**Maths - Geometry and Measures**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Key Stage** | **Pathway** | **Topics** | **Description** | **Key Stage End Point (KSEP)** |
| KS1&2 | 1 | - Shape  - Position  - Measure  - Time | I can show an understanding of positional language (up, down, in, out, on and under) using my body. I can move forwards and backwards on request. I can understand a request to start and stop moving. I can move around a space demonstrating spatial awareness. I can sort by size when the difference is marked. I can identify big and small objects. I can identify long and sort objects. I can explore weight in a practical way. I can explore capacity in a practical way. I can sort by shape. I can recognise and name at least three 2D shapes. I can copy a simple pattern with 2D shapes. I can explore and handle shapes found in the environment. I can place objects in and out of containers and inset boards according to target shape. I can handle and manipulate 3D shapes. I can respond to songs supporting daily routines. I can show an understanding of now and next. I can follow a visual timetable. I can anticipate some specific time-based events. I can show an awareness of the days of the week. | Age 11 |
| KS1&2 | 2 | - Recognising Shapes  - Days and Months  - Measurement  - Recognising Time  - Qualities of Shapes  - Comparison and Ordering  - Weight and Length  - Direction and Following Instructions  - Practical Problems | I can use 2D shapes to create a pattern. I can construct with 3D shapes. I can sort regular 2D shapes based on their characteristics. I can name and identify some 2D and 3D regular shapes. I am beginning to recognise and count the features of these shapes (e.g. sides). I can describe, using symbols or verbally the position of objects e.g. in, on, under, opposite. I can follow directional instructions when they refer to objects (\_\_\_\_\_ at the door etc.). I can recognise and follow directional movements e.g. with arrows, footsteps. I can give directional instructions to someone else verbally or using symbols. I can measure objects using direct comparison and associated vocabulary such as taller, shorter. I can order objects from shortest-tallest or tallest-shortest. I am able to recognise and use ‘more’ and ‘less’ of quantities in different situations. With support I can use a cm ruler to measure straight lines. I am beginning to be familiar with cm and m and I know that one is much longer than the other. I can use balance scales to compare which object is the heaviest. I can put a sequence of pictures or symbols in time order and can use the terms yesterday and tomorrow. I can correctly read and use o’clock on an analogue clock. I can use and read up to half past on an analogue clock when supported. I know the days of the week and I know some of the months of the year.  I can name the seasons. | Age 11 |
| KS1&2 | 3 | - Reading Time  - Qualities of Shapes  - Weight and Capacity  - Turns and Directions  - Perimeter and Area  - Measuring in Context  - Comparing Shape and Size  - Practical Problem Solving  - Directional Instructions | I can sort 2D and 3D shapes in a variety of ways, using more than one criterion such as number of sides, number of corners, number of faces, number of curved or flat edges etc. I can recognise and draw one line of symmetry. I can calculate the perimeter of regular 2D shapes. I can calculate the perimeter of irregular 2D shapes. With support I can calculate the volume of a 3D shape using cm cubes. I can create a map of the school and include directional language. I can use and understand left and right, clockwise and anticlockwise. I can use coordinates in the first quadrant. I can recognise that an angle is an amount of a turn and I can turn myself or objects a quarter turn, half turn. I can identify right angles in my surroundings. I can use a ruler to measure in cm and m. I can weigh using a set of scales and read the digital display. I can use a measuring jug for amounts up to 1 litre (to the nearest 100 ml). I know which tool I need when measuring something to answer a question or solve a problem. I can use a digital stop-watch to measure time in minutes and seconds. I can read the time on a digital clock. I can read time to the nearest half hour or hour on an analogue clock. With support, I can read time to the nearest quarter hour on an analogue clock. I can use and create my own timelines of events or sequences to the nearest hour, e.g. ‘home time is between 3 and 4 o clock’. I can read a simple timetable with support. | Age 11 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| KS3 | 1 | - Shape and Measure  - Positional Language  - Understanding Routine  - Comparing Quantities  - Passage of Time  - Following and Giving Directions  - Shape Qualities  - Measuring Capacity  - Recognising and Using Money | | I can show an understanding of positional language (up, down, in, out, on and under) by placing objects. I can locate objects from a description of their position. I can move forwards, backwards and turn and indicate the direction I have moved in. I can locate images on a simple map. I can follow a route indicated by symbols e.g., arrows or footprints. I can identify the biggest and smallest. I can identify the longest/tallest and shortest. I can order by size. I can compare the weight of two objects and indicate which is heavy/light. I can show an understanding of full, half-full/empty and empty. I can recognise and name six or more 2D shapes. I can identify 2D shapes from pictures or patterns. I can begin to describe the properties of 2D shapes. I can recognise and name at least three 3D shapes. I can complete a jigsaw puzzle. I can construct simple 3D models. I can order significant daily events. I can relate specific events to times of the day (morning, afternoon, evening and night). I can sequence the days of the week. I can show an awareness of the months of the year. | Age 14 |
| KS3 | 2 | - Shape Properties  - Symmetry and Directions in Varied Contexts  - Understanding Time and  Practical Problem Solving  - Understanding Lengths and Distances  - Co-ordinates and Map skills  - Area and Perimeter  - Comparing and Translating Shapes  - Data (collection, presentation, analysis) and Probability  - Co-ordinates, Maps and Scales | | I recognise and can name a variety of 2D shapes. I recognise and can name a variety of 3D shapes. I can describe some of the properties of shapes using basic mathematical language e.g. number of sides, straight or curved, equal lengths. I can sort shapes based on these categories. I can measure lengths using a 30 cm, 1m ruler, a trundle wheel to the nearest numbered increment. I can measure mass using weighing scales reading the digital display. I can measure volume using a measuring cylinder to the nearest numbered increment. I can follow and give verbal directions. I can follow directions on a simple map. I can give directions using symbols/arrows/co-ordinates on a simple map. I can describe location on co-ordinate grids. I recognise an angle as a turn and can recognise full-turns and half turns. I can translate 2D shapes. I can identify reflections of 2D shapes. I can find the perimeter of simple 2D shapes. I can use squares to compare the size of 2D shapes. I can tell and interpret the time to the nearest half-hour and can read a digital clock. I can sort coins into different groups. I can name most coins up to £2. I can combine different coins to make up to a 10p amount. | Age 14 |
| KS3 | 3 | - Shape Properties  - Translating Shapes and Symmetry  - Speed, Distance and Time  - Units of Measurement  - Angles  - Area and Perimeter / Problem Solving  - Comparing 2D and 3D Shapes  - Data (Collection, Presentation, Analysis) and Probability  - Co-Ordinates, Maps and Scales | | I recognise and can name a variety of 2D and 3D shapes and I can describe their properties using basic mathematical language, e.g. their number of sides, regular/irregular, parallel, perpendicular, diagonal, edges. I can describe the simple line symmetry of 2D shapes and drawings and can reflect 2D shapes. I can find the perimeter of simple and some composite 2D shapes. I can find the area of simple 2D shapes. I can find the volume of a cuboid in cubic cm. I know what angles are and can use associated language to describe them. I can measure an angle to the nearest 10 degrees. I can solve angle problems involving right-angles, half turns and full turns. I can translate 2d shapes. I can enlarge simple 2D shapes and understand what a scale is. I can describe location using co-ordinates, including 4 quadrants. I can measure length, height, mass and capacity using standard units to the nearest numbered increment on a scale. I know the relative size of different units of measurement. I can tell the time and know the relationships between different units of time. I understand what speed is and can calculate simple speeds, distances and times. I can formulate a statistical question, ask an appropriate question giving relevant options. I can collect data in a frequency diagram. I can present data in accurate bar charts. I can interpret bar charts, pictograms, tables, simple pie-charts and line graphs and can identify the mode when appropriate. I can represent and interpret venn diagrams with up to 3 criteria. | Age 14 |
| 14-19 | 1 | - Recognising Time - Measures - Sequencing and Sorting  - Shape and Space | I can sequence and follow daily timetables and be responsive to change. I can carry out a task or chore for a set time. I can identify suitable measuring equipment for a specified purpose. I can use equipment to measure quantities and lengths. I can follow simple directions to navigate a busy place. I can demonstrate awareness of personal space and my proximity to others and respond appropriately. I can find my own way to familiar places. I am able to move a heavy load in a safe way. I can organise objects appropriately based on their weight. I am able to find appropriately sized clothing and footwear for myself. I can complete a given task or chore e.g., vacuum a whole room. I can place and organise objects following positional instructions. I am able to access shops and venues according to their opening and closing times. I can identify an object of suitable size for a specified purpose e.g., a length of wood. I am able to construct a 3D structure. I am able to identify an empty seat or table in a social setting. I can fill and empty containers. I can place an appropriate quantity on or in different-sized receptacles. I can experience seasonal changes and their impact. I can find objects kept in their usual locations. | | Age 18 |
| 14-19 | 2 | - 2D and D Shapes  - Sequences and Patterns  - Angles, Directions and Maps  - Working with Measures: Length, Capacity, Mass and Temperature  - Estimating and Measuring  - Applying Knowledge of Time  - Reading and Recording time | I can read time displayed in a digital format and in an analogue format to the nearest quarter-hour (with minimal support). I can read and record different date formats and can interpret a calendar. I am familiar with using both the 12 hour and 24 hour clock and can outline the difference between am and pm. I can use my maths skills to read a simple timetable with support and know if I need to wait or have missed something. I know there are 24 hours in a day and 7 days in a week, which I can order. I know the relative size of units of time i.e. that a second is shorter than a minute which is shorter than an hour. I can recognise 2D and 3d shapes in my environment. I can describe the properties of 2D and 3D shapes including sides, edges, corners, faces, right angles, curved, flat. I can identify lines of symmetry in the classroom and other environments. I can create a tessellating pattern. I can interpret simple 2D representations of 3D objects e.g. plan views. I can interpret a simple map or plan and use resources like Google Maps. I can give and follow instructions for movement along a route, including use of resources like a sat nav. I can use rulers, tape measures, weighing scales, measuring jugs and cylinders to the nearest numbered increment using the correct units. I can identify the correct measuring instrument for a task and the units I am using. I can follow a simple recipe quantifying the correct ingredients. I can make reasonable estimates of a quantity, relative to a known quantity, and on reflection identify whether the estimate was accurate or sensible e.g. This is 1 m is this 2m or 10m? I demonstrate an understanding of the relative value of different units of length, mass and height. I know my own shoe size, height, weight and clothes size. I can read and compare temperatures and use these skills in context. | | Age 18 |
| 14-19 | 3 | - Shape and Space (including Perimeter, Area, Volume and Transformations)  - Algebra, Sequences and Graphs  - Angles  - Measures, Construction, Maps and Scales  - Ratio, Proportion and Probability  - Formulae  - Time, Distance and Speed | I can recognise common 2D and 3D shapes and can describe and compare their properties using every-day and mathematical language. I can use the 2D representations of 3D shapes. I can identify what 3D shape a net will make. I can use mathematical equipment, compass, protractor and ruler, either manually or computer aided to make accurate constructions. I recognise reflective symmetry and can complete symmetrical designs. I can use the 8 points of the compass to show direction. I can solve problems using angle facts. I can find simple perimeters and use these to solve problems in practical situations. I can find simple volumes and areas and can use these to solve problems in practical situations. I can estimate length/height and mass in everyday situations with some degree of accuracy and can compare estimates and actual measurements commenting on the accuracy of the estimate. I can read scales marked but not labelled in half or tenths. I can compare measurements given in different units e.g. 1.2m or 116cm. I can interpret a map and use the scale to estimate distance. I can tell the time, am familiar with the 12 and 24 hour clock and can work out simple time durations. I can interpret timetables. I can work with simple speeds and can interpret simple distance/time graphs. I can undertake a statistical experiment by formulating a hypothesis, collecting relevant data, organising it and displaying it appropriately. I can form a conclusion which involves interpreting a variety of charts (like scatter graphs, line graphs, bar charts, pictograms and pie charts) and average and range. I can use a sample space diagram to work out the probability of outcomes from 2 events. I can use relative frequency to estimate the probability of outcomes resulting from an event and understand that probability is a measure of chance and unless an outcome is certain or impossible it cannot be relied on. | | Age 16-18 |