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| --- | --- | --- |
|  | 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 MathsWeek 1,2,3 – To 20 and BeyondNumber: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, NowNumber:**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 MathsWeek 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**