KS4 Maths
Measure: Capacity

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 measurment (capacity) skills from this..

Within this topic, pupils will also use and apply other mathematical skills such as number, addition, subtraction, early ratio and statistics.

Pupils:

1. develop **fluency** in the fundamentals of mathematics so that they are efficient in using and selecting the appropriate strategies to **measure weight** including mental methods, underpinned by mathematical concepts
2. can **solve problems by** applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios
3. can **reason mathematically** by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

In all math lessons, teachers plan engaging lessons with the aim that pupils:

- 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

Keywords

Measure, capacity, liquid, millilitre, litre, ml, l, fill, empty, pour, more, less, container, full, jug, beaker

Cross curricular links:

-Food technology
-Science
-Vocational

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

		getting them self a drink				
Suggested teaching activities **How should I teach this?**	• Water play. Filling and emptying containers • Sorting containers that are full or empty	• Problem solving: which holds more? • Applying in context e.g. asking pupils to pour themselves a drink	• 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	• Practical lessons developing measuring skills. • Check pupils can find measures on jug before pouring • Can pupils read measures before creating measures themselves?	• Recipe reading. Making fruit juices	• 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 effctive