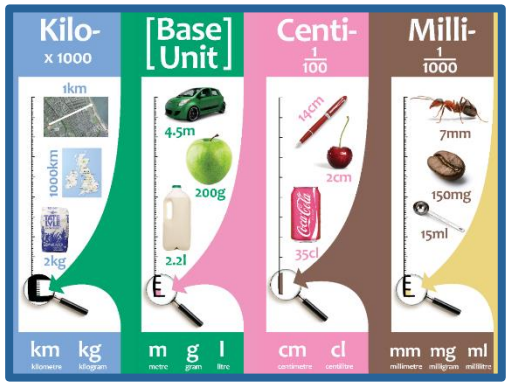
Spring 1 OVERVIEW YEAR 6 – Maths

Term 1 Book– Goodnight Mr Tom		
Block Number 4: Measurement: converting units		**Guide Time = 3 Weeks**
Assessment:	Weekly Arithmetic Tests Termly Year 6 tests SATs practice papers (reasoning and problem solving)	**Very Important Points (VIPs):**  The metric system is used to measure the length, weight or volume of an object. Length is measured in **millimetres** (mm), **centimetres** (cm), **metres** (m) or **kilometres** (km). 1 cm = 10 mm 1 m = 100 cm 1 km = 1000 m Weight is measured in **grams** (g) and **kilograms** (kg). Volume is measured in **millilitres** (ml) and **litres** (l). 1 kg = 1000 g 1 l = 1000 ml
Links to prior learning (sequencing) and canon book	Canon Book-Goodnight Mr Tom Children will be able to convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml] Children will understand and be able use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Children will be able to solve problems involving converting between units of time.	
Links to other learning (cross fertilisation)	History – timelines and the understanding of the progression of events and dates of WWII; comparing the events of WWII and prior events, which contributed to the beginning of the war. The geograph of Europe as well as the rest of the world will be linked through the comparison of distance, size and population. Active Maths - provide additional maths questions / problems based around times tables and units of measurement VIPs, which allows children to apply their knowledge and understanding mentally at another time / lesson e.g. in PE. Science / Geography – exploring the voltage and ampage of electrical currents through the use of mathematical reasoning. Exploring the planets and comparing/ measuring temperatures /distances through investigations and from analysing data in tables / on graphs from countries / cities around the world, in	

which they can interpret the data and draw conclusions from during investigations.
Conpare contemporary scientific knowlegde to that of the 1930s and 1940s.
Children will be taught to use their decimal knowlegde to interpret and compare voltages and Ohm's Law in order to

Thematic Questions:

The World Beyond Us:

How did mathematics contribute the space race between the East and West after the end of WWII? Why were former Nazi scientists brought to the United States after the war to help in the creation of Nasa? Why were their skills so sought after?

The World Around Us:

How does our number system in Britain compare to that of Japan?
How did Japanese Emperor Hirohito encourage mathematical thinking and scientific reasoning through his reign?

Modern Britain:

Explore where you would use your knowledge of ratio and proportion in modern day Britain. How will this knowledge help in your chosen career in the future? Which recreational activities and careers rely on ratio as a concept to function?
How has our understanding of maths developed since the 1930s and 1940s? What scientific and technological advancements can be attributed to our better understanding of mathematics?

Healthy Bodies & Healthy Minds:

Do you think the resting heart rate of the average British citizen has improved or deteriorated since the end of WW2? How could we use mathematics to record and convey this data?

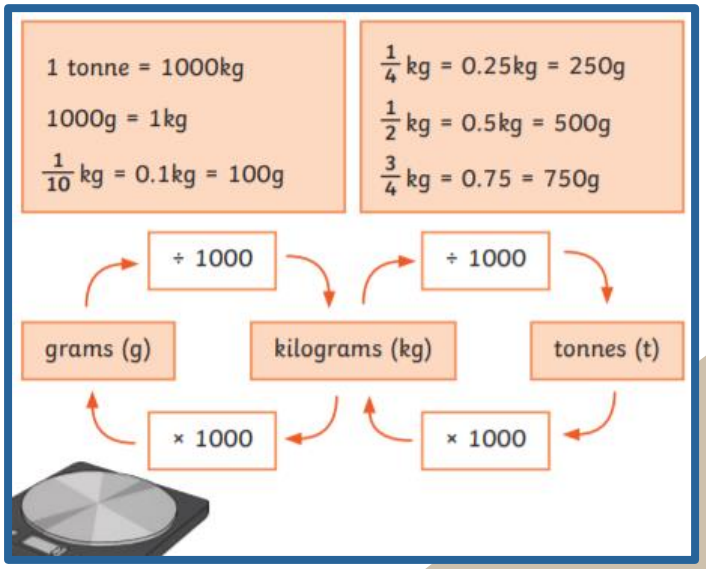
Culture:

Explore the causes of WWII. What cultural differences and ideologies contributed to the conflict? Is the prominence of mathematics in education the same for every culture? Why do you think this is?
How are numbers written in other religions and cultures? Why is this?

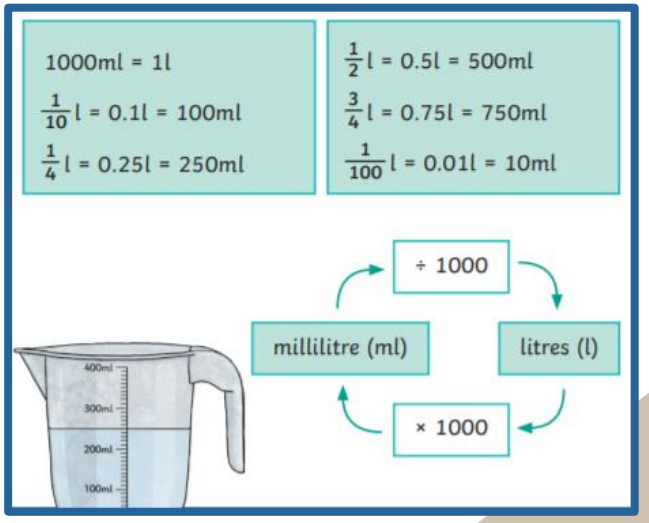
Technology in Action:

How was mathematics used throughout WWII to gain the upper hand in battle, espionage and logistical management? How is mathematics used in the design and mass manufacture of weapons, vehicles and supplies?

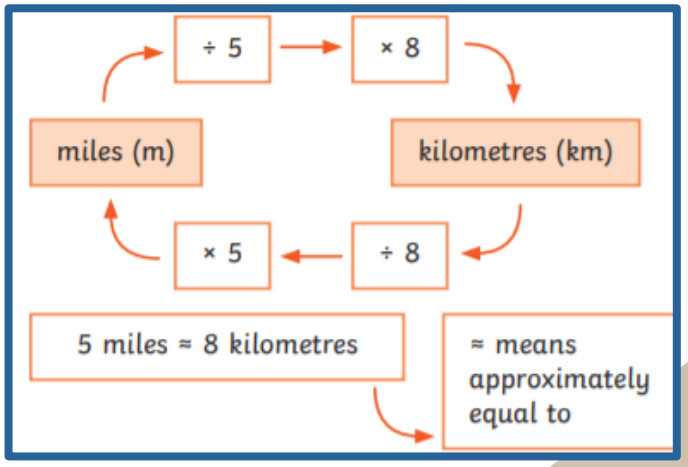
Converting mass



To convert kilograms to grams we multiply the number of kilograms by 1000.
To convert grams to kilograms we divide the number of grams by 1000.

Links to future learning	The skills and knowledge taught in this block will be built upon and deepened throughout the year and will begin to provide a platform for reasoning and problem solving questions based on differential forms of unit measurements and will be able to apply their developing understanding to areas of capacity, area and perimeter as well as time and metric units. Children will have a secure understanding of the formal methods of converting measurements, which will allow them to better understand the concepts such as time, imperial and metric measurements and volume.	**Converting capacity**  To convert litres to millilitres we multiply the number of litres by 1000. To convert millilitres to litres we divide the number of millilitres by 1000.
Character/Wider Development ('50 things', cultural capital, skills)	Relate and use this knowledge and understanding in real-life contexts and make these relevant and purposeful links: when traveling in different countries, conducting independent investigations and creating visual data representation with imperial and metric units of measurement. Communicate in a different language – Spanish: children will relate their mathematical understanding of integers to the Spanish number system in their language. Taking part in time travel – The above can also be applied to curriculum learning on rationing, battle participation numbers and planning logistics in wartime.	

Miles to kilometres



As an approximation, 1 **mile** = 1.6**km**.
To turn **miles** into **kilometres** we divide by 5 and multiply by 8. To turn **kilometres** into **miles** we divide by 8 and multiply by 5.

Imperial units

1 foot = 12 inches

1 pound = 16 ounces

1 stone = 14 pounds

1 gallon = 8 pints

		Fat Questions: Why would it have been nessessary for the allies to have been able to convert between metric and imperial units during the WWII? Why do different countries have different units of measurement? What would be the benefits of every country on earth using the same units of meansurement?

OVERVIEW OF TEACHING SEQUENCE

Key Facts / Learning	Learning Focus or Key Question	Learning Outcomes (NC)	Key Words/ Vocabulary	Greater Depth/SEND	Misconceptions	Activities and Resources
Weeks 9-10 (5 lessons) Measurement : converting units	To understand metric measures To convert metric measures To calculate with metric measures To understand	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Use, read, write and convert	Mass Gram Kilogram Capacity Volume Millimetre Litre Centimetre Kilometre Foot Inch Ounce Pound Stone Pint Gallon	GD: Children are introduced to more complex and wider reasoning and problem-solving questions / concepts. Children will have multi-step reasoning problems to solve, applying prior learning as well as current.	Children may select the wrong unit of measurement prior to their conversion. When converting units, children often divide instead of multiplying and vice versa. Emphasise that when changing to	Pre-teaching of key concepts to allow students to commence tasks immediately within lessons. DTMs to be created using the following resources and based on CTs AFL of their class/cohort. Further cross-curricular links can be made to the 6 these during these also, for a wider context. WRMH: https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/SOL-Year-6-2018-19-Spring-Term-Block-4-FINAL.pdf Third Space Learning: https://thirdspacelearning.com/ Classroom Secrets:

	miles and kilometres To understand Imperial measures	between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 dp. Convert between miles and kilometres.		Children will need to use depth of mathematical knowledge to provide clear mathematical explanation and reasoning to problems. SEND: Assessment and analysis of prior knowledge is needed. Teacher to assess and base planning and resources in a bespoke manner. Children will focus and use pictorial and practical resources to support and develop their understanding of imperial and metric units of measurements and how best to convert them. Children will focus on recognising	smaller units you multiply. Children often expect the prefixes to work across the measure units. They do not realise that milli means thousandth. Children may not know how many millimetres there are in a metre, or they are not confident with decimal notation. Children may not realise that a scale is to be set to zero before weighing and hence misinterpret the readings on the scale.	https://classroomsecrets.co.uk/category/maths/year-6/spring-block-4-converting-units/ NCETM – resources / activities for DTMs  Mastery_Assessment_Y5_High_Res.pdf Maths Frame: https://mathsframe.co.uk/en/resources/category/383/Y6-Measures Slides / resources saved on trust shared.

				and understanding the value of measurement using conversion tables and knowledge organisers to support their understanding.		

Context (big picture learning):
Mathematics is an important, creative discipline that helps us to understand and change the world. We want all of our children within the Pontefract Academies Trust to experience all that mathematics has to offer and to develop a sense of curiosity about the subject with a clear understanding. When they leave us we want them to continue their love of maths and use it continuously and positively in their future lives.
We foster a positive 'growth mind-set' attitude and we promote the fact that we believe that all children can achieve in mathematics. We teach for secure and deep understanding of mathematical concepts through manageable, bespoke steps and cross fertilize at every opportunity. VIPs (Very Important Points) are implemented in every lesson to ensure knowledge and skills are revisited and retained over time.
We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated reasoning and problem solving activities. At our school, the majority of children will be taught the content from their year group only. They will spend time becoming true masters of content, applying and being creative with new knowledge in multiple ways.

Folder name and link to resources: Trust shared > Primaries > Departments > KS2 > Planning Cycle B > Autumn 1 > Maths > Year 5 > Block 4

Week 1 L1-5

Year 6 Knowledge Organiser: Measurement: unit conversion

PONTEFRACT ACADEMIES TRUST

Fat Questions:

Why would it have been nessessary for the Allies to have been able to convert between metric and imperial units during the WWII?

Why do different countries have different units of measurement?

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Key vocabulary

Mass

Gram

Kilogram

Capacity

Volume

Millimetre

Litre

Centimetre

Kilometre

Foot

Inch

Ounce

Pound

To see the full list of vocabulary, please refer to our resource walls.

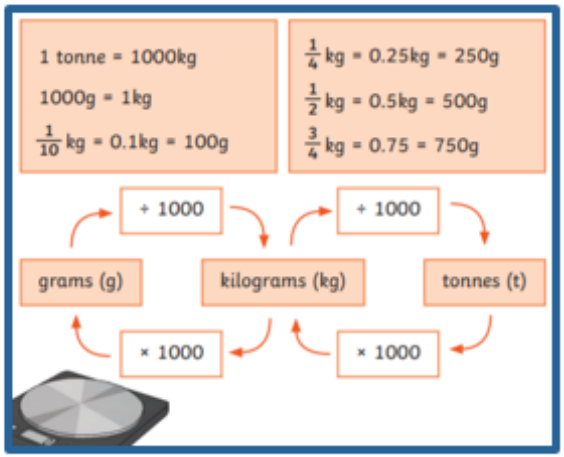
Intent

We aim to develop and progress our skills in the conversion of units of measurement in order to equip us with the ability to solve real world problems that require a mathematical solution. With these skills, we can help to improve the world in which we live.

VIPs (very important points)

Metric units- The metric system is used to measure the length, weight or volume of an object. Length is measured in **millimetres** (mm), **centimetres** (cm), **metres** (m) or **kilometres** (km). Weight is measured in **grams** (g) and **kilograms** (kg). Volume is measured in **millilitres** (ml) and **litres** (l).

Converting mass



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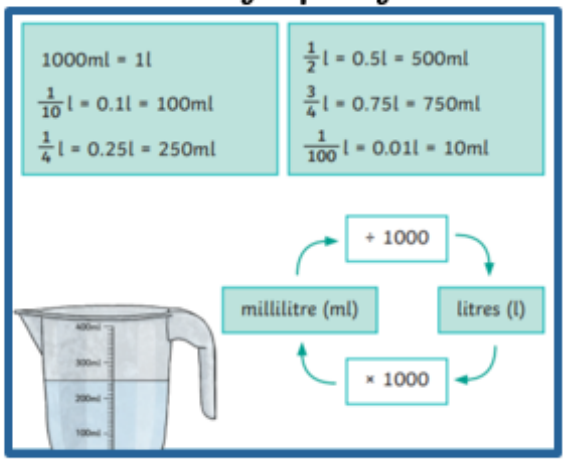
Converting capacity



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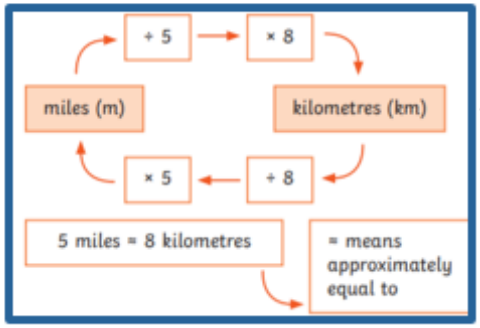
Miles and kilometres



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