

**Structured Department Maths**

**Geometry- Shape (4 weeks)**

**Measure- Length (2 weeks)**

<p><b>Subject curriculum intent:</b></p>	<p>We want our pupils to be able to develop functional shape skills so that they can be as independent as possible in their adulthood. Depending on the cognitive ability of the pupil, our intention is that pupils are able to recognise 2D and 3D shapes in the environment. Students will begin to develop an understanding of measure and perimeter, using resources to begin to measure shapes.</p> <p>We want our pupils to...</p> <ol style="list-style-type: none"><li>1. develop <b>fluency</b> in the fundamentals of mathematics so that they are efficient in using and selecting the appropriate strategies to <b>understand shape</b> including patterns and mental methods underpinned by mathematical concepts</li><li>2. can <b>solve problems by</b> applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios</li><li>3. can <b>reason mathematically</b> by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.</li></ol> <p><b>In all math lessons, teachers plan engaging lessons with the aim that pupils:</b></p> <ul style="list-style-type: none"><li>• master skills in maths which they are then able to apply to a range of contexts within the school and home context</li><li>• embed their new skills and understanding to a range of contexts; thus supporting application and progress in learning</li><li>• acquire core mathematical skills to support their independence as they progress through the school</li><li>• are able to apply their understanding; supporting them in other areas of the curriculum</li></ul>
<p><b>Intent for this topic:</b></p>	<p>This half term, pupils will develop their understanding of shape, starting from their last learning point. Pupils will develop an understanding of 2D and when ready, 3D shapes. Students will explore and experience concrete resources, using symbol supported activities to help them find shapes. Students will complete shape hunts in and around different environments allowing them to experience shapes in everyday activities. Students will access role play activities, symbols and signs when completing activities to provide quality support for students working at different levels. Pupils will be enabled to access practical lessons, and activities will be planned to meet the sensory needs of students.</p> <p>In addition to this, students will use workstation activities to further support and develop learning from shape activities.</p>
<p><b>Key vocabulary taught within this topic:</b></p>	<p>Square, circle, triangle, rectangle, oval, pentagon, octagon, cube, sphere, cone, cylinder, cuboid, 2D, 3D, sides, corners, edges, faces, properties, sorting.</p>

Links to other subjects:	<ul style="list-style-type: none"> <li>- PE- Gymnastics- shapes</li> <li>- PSHCE- Similarities and differences</li> </ul>
Links to equality and diversity	<ul style="list-style-type: none"> <li>- Recognising differences in shapes.</li> <li>- All shapes are different sizes and colours.</li> </ul>

**Suggested flow:**

This flow is to be used as a guide. Teachers to adapt the flow to meet the needs and abilities of students within their class.

**LA/Sensory/Experiential suggested flow of learning (pupils working at pre-subject specific levels):**

<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4</b>	<b>Week 5</b>	<b>Week 6</b>
2D shape recognition- Naming common 2D shapes, matching shapes to symbol and images.		Shape hunts  Recognising shapes in school environment.  2D shape sequences- completing shape sequences including using colours of shapes to complete sequences.	Identifying simple properties of 2D shapes: -curved or straight sides -How many sides -Colour of shape	<b><u>Length (measure): Linking to shape</u></b> Using non-standard units (e.g. cubes) to measure shapes. Sorting long and short shapes.	

**HA suggested flow of learning**

<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>	<b>Week 4</b>	<b>Week 5</b>	<b>Week 6</b>
Recap previous learning and knowledge.  Naming 2D shapes.	Shape hunts  Recognising shapes in school environment.	Properties of 2D shapes including no. of sides and corners.	Naming 3D shapes  Recognising properties of 3D shapes including no. of edges, vertices, faces.	<b><u>Length (measure): Linking to shape</u></b> Using non-standard units (e.g. cubes) to measure shapes. Sorting long and short shapes. Measuring length/perimeter of shapes in cm using rulers. Calculating area of shapes	
Using and applying early algebra skills.	Using and applying problem solving skills.	Using and applying early algebra skills.	Using and applying early algebra skills.	Using and applying early algebra skills. Using and applying statistics skills.	

	<u>B2 progression step 5</u>	<u>B2 progression step 6-8</u>	<u>B2NC step 1c-1b</u>	<u>B2NC Step 1b-2c</u>	<u>B2NC Step 2c-2a</u>	<u>B2NC Step 2a-3a</u>
<p><b><u>Subject specific knowledge</u></b></p> <p><b>What do pupils need to know?</b></p>	<p><u>To know</u> to pick up and look at a range of shapes available</p> <p><u>To know</u> to feel the whole shape</p> <p><u>To know</u> shapes go onto the peg board</p>	<p><u>To know</u> that the shape is the same even when it is a different colour/size from the original</p> <p><u>To know</u> the shape is the same even when it is turned</p> <p><u>To know</u> a triangle by their three representations (do not need to know mathematical names - just that they are all triangles)</p> <p><u>To know</u> the name of 2D shapes: circle, square, rectangle, triangle and oval</p>	<p><u>To know</u> size, colour and position do not alter the name of the shape</p> <p><u>To know</u> the word 'dimensional'</p> <p><u>To know</u> what a shape or 2D or 3D</p> <p><u>To know</u> 3D shapes: sphere, cuboid, cube and pyramid.</p>	<p><u>To know</u> and name 3D shapes: sphere, cuboid, cube and pyramid.</p> <p><u>To know</u> which shapes are 3D without visuals</p> <p><u>To know</u> rulers only accurately measure straight objects - not curved.</p> <p><u>To know</u> cm and mm are units to measure length</p>	<p><u>To know</u> properties of all 2D shapes</p> <p><u>To know</u> where lines of symmetry are for 2D shapes</p> <p><u>To know</u> properties of all 3D shapes</p> <p><u>To know</u> what measuring tool is needed to measure something specific</p>	<p><u>To know</u> to use a ruler to draw shapes</p> <p><u>To know</u> what a right angle is</p> <p><u>To know</u> angles: acute and obtuse</p>
<p><b><u>Subject specific skills</u></b></p> <p><b>What do pupils need to be able to do?</b></p>	<p><u>Is able to</u> experience and handle different shapes</p> <p><u>Is able to</u> place a shape inside a suitable space (e.g. Numicon on a pegboard)</p>	<p><u>Is able to</u> find physical shapes that are the same.</p> <p><u>Is able to</u> experience drawing around a shape</p> <p><u>Is able to</u> name 2D shapes: Rectangles, squares, circles,</p>	<p><u>Is able to</u> find 2d shapes in their environment</p> <p><u>Is able to</u> separate 2d and 3d shapes</p> <p><u>Is beginning to</u> recognise and name 3D shapes: sphere,</p>	<p><u>To be able to</u> relate images to 3D shapes</p> <p><u>Is able to</u> name 3D shapes from a picture or symbol alone</p> <p><u>Is able to</u> compare and sort common 2d and 3d shapes and every day objects</p>	<p><u>Is able to</u> identify and find properties of 2d shapes; including sides and line of symmetry</p> <p><u>Is able to</u> identify and describe 3d shapes; including</p>	<p><u>Is able to</u> draw 2d shapes accurately</p> <p><u>Is able to</u> create 3d shapes using pliable material</p> <p><u>Is able to</u> describe 3d shapes</p>

	<p><u>Is able to make</u> marks using a shape on a page (printing)</p>	<p>triangles and ovals (P8)</p> <p><u>Is able to count</u> number of sides on simple shapes</p> <p><u>Is able to use</u> every day language to talk about size in context and through play.</p> <p><u>Is able to compare</u> and describe lengths and heights using 'long/short, tall short' vocabulary</p>	<p>cuboid, cube and pyramid.</p> <p><u>Is able to measure</u> lengths using cubes/objects/ Hand-spans</p>	<p><u>Is able to compare</u> and describe lengths and heights using 'double/half' vocabulary</p> <p><u>Is beginning to use</u> standardised measuring tools to measure length e.g. ruler (start with whole cm, then move onto cm &amp; mm combined)</p>	<p>edges, vertices and faces</p> <p><u>Is able to identify</u> 2d shapes on the faces of 3d shapes</p> <p><u>Is able to compare</u> and order measurements (cm, ml etc)</p>	<p><u>Is able to identify</u> right angles in shapes</p> <p><u>Is able to be able</u> to identify horizontal and vertical lines and pairs of perpendicular and parallel lines</p>
<p><b><u>Suggested teaching activities</u></b></p>	<ul style="list-style-type: none"> <li>Placing shapes in a hole</li> <li>Numicon on peg boards - finding space available</li> <li>Pattern printing using shapes - link with art and colours</li> <li>Sensory shape in foam/sand</li> </ul>	<ul style="list-style-type: none"> <li>Shape snap</li> <li>Sensory shape in the bag</li> <li>Take photos of different shapes</li> <li>Drawing around shape - link with art and fine motor skills</li> </ul>	<ul style="list-style-type: none"> <li>Describing shape in the bag/behind back to a partner game</li> <li>Take photos of different shapes in the environment</li> <li>Shape snap</li> <li>Locate a shape in the soft play area</li> </ul>	<ul style="list-style-type: none"> <li>Print using 3d shapes - finding shape of faces</li> <li>Describe hidden shape to a partner - communication skills link</li> </ul> <p>Find and name 3d shapes in soft play area</p>	<ul style="list-style-type: none"> <li>Describing games</li> <li>Build with 3d shapes - link with DT</li> <li>Construct 3d shapes - link with DT</li> <li>Find right angles in the environment using card template</li> <li>Dance routine using angled turns</li> </ul> <p>Follow a map using turn and angles - link with P.E (orienteeing and geog)</p>	

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