
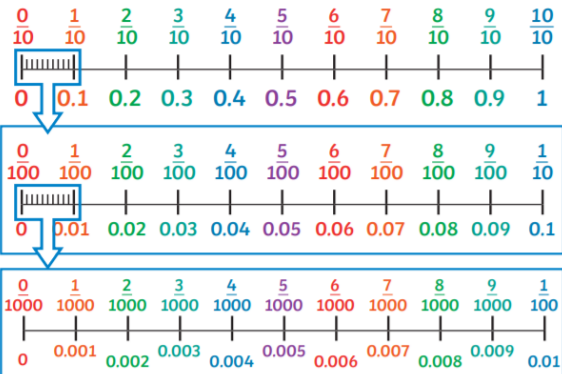


## Spring Term Overview YEAR 5 – Maths

### Spring Term Book(s) – Goodnight Mr Tom

Topic – Block 2 Number: Decimals and Percentages		Guide Time = 2 Weeks
<b>Assessment:</b>	WRMH End of block / term assessments Weekly Arithmetic Tests / Skills checks NFER Spring assessments. Daily retention activities / quizzes to ensure children are revisiting prior learning.	<b>Very Important Points (VIPs):</b> <b>A decimal</b> is a number expressed in the scale of tens. Commonly speaking <b>we talk about decimals when numbers include a decimal point to represent a whole number plus a fraction of a whole number</b> (tenths, hundredths, etc.). <b>A decimal point</b> is a point or dot used to separate the whole part of a number from the fractional part of a number.
<b>Links to prior learning (sequencing) and canon book</b>	<u>Canon Book – Goodnight Mr Tom</u> Children will have prior knowledge of recognising and writing decimal equivalents of any number of tenths or hundredths. Children will have prior knowledge of recognising and writing decimal equivalents to $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$ Children will have prior knowledge of finding the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Children will have prior knowledge of rounding decimals with one decimal place to the nearest whole number. Children will have prior knowledge of comparing numbers with the same number of decimal places up to two decimal places. Children will have prior knowledge of solving simple measure and money problems involving fractions and decimals to two decimal places.	 <p><b>Percent means out of 100.</b></p> <p><b>Tenths, hundredths and thousandths:</b></p> 
<b>Links to other learning (cross fertilisation)</b>	<u>History</u> – children can analyse key data from the war rooms linked to a wide variety of concepts during World War II and this would have impacted on the daily lives of the people involved alongside the whole country. Prior learning / Pre teaching of year 5 calculation can also be linked here. <u>DT</u> – children will apply their knowledge of perimeter and area when designing, creating and building their own WWII air-raid shelter. When baking and cooking, children can apply their understanding of volume and applying the formulae to <u>Active Maths</u> - provide additional maths questions / problems based around perimeter, area and volume. Consolidate and teach further	

concepts in an active way, which allows children to apply their knowledge and understanding mentally at another time / lesson.

**Geography** – exploring the climate and change in temperatures across the range of countries involved in World War II. Children can apply their understanding of decimal place value to round temperatures in order to then compare. Children can also explore the cost of living during the Blitz and the cost of rationing and make comparisons to other countries.

**Thematic Questions:**

**The World Beyond Us:**

How will decimal place value be used in the space shuttles in space? Would this be the same or different to how they are used an applied in a fighter jet used during World War II?

**The World Around Us:**

How would this knowledge of decimal place value help and / or hinder key leaders during The Blitz? Would this be a vital role in their strategy building?

**Modern Britain:**

Has the knowledge and understanding of decimal place value changed since World War II?

**Healthy Bodies & Healthy Minds:**

True or false? A secure understanding of decimal place value can hinder our ability to live healthily and happily in todays world? Would this be the same for people living during World War II?

**Culture:**

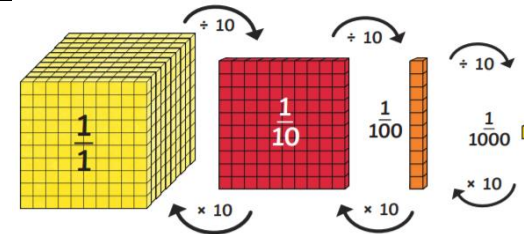
Explore and compare our decimal number system today to that used during World War II: is it the same or different? How does this compare to the decimal number system of other key countries involved in World War II?

**Technology in Action:**

Compare technology used during World War II to that used today in modern Britain; how do they compare? How does the knowledge and understanding of decimal numbers support this?

The skills and knowledge taught in this block will be built upon and deepened throughout the year and continue to provide a secure platform for decimal place value, percentages and fraction equivalence, with clear, imperative links to real-life contexts, which allow children to reason.

**Links to future learning**



**To order and compare numbers upto 3 decimal places:**

Ones	Tenths	Hundredths	Thousandths
	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

0 . 2 1 3

Ones	Tenths	Hundredths	Thousandths
1		$\frac{1}{100}$	$\frac{1}{1000}$

1 . 0 2 2

Ones	Tenths	Hundredths	Thousandths
1	$\frac{1}{10}$		$\frac{1}{1000}$

2 . 1 0 3

**More complex decimal numbers as fractions:**

$$0.71 = \frac{71}{100} = \frac{7}{10} + \frac{1}{100}$$

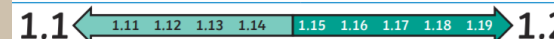
$$0.37 = \frac{37}{100} = \frac{3}{10} + \frac{7}{100}$$

**Rounding decimals:**



If the tenths digit is 1, 2, 3 or 4, we round down to the nearest whole number.

If the tenths digit is 5, 6, 7, 8 or 9, we round up to the nearest whole number.



If the hundredths digit is 1, 2, 3 or 4, we round down to the nearest tenth.

If the hundredths digit is 5, 6, 7, 8 or 9, we round up to the nearest tenth.

## Character/Wider Development ('50 things', cultural capital, skills)

Children will have a secure understanding of measurement and calculating in a range of contexts, which they are able to apply to Year 6 mathematical learning and beyond.

Relate and use this knowledge and understanding in real-life contexts and make these relevant and purposeful links:

Children can explore their school grounds: the size of the whole grounds and then each area. Children could then apply their mathematical understanding here to design new areas. This process can be applied to that of their home and garden.

Communicate in a different language – Spanish: children will relate their mathematical understanding of decimal numbers and place value to speak and recognise these in Spanish and link to their understanding of money in Spanish.

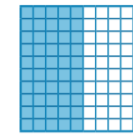
Visit a person in their place of work: children could research and visit a range of people in their place of work, which links to the use of money i.e. a bank or someone who works with computer and spreadsheets.

The use of decimal numbers could also link to the work completed by a programmer who designs apps.

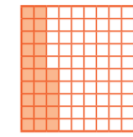
Travel on a range of different transport – children can explore and apply their understanding of decimal place value through money and how this is used and applied before, during and after their journeys to ensure they can travel.

Jump over the Waves – children could explore the water tides and timings of these; using and applying their understanding of them alongside decimal place value. They can then find equivalent fractions and percentages to support this.

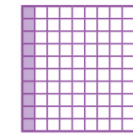
### Percentage and decimal equivalents:



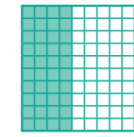
$$50\% = \frac{50}{100} = \frac{1}{2} = 0.5$$



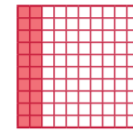
$$25\% = \frac{25}{100} = \frac{1}{4} = 0.25$$



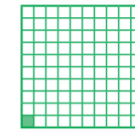
$$10\% = \frac{10}{100} = \frac{1}{10} = 0.1$$



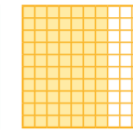
$$40\% = \frac{40}{100} = \frac{2}{5} = 0.4$$



$$20\% = \frac{20}{100} = \frac{1}{5} = 0.2$$



$$1\% = \frac{1}{100} = 0.01$$



$$70\% = \frac{70}{100} = \frac{7}{10} = 0.7$$

### Multiplying and dividing by 10, 100 and 1000:

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
+ 10		3	8	
3	8			
× 10		3	8	

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
+ 100		3	8	
3	8			
× 100		3	8	

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
+ 1000		3	8	
3	8			
× 1000		3	8	


### Fat Questions:

Explore the decimal point – why is this vital in decimal place value?

True or false? Decimal place value knowledge is vital in your everyday life.

How does our decimal number system compare to that of key countries involved in World War II? I.E Germany, Japan, America.

## 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
Week 1 - 2  Number: Decimals and percentages	To read and write decimal numbers up to 2 decimal places.  To explore the relationship between decimals and fractions; recognising simple conversions.  To represent more complex decimals as decimals and fractions.  To use and apply decimal place value to understand and explore thousandths.  To further explore the	Read and write decimal numbers as fractions [for example, $0.71 = 71/100$ ] Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place. Read, write, order and compare numbers with up to 3 decimal places. Solve problems involving	fraction, equivalent, hundredth, thousandth decimal, decimal fraction decimal point, decimal place percentage, per cent, %, convert, multiplying, dividing, rounding, nearest whole number, one decimal place, out of 100	Use of real-life contexts should always be used to support all children's learning as they are able to see the relevance and purpose of this learning and apply it to an 'everyday' situation.  GD: Children are introduced to more complex and wider reasoning and problem-solving questions / concepts. They will begin on this in order to develop and apply their depth in knowledge and understanding immediately.  Children will have multi-step reasoning problems to solve, applying prior learning as well as current.  Children will need to use depth of mathematical knowledge to provide clear mathematical	If children do not master basic prior understanding of whole number place value taught earlier in the key stage, they will struggle with the understanding of decimal place value and will often confuse their understanding and their application. So even if you are teaching year 5, it is important to go back to 'basics' and children's prior learning to ensure they understand the essential knowledge and terminology and have a secure understanding of place value, using manipulatives to support where necessary.  Children will confuse the pronunciation of tenths and hundredths with tens and hundreds.  Children misunderstand the value of decimal place value, for example they think that hundredths are greater than and have a larger value than tenths. They think that the closer to the	Pre-teaching of key concepts is vital to allow for children to commence tasks immediately within lessons and ensure prior learning is revisited and secure.  DTMs to be created using the following resources and based on CTs AFL of their class/cohort. Further cross-curricular links can and should be made to the 6 themes, for a wider context, which develops children's wider development / character.  WRMH: click <a href="#">here</a>  Third Space Learning: <a href="https://thirdspacelearning.com/">https://thirdspacelearning.com/</a>  Classroom Secrets: click <a href="#">here</a>  NCETM – resources / activities for DTMs   Mastery_Assessment_Y6_High_Res.pdf  Maths Frame: click <a href="#">here</a>  Slides / resources saved on trust shared.

	<p>link between tenths, hundredths and thousandths; representing them in different ways.</p> <p>To round decimal numbers to the nearest whole number and the nearest tenth.</p> <p>To order and compare decimal numbers up to 3 decimal places.</p> <p>To understand percentages as number of parts per 100.</p> <p>To represent percentages as decimals and fractions.</p> <p>To recognise simple equivalent</p>	<p>number up to 3 decimal places.</p> <p>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction.</p> <p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math> <math>\frac{1}{4}</math> <math>\frac{1}{5}</math> <math>\frac{2}{5}</math> <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</p>		<p>explanation and reasoning to problems.</p> <p>SEND: Assessment and analysis of prior knowledge is needed. Teacher to assess and base planning and resources in a bespoke manner.</p> <p>Use of base ten, Cuisenaire rods, Numicon should be used alongside number lines and a range of concrete and pictorial resources to support and develop their understanding. Allowing them to complete and explore and work practically to support and secure their understanding.</p>	<p>decimal point a digit is the smaller the value.</p> <p>Children do not have a secure understanding of decimal place value. They cannot recognise 7 tenths instead they think it is 7 hundredths.</p> <p>Children cannot order and compare decimal numbers due to their lack of understanding of decimal place value.</p> <p>Children do not know the relationship between more complex fractions, decimals and percentages. To find '0.7' they have taken the numerator from the fraction and used it in their decimal answer, they have not used the percentage at all.</p> <p>Children misinterpret and misunderstand rounding decimal numbers; they may 'round down' to mean not rounding to the nearest whole number but the number below that.</p> <p>Children misunderstand rounding to the nearest whole number and to one decimal place.</p> <p>Children do not understand that the zero before the digit '7' is important. They need to understand that by removing the</p>	
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	fractions and represent them as fractions and decimals.  A range of models / contexts / problems will be used for children to develop their understanding of decimals and fraction and percentage equivalences.				zero, they have altered the value of the digit '7' making it 7 tenths not 7 hundredths.  <i>AFL to be consistently used, to address misconceptions found within own classes / cohorts of children and address where applicable.</i>	
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**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 > Spring: Goodnight Mr Tom > Maths > Year 5

Week 1 L1-4

Week 2 L5-8

# Year 5 Knowledge Organiser: Decimals and Percentages

## Fat Questions:

Explore measurement – why is this a vital aspect of learning for your everyday life? How can it support us in life now and in the future?

True or false? Knowledge and understanding of perimeter, area and volume is vital to your learning when computing?

How could the Allies have benefitted from and used their knowledge of perimeter, area and volume to ensure they defeated the axis at a quicker rate?

## Key vocabulary

decimal  
 decimal number  
 decimal place value  
 decimal point  
 tenths  
 hundredths  
 thousandths  
 percentages  
 out of 100  
 fraction  
 round  
 nearest whole number  
 one decimal point  
 convert  
 multiplying  
 dividing

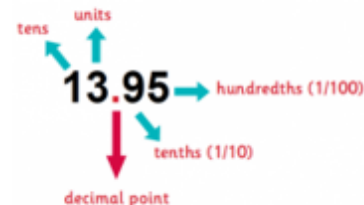
To see the full list of vocabulary, please refer to our resource walls.

## Intent

We aim to develop and progress our skills in decimal place value and number in order to equip us with the ability to solve real world problems that require a mathematical solution with multi-steps. With these skills, we can help to develop and improve the world around us in which we live.

## VIPs:

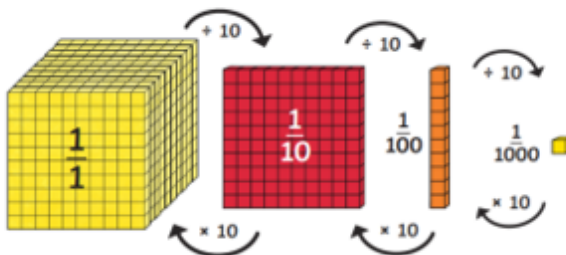
A decimal is a number expressed in the scale of tens. Commonly speaking we talk about decimals when numbers include a decimal point to represent a whole number plus a fraction of a whole number (tenths, hundredths, etc.).



A decimal point is a point or dot used to separate the whole part of a number from the fractional part of a number.

Percent means out of 100. The sign for percentage is %

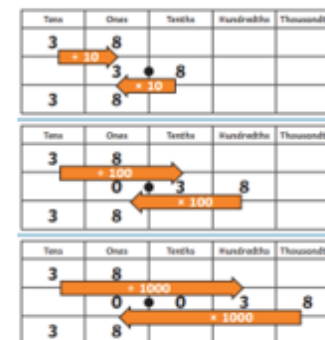
## Tenths, hundredths and thousandths:



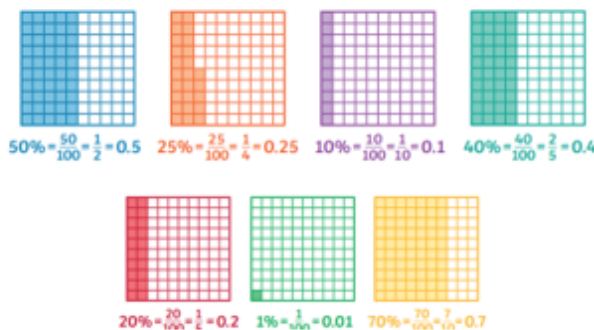
## To order and compare numbers upto 3 decimal places:



## Multiplying and dividing by 10, 100 and 1000:



## Percentage and decimal equivalents:



## Rounding decimals:

