WWK: how to use translation with coordinates.  **WWK: how to apply understanding of lines of symmetry when a shape may have multiple lines or be in an unfamiliar orientation.**  **WWK: how to use reflection in horizontal and vertical lines.**  **Decimals**   * Solve problems involving number up to 3 decimal places.   WWK: how to use known facts to add and subtract decimals within 1.  WWK: complements to 1.  **WWK: how to add and subtract decimals across 1.**  WWK: how to add decimals with the same number of decimal places.  WWK: how to subtract decimals with the same number of decimal places.  **WWK: strategies to add decimals with different numbers of decimal places.**  **WWK: strategies to subtract decimals with different numbers of decimal places.**  WWK: efficient strategies for adding and subtracting decimals.  **WWK: the vocabulary ‘term’ and ‘rule’ when working with decimal sequences.**  WWK how to multiply by 10, 100 and 1,000.  WWK: how to divide by 10, 100 and 1,000.  **WWK: how to apply strategies for multiplying and dividing decimals when finding missing values.** | **Negative Numbers**   * Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0.   **WWK: the term negative numbers and understand these in different contexts.**  **WWK: how to count through zero in 1s.**  **WWK: how to count through zero in multiples other than 1.**  **WWK; how to compare and order negative numbers.**  **WWK: how to find the difference between positive and negative numbers.**  **Converting Units**   * Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre].   **WWK: the relationship between grams and kilograms and metres and kilometres.**  **WWK: the relationship between millimetres and metres and millilitres and litres.**  **WWK: how to convert units of length (millimetres, centimetres and metres).**  WWK: how to convert between metric and imperial units.  WWK: how to convert units of time.  WWK: how to calculate with timetables.  **Volume**   * Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water].   **WWK: how to measure volume using cubic centimetres.**  **WWK: how to compare volumes.**  **WWK: strategies to estimate volume.**  **WWK: strategies to estimate capacity.** |
| Year 6  (National Curriculum) | **Shape**   * Draw 2-D shapes using given dimensions and angles. * Recognise, describe and build simple 3-D shapes, including making nets. * Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. * Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. * Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.   WWK: how to measure and classify angles.  WWK: how to calculate angles.  **WWK: that vertically opposite angles are equal.**  WWK: that the interior angles in a triangle total 180 degrees.  WWK: how to calculate missing angles in a triangle – special cases.  **WWK: how to calculate missing angles in a wider variety of situations.**  WWK: the total value for the angles in a quadrilateral and be able to apply this knowledge.  WWK: the total for the interior angles in polygons with five sides or more.  **WWK: the parts of a circle.**  **WWK: how to draw shapes accurately.**  **WWK: the nets of 3-D shapes and how this relates to knowledge of two-dimensional shapes.**  **Position and Direction**   * Describe positions on the full coordinate grid (all 4 quadrants). * Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.   **WWK: how to read and find coordinates in the first quadrant.**  **WWK: how to read and plot points in four quadrants.**  **WWK: how to solve problems with coordinates.**  **WWK: how to complete translations.**  **WWK: how to complete reflections.** | **Themed Projects, Consolidation and Problem Solving**  A variety of learning objectives will be revisited during this topic. |

Nursery/EYFS – Birth to Five

National Curriculum Outcomes

Knowledge Statements

**Five Key Areas of Knowledge**