



Maths

Assessment – Shape



## Cherry Trees Maths Assessment Overview

Level	Sensory Level Descriptors
1(i)	<ul style="list-style-type: none"><li>Pupils encounter activities and experiences. They may be passive or resistant. They may show simple reflex responses, for example, startling at sudden noises or movements. Any participation is fully prompted.</li></ul>
1(ii)	<ul style="list-style-type: none"><li>Pupils show emerging awareness of activities and experiences. They may have periods when they appear alert and ready to focus their attention on certain people, events, objects or parts of objects, for example, attending briefly to interactions with a familiar person. They may give intermittent reactions, for example, sometimes becoming excited in the midst of social activity.</li></ul>
2(i)	<ul style="list-style-type: none"><li>Pupils begin to respond consistently to familiar people, events and objects. They react to new activities and experiences, for example, withholding their attention. They begin to show interest in people, events and objects, for example, smiling at familiar people. They accept and engage in coactive exploration, for example, focusing their attention on sensory aspects of stories or rhymes when prompted.</li></ul>
2(ii)	<ul style="list-style-type: none"><li>Pupils begin to be proactive in their interactions. They communicate consistent preferences and affective responses, for example, reaching out to a favourite person, showing a desire to hold a favourite object. They recognise familiar people, events and objects, for example, vocalising or gesturing in a particular way in response to a favourite visitor. They perform actions, often by trial and improvement, and they remember learned responses over short periods of time, for example, showing pleasure each time a particular puppet character appears in a poem dramatized with sensory cues. Repeating an action with a familiar item of equipment. They cooperate with shared exploration and supported participation, for example, taking turns in interactions with a familiar person, imitating actions and facial expressions.</li></ul>
3(i)	<ul style="list-style-type: none"><li>Pupils begin to communicate intentionally. They seek attention through eye contact, gesture or action. They request events or activities, for example, pointing to key objects or people. They participate in shared activities with less support. They sustain concentration for short periods. They explore materials in increasingly complex ways, for example, reaching out and feeling for objects as tactile cues to events. They observe the results of their own actions with interest, for example, listening to their own vocalisations. They remember learned responses over more extended periods, for example, following the sequence of a familiar daily routine and responding appropriately.</li></ul>



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3(ii)	<ul style="list-style-type: none"><li>• Pupils use emerging conventional communication. They greet known people and may initiate interactions and activities, for example, prompting another person to join in with an interactive sequence. They can remember learned responses over increasing periods of time and may anticipate known events, for example, pre-empting sounds or actions in familiar poems. They may respond to options and choices with actions or gestures, for example, by nodding or shaking their heads. They actively explore objects and events for more extended periods, for example, turning the pages in a book shared with another person. They apply potential solutions systematically to problems, for example, bringing an object to an adult in order to request a new activity.</li></ul>
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Level	Curriculum Assessment Statements
4	<ul style="list-style-type: none"><li>• Fills container KPI</li><li>• Empties container KPI</li><li>• Looks for object once it has been hidden.</li><li>• Handles shapes</li><li>• Explores simple shape jigsaws (choice of 2 shapes)</li><li>• Rolls cylinder and spheres</li><li>• Enjoys playing with construction material</li><li>• Match objects in relation to size when an example is present</li><li>• Matches objects regardless of size - dolls/cars/socks etc</li><li>• Explores objects of different sizes.</li></ul>
5	<ul style="list-style-type: none"><li>• Places object in and out of a container when requested KPI</li><li>• Where there is a marked difference identify big KPI</li><li>• Where there is marked difference identify small</li><li>• Uses shapes to make pictures KPI</li><li>• Uses language big and small (not always correctly)</li><li>• Identifies if something is in or out of a container</li><li>• Matches 2 colours</li><li>• Experiments with putting shapes into a shape sorter KPI</li><li>• Handles a range of 2D shapes</li><li>• Aware of a familiar object's normal place.</li></ul>



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6	<ul style="list-style-type: none"><li>• Responds to movement terms stop and go KPI</li><li>• Responds to directional terms – for example up, down left, right with gestural support. KPI</li><li>• Identifies big and little when asked where difference is not great</li><li>• Orders 3 objects by size</li><li>• Finds and sorts objects by size and colour into 2 groups.</li><li>• Demonstrates an understanding of in, on, and under</li><li>• Matches 2D shapes circle, square, triangle</li><li>• Uses basic shape names not always correctly</li><li>• Handles a range of 3d shapes</li><li>• Experiment with heavy and light where the difference is marked</li></ul>
7	<ul style="list-style-type: none"><li>• Identify the big or small object from a selection of two KPI</li><li>• Sort objects according to a stated characteristic (e.g. group all the small balls together, sort the shapes into triangles and circles) KPI</li><li>• Select a specific shape by name circle, triangle , square</li><li>• Recognises shapes regardless of size and colour</li><li>• Uses comparative language heavy light big small fast slow</li><li>• States if a container is full or empty</li><li>• Recognises object long and short where the difference is great</li><li>• Practically from a choice of 2 identifies light object</li><li>• Practically from a choice of 2 identifies heavy object</li><li>• Understands terms straight and round</li></ul>
8	<ul style="list-style-type: none"><li>• Orders 4 objects by size KPI</li><li>• States biggest and smallest out of a selection of object KPI</li><li>• Recognise square, triangle, circle, rectangle</li><li>• Explore pentagons and hexagons</li><li>• Recognise shapes within the environment</li><li>• Copy and complete a pattern using shapes</li><li>• Identify shapes within a picture KPI</li><li>• Begin to use names of days of the week (may not be correct)</li><li>• Sequence breakfast, lunch, dinner - recognising times in their routine.</li></ul>



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	<ul style="list-style-type: none"><li>• Recognises and names colours</li></ul>
9	<ul style="list-style-type: none"><li>• Recognise some common 2-D shapes KPI</li><li>• To match pictures of shapes in different orientations KPI</li><li>• To identify smallest and biggest from a selection of pictures</li><li>• To sort 2d from 3d shapes</li><li>• To identify difference between 2D and 3D shape</li><li>• To read the time to the hour on an analogue clock and draw the hands on a clock to show these times.</li><li>• To identify left and right and move in different directions.</li><li>• To identify objects we can measure using a ruler</li><li>• To identify objects we can measure using scales</li><li>• To identify objects we can measure using a measuring jug</li></ul>
10	<ul style="list-style-type: none"><li>• Name some common 2-D and 3-D shapes from a group of shapes or from pictures of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres) KPI</li><li>• To name and order days of the week and months of the year.</li><li>• Read the time to the hour or half hour on an analogue clock and draw the hands on a clock to show these times.</li><li>• Order familiar events.</li><li>• To use and demonstrate positional language (e.g. Right, left, up, down, under, over, on top of, below, diagonal etc.) KPI</li><li>• Understand angle as a measure of turn.</li><li>• To recognise all uk coins and notes up to £50 KPI</li><li>• To measure, record and compare using standard and non-standard units for length, weight/mass, capacity/volume (e.g. feet, hands, strides, arm spans.)</li><li>• To solve practical problems for length, weight/mass, capacity/volume</li><li>• To solve simple word problems for length, weight/mass, capacity/volume</li></ul>



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11	<ul style="list-style-type: none"><li>• Name and describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry. KPI</li><li>• To tell and write the time to 5 minutes including drawing the hands on a clock (longer minute hand, shorter hour hand) KPI</li><li>• To solve money word problems involving adding and subtracting.</li><li>• To combine coins to make a given amount and use signs £ and p</li><li>• To know minutes in an hour and hours in a day including am and pm</li><li>• Know simple time conversions.</li><li>• To identify rotation as a turn and turn In right angles</li><li>• To estimate, measure and solve simple problems involving length, volume and weight identifying suitable units of measurement and know key facts. (e.g. 1cm=10mm, 1m = 100cm, 1 kg = 1000g, 1L = 1000ml)</li><li>• To use mathematical language to program a beebot including right angles in a half turn and three quarter turn</li></ul>
12	<ul style="list-style-type: none"><li>• Read the time on a clock to the nearest 5 minutes KPI</li><li>• Describe similarities and differences of 2-D and 3-D shapes, using their properties (e.g. that two different 2-D shapes both have only one line of symmetry; that a cube and a cuboid have the same number of edges, faces and vertices, but different dimensions). KPI</li><li>• Recognise and draw nets of cubes and cuboids.</li><li>• To identify horizontal, vertical, perpendicular and parallel lines on shapes and objects.</li><li>• To identify different angles within shapes using correct terminology (e.g. acute, obtuse and right angle) and know what each angle may measure.</li><li>• To use 12 and 24 hour clocks and roman numerals to tell the time.</li><li>• To add and subtract money</li><li>• To know time relationships ( e.g. how many days in a week/ month/ year/ leap year and how many second in a minute / minutes in hour / hours in a day.)</li><li>• To add and subtract length, mass and volume.</li><li>• To find perimeter of 2D shapes</li></ul>
13	<ul style="list-style-type: none"><li>• Describe movements between positions as translations of a given unit to the left/right and up/down KPI</li><li>• Measure and calculate the perimeter and area of a rectilinear figure in centimetres and metres KPI</li><li>• Identify and draw lines of symmetry in 2-D shapes presented in different orientations and in a variety of diagrams.</li></ul>



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	<ul style="list-style-type: none"><li>• Read, write, convert and time between analogue and digital 12 and 24 hour clocks and solve time problems.</li><li>• Estimate, compare and calculate different measures, including money in pounds and pence</li><li>• Reflect a simple symmetric figure with respect to a specific line of symmetry</li><li>• Plot specified points and draw sides to complete a given polygon</li><li>• Read, write and use pairs of coordinates, for example (2, 5) including using coordinate-plotting ICT tools</li><li>• Perimeter can be expressed algebraically as <math>2(a + b)</math> where a and b are the dimensions in the same unit.</li><li>• Add up to three lengths of time given in minutes and hours.</li></ul>
<b>14</b>	<ul style="list-style-type: none"><li>• Convert between units of length, weight, capacity, money and time, in the same system. KPI</li><li>• Calculate the area and perimeter of simple shapes, including those that are made up of a combination of rectangles.</li><li>• Estimate volume and capacity</li><li>• Interpret plans, elevations and nets of simple 3-D shapes.</li><li>• Use the relations of perimeter or area to find unknown lengths</li><li>• Use knowledge of place value and multiplication and division to convert between standard units.</li><li>• Estimate and compare acute, obtuse and reflex angles</li><li>• Calculate the area from scale drawings using given measurements/scale factors</li><li>• Identify, describe and represent the position of a shape following a reflection or translation</li><li>• Use angle sum facts and other properties to make deductions about missing angles</li></ul>
<b>15</b>	<ul style="list-style-type: none"><li>• Calculate discounts in multiples of 5% on amounts of money. KPI</li><li>• Calculate the volume of cubes and cuboids. KPI</li><li>• Calculate values of angles and/or coordinates with 2-D and 3-D shapes.</li><li>• Calculate the perimeters and areas of 2-D shapes, including triangles, circles and composite shapes that include non-rectangular shapes (formulae will be given except for triangles and circles).</li><li>• Draw 2-D shapes and demonstrate an understanding of line symmetry and knowledge of the relative size of angles.</li><li>• Understand and use common 2-D representations of 3-D objects.</li><li>• Use angles when describing position and direction. Measure angles in degrees.</li><li>• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places</li></ul>



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	<ul style="list-style-type: none"><li>• Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, find missing angles, know and use angle rules.</li><li>• Recognise and describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements - These relationships might be expressed algebraically for example, <math>d = 2 \times r</math>; <math>a = 180 - (b + c)</math></li></ul>
16	<ul style="list-style-type: none"><li>• Calculate amounts of money, compound interest, percentage increases, decreases and discounts, including tax and simple budgeting. KPI</li><li>• Convert between metric and imperial units of length, weight and capacity using (1) a conversion factor and (2) a conversion graph.</li><li>• Use formulae to find volumes and surface areas of 3-D shapes, including cylinders (formulae to be given for 3-D shapes other than cylinders).</li><li>• Construct 2D &amp; 3D shapes. Draw 3-D shapes, including plans and elevations.</li><li>• Use coordinates in 2-D, positive and negative, to specify the positions of points.</li><li>• Compare lengths, areas and volumes using ratio notation.</li><li>• Interpret and use scale factors for enlargements.</li><li>• Describe the changes and invariance achieved by rotations &amp; reflections.</li><li>• Identify and apply circle definitions and properties, including: centre, radius, diameter &amp; circumference.</li><li>• Apply and prove the standard circle theorems concerning angles.</li><li>• Interpret bearings for directions.</li><li>• Calculate length of an arc.</li><li>• Apply the concepts of congruence and similarity, including the relationships between lengths in similar figures.</li><li>• Apply Pythagoras Theorem to find angles and lengths in right-angled triangles.</li><li>• Know the exact values of <math>\sin</math>, and <math>\cos</math>, for <math>0^\circ</math>, <math>30^\circ</math>, <math>45^\circ</math>, <math>60^\circ</math> and <math>90^\circ</math>.</li><li>• Know and apply the sine rule to work out the length of a side in a triangle.</li><li>• Begin to understand the cosine rule: <math>a^2 = b^2 + c^2 - 2bc \cos a</math> and where it can be used, to find unknown lengths and angles.</li><li>• Know that the formula <math>\text{Area} = ab \sin c</math> can be used to calculate the area of any triangle whether the included angle is acute or obtuse.</li><li>• Understand and describe translations, rotations and enlargements of 2D shapes.</li><li>• Use the triangle law of vector addition.</li></ul>





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	<ul style="list-style-type: none"><li>• Calculate the magnitude of a vector.</li><li>• Solve linear inequalities in one or two variable(s).</li><li>• Simplify and solve problems using ratios and share a quantity in a given ratio.</li><li>• Understand that X is inversely proportional to Y is equivalent to X and is proportional to 1/Y.</li></ul>
17	<ul style="list-style-type: none"><li>• Calculate using compound measures, including speed, density and rates of pay</li><li>• Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements.</li><li>• Compare lengths, areas and volumes using ratio notation and/or scale factors.</li><li>• Interpret and use fractional scale factors for enlargements.</li><li>• Describe the changes and invariance achieved by combinations of rotations &amp; reflections .</li><li>• Identify and apply circle definitions and properties, including: centre, radius, diameter, circumference, tangent &amp; arc.</li><li>• Apply and prove the standard circle theorems concerning angles &amp; radii.</li><li>• Construct and interpret plans of 3D shapes.</li><li>• Interpret bearings for directions of one point from another point.</li><li>• Calculate arc lengths and angles of sectors of circles.</li><li>• Apply the concepts of congruence and similarity, including the relationships between lengths and areas in similar figures.</li><li>• Apply Pythagoras Theorem and trigonometric ratios to find angles and lengths in right-angled triangles.</li><li>• Know the exact values of <math>\sin_\theta</math> and <math>\cos_\theta</math> for <math>\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ</math> and <math>90^\circ</math> and <math>\tan_\theta</math> for <math>\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ</math>.</li><li>• Know and apply the sine rule to work out the size of an angle in a triangle.</li><li>• Use the cosine rule: <math>a^2 = b^2 + c^2 - 2bc \cos a</math>, to find unknown lengths.</li><li>• Know and apply the formula <math>\text{Area} = \frac{1}{2} ab \sin c</math> calculate the area of any triangle with the included angle acute.</li><li>• Use 2D vectors to describe translations, reflections and enlargements.</li><li>• Apply subtraction and multiplication of vectors by a scalar.</li><li>• Use vectors to construct geometric arguments.</li><li>• Solve quadratic inequalities in one variable.</li><li>• Use direct and inverse proportion.</li><li>• Construct equations that describe direct and inverse proportion.</li></ul>



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- Compare lengths, areas and volumes using ratio notation and/or scale factors; make links to similarity (including trigonometric ratios).
- Interpret and use fractional and negative scale factors.
- Describe the changes and invariance achieved by combinations of rotations, reflections and translations.
- Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment.
- Apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results.
- Construct and interpret plans and elevations of 3D shapes.
- Interpret and use bearings for directions of one point from another point.
- Calculate arc lengths, angles and areas of sectors of circles.
- Apply the concepts of congruence and similarity, including the relationships between lengths, areas and volumes in similar figures.
- Apply Pythagoras Theorem and trigonometric ratios to find angles and lengths in right-angled triangles and, where possible, general triangles in two and three dimensional figures.
- Know the exact values of  $\sin$ ,  $\cos$ , and  $\tan$ , for  $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$  and  $90^\circ$ .
- Know and apply the sine rule to work out the length of a side or angle in any triangle.
- Use the cosine rule;  $a^2 = b^2 + c^2 - 2bc \cos a$  to find unknown lengths and angles.
- Apply the formula  $\text{Area} = \frac{1}{2} ab \sin c$  to calculate the area, sides or angles of any triangle whether the included angle is acute or obtuse.
- Use 2D vectors to describe single translations, reflections and enlargements that have the same effect as a combination of transformations.
- Apply diagrammatic and column representations of vectors.
- Use vectors to construct geometric arguments and proofs.
- Solve linear inequalities in one or two variable(s), and quadratic inequalities in one variable and represent the solution set on a graph.
- Solve problems using equivalent ratios and convert ratios into the form 1 : n
- Construct and interpret equations that describe direct and inverse proportion.