Duddon St Peter’s CE Primary School

Mathematics Progression Map – Shape, Space and Measures

EYFS

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| --- | --- | --- | --- | --- | --- |
| Pattern | | Shape | | Spatial Awareness | |
| Nursery | Reception | Nursery | Reception | Nursery | Reception |
| Talk about and identify 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. | Continue, copy and create repeating patterns.  Describe and create repeating patterns, correcting any errors.  Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat. | 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’. Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.  Begin to see 2D shapes in faces of 3D shapes. | Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.  Name and describe 2D shapes, explaining some of their properties.  Understand the difference between 2D and 3D shapes.  Demonstrate knowledge of the properties of 2D and 3D shapes. Demonstrate use of 2D and 3D shapes, joining them together and naming and explaining new shapes created. | Compare quantities using language: ‘more than’, ‘fewer than’,  Understand position through words alone – for example, “The bag is under the table,” – with no pointing.  Discuss routes and locations, using words like ‘in front of’ and ‘behind’.  Predicts, moves and rotates objects to fit the space or create the shape they would like.  Use positional language in interactions with adults. | Select, rotate and manipulate shapes in order to develop spatial reasoning skills.  Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning.)  Describe a familiar route. |

Years 1 -6

Using Measures

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Compare, describe and solve practical problems for:   * lengths and heights * mass/weight * capacity and volume * time   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 (℃); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.  Compare and order lengths, mass, volume/capacity and record the results using >, < and = | Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) | Convert between different units of measure [for example, kilometre to metre; hour to minute.]  Estimate, compare and calculate different measures. | Convert between different units of metric measure.  Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.  Use all four operations to solve problems involving measure [for example, 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 3 d.p. where appropriate.  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 3 d.p.  Convert between miles and kilometres. |

Money

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| 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 value.  Find different combinations of coins that equal the same amounts of money.  Solve 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 contexts. | Estimate, compare and calculate different measures, including money in pounds and pence. | Use all four operations to solve problems involving measure [for example, money.] |  |

Time

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| 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. | 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. | 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, a.m./p.m., 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. C  Compare durations of events [for example to calculate the time taken by particular events or tasks.] | 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. | Solve problems involving converting between units of time. | Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa. |

Perimeter, Area and Volume

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | Measure the perimeter of simple 2-D shapes. | Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.  Find the area of rectilinear shapes by counting squares | Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.  Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.  Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water.] | Recognise that shapes with the same areas can have different perimeters and vice versa.  Recognise when it is possible to use formulae for area and volume of shapes.  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. |

Geometry

2-D Shapes

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles.] | Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.  Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.]  Compare and sort common 2-D shapes and everyday objects. | Draw 2-D shapes. | Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.  Identify lines of symmetry in 2-D shapes presented in different orientations. | Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.  Use the properties of rectangles to deduce related facts and find missing lengths and angles. | Draw 2-D shapes using given dimensions and angles.  Compare and classify geometric shapes based on their properties and sizes.  Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. |

3-D Shapes

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres.] | Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres.]  Compare and sort common 3-D shapes and everyday objects. | Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. |  | Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. | Recognise, describe and build simple 3-D shapes, including making nets. |

Angles and Lines

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | Recognise angles as a property of shape or a description of a .  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 horizontal and vertical lines and pairs of perpendicular and parallel lines. | Identify acute and obtuse angles and compare and order angles up to two 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. | Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.  Draw given angles, and measure them in degrees.  Identify:   * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and ½ a turn (total 180°) * other multiples of 90° | Find unknown angles in any triangles, quadrilaterals, and regular polygons.  Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. |

Position and Direction

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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Describe position, direction and movement, including whole, half, quarter and three-quarter turns. | 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 anticlockwise.) |  | 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. | 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)  Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |