

KS4 Maths

Measure: Capacity

Subject curriculum intent:	<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">1. develop fluency in the fundamentals of mathematics so that they are efficient in using and selecting the appropriate strategies to use time skills including mental methods, underpinned by mathematical concepts2. can solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios3. can reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language. <p>In all math lessons, teachers plan engaging lessons with the aim that pupils:</p> <ul style="list-style-type: none">• master skills in maths which they are then able to apply to a range of contexts within the school and home context• embed their new skills and understanding to a range of contexts; thus supporting application and progress in learning• acquire core mathematical skills to support their independence as they progress through the school• are able to apply their understanding; supporting them in other areas of the curriculum	
End of KS3 intent/outcome	End of KS4 intent/outcome	End of KS5 intent/outcome
Students will be introduced to the key vocabulary linked to the topic. Students will be able to use jugs to make and compare different capacities. When ready, students will be asked to order jugs based on their capacities.	Students will continue to build on their learning from KS3. Students will be able to use a variety of resources to make and order capacities. Students will begin to use measuring equipment and become more confident in measuring capacities in millilitres and litres. Students will progress their knowledge gained into a variety of different settings, such as reading capacities on a recipe when baking/cooking.	Students will continue to build on their KS4 knowledge. Students will continue to use measuring equipment to measure and order capacities and will then apply this knowledge in a variety of contexts. Students will be able to select the equipment that they need to make a given capacity or measurement before undertaking tasks with the equipment that they have selected.
Intent for this topic:	<p>This half term, pupils will develop their measurement skills through the topic 'capacity'. They will develop an understanding of how to measure liquids with increasing accuracy. They will begin to understand how measuring skills can be applied in other areas of the curriculum such as cooking, science and vocational lessons. They will build on skills embedded from KS3, starting at their last learning point and developing further measurement (capacity) skills from this..</p> <p>Within this topic, pupils will also use and apply other mathematical skills such as number, addition, subtraction, early ratio and statistics.</p>	

Key vocabulary taught within this topic:	Measure, capacity, liquid, millilitre, litre, ml, l, fill, empty, pour, more, less, container, full, jug, beaker
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Links to other subjects:	- Cook-It
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Measurement: Capacity

	B2 progression step 5	B2 progression step 6-8	B2NC step 1c-1b	B2NC Step 1b-2c	B2NC Step 2c-2a	B2NC Step 2a-3a
<p>Subject specific knowledge</p> <p>What do pupils need to know?</p>	<p>To know key words: fill and empty</p> <p>To know when a container is full or empty</p>	<p>To know key words: full, half full and empty</p> <p>To know when to stop pouring once a container is full.</p> <p>To know and understand that the 'bigger' the container, the more it holds</p>	<p>To know how to use non-standard units (cups) to measure the capacity of a container</p> <p>Begins to know that the width of the container can alter how much it holds.</p>	<p>To know a measuring jug measures liquids</p> <p>To know liquid is measured in ml and l</p> <p>To know how to use a measuring jug accurately: go to eye level and pour slowly.</p>	<p>To know litres are bigger units that millilitres</p> <p>To know 1 litre is made of 100 millilitres</p>	<p>To know and understand what measures are between increments on a measuring jug</p> <p>To know which measuring jug is most appropriate to measure a liquid based on how much is needed e.g. 10ml v 150ml</p>
<p>Subject specific skills</p> <p>What do pupils need to be able to do?</p>	<p>Is able to respond to key words fill and empty by pouring or emptying liquids from a container</p> <p>Is able to sort containers into full or empty categories.</p>	<p>Is able to stop pouring when the container is half full or full when asked.</p> <p>Is able to order capacities for: empty, half full and full.</p> <p>Is able to sort capacities based on:</p>	<p>Is able to record how many 'cups' of water a container holds</p> <p>Is able to calculate how much more or less water a container holds than another</p>	<p>Is beginning to use a measuring jug by reading the numbers in ml and attempting to measure this out with some accuracy</p>	<p>Is able to confidently measure liquids in ml</p> <p>Is able to use and apply measuring skills when following a recipe</p>	<p>Is able to use and apply measuring skills with a range of measuring beakers</p>

empty, nearly empty,
half full, nearly full
and full.

Is able to apply
pouring skills in
context
independently e.g.
getting them self a
drink

Is able to predict
how much water a
container will hold
(non-standard units)

<p><u>Suggested teaching activities</u></p> <p>How should I teach this?</p>	<ul style="list-style-type: none"> • Water play. Filling and emptying containers • Sorting containers that are full or empty 	<ul style="list-style-type: none"> • Problem solving: which holds more? • Applying in context e.g. asking pupils to pour themselves a drink 	<ul style="list-style-type: none"> • Problem solving: what happens if the container is narrower? Taller? Wider? • Measuring how many 'cups' it takes to fill different containers - use and apply comparative language 	<ul style="list-style-type: none"> • Practical lessons developing measuring skills. • Check pupils can find measures on jug before pouring • Can pupils read measures before creating measures themselves? 	<ul style="list-style-type: none"> • Recipe reading. Making fruit juices 	<ul style="list-style-type: none"> • Explore range of measuring tools e.g. jugs or beakers. • More complex recipes that require pupils to think about the measuring jug/beaker that would be more effective
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