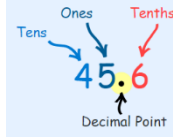
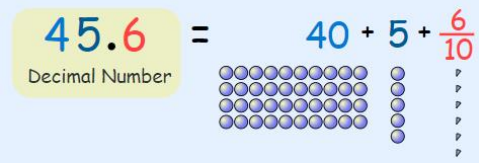


SPRING TERM OVERVIEW YEAR 6 – Maths

Term 2 – Goodnight Mister Tom

Block 1 -Topic: Decimals		Guide Time = 2 Weeks
Assessment:	WRM End of Block (here) WRM End of Term (here) Weekly Arithmetic Tests 2018 & 2019 Practice SATs papers AFL, MWB activities and feedback from marking	<p>Very Important Points (VIPs): When we write numbers, the position (or "place") of each digit is important. As we move right, each position is 10 times smaller.</p> <p>The decimal point is the most important part of a decimal number, without it, we don't know what each position means. Digits can be placed to the left or right of a decimal point, to show values greater than one or less than one.</p> <p>We can think of a Decimal Number as a whole number plus tenths, hundredths, thousandths etc.</p> <p>Or we can think of a decimal number as a Decimal Fraction. So 2.3 looks like $\frac{23}{10}$ and 13.76 looks like $\frac{1376}{100}$</p> <p>Or we can think of a decimal number as a Whole Number plus a Decimal Fraction. So 2.3 looks like 2 and $\frac{3}{10}$ and 13.76 looks like 13 and $\frac{76}{100}$</p> <p>Here is the number "forty-five and six-tenths" written as a decimal number:</p>  <p>The decimal point goes between Ones and Tenths.</p> <p>45.6 has 4 Tens, 5 Ones and 6 Tenths, like this:</p> 
Links to prior learning (sequencing) and canon book	<p><u>Canon Book – <i>Goodnight Mister Tom</i></u> In Year 5, children were able to read and write decimal numbers as fractions (for example, $0.71 = \frac{71}{100}$). Their prior knowledge includes being able to recognise and use thousandths and relating them to tenths, hundredths and decimal equivalents. Children will have prior knowledge of rounding decimals with two decimal places to the nearest whole number and to one decimal place.. Children will have prior knowledge of reading, writing, ordering and comparing numbers with up to three decimal places. Children will have prior knowledge of solving problems involving number up to three decimal places. They will be able to use their knowledge of percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ to solve problems.</p>	
Links to other learning (cross fertilisation)	<p><u>Geography</u> – When learning about importation and trade links, children will be able to apply their knowledge of FDP equivalents. <u>Computing</u> – During their work on spreadsheets, children can investigate the use of decimals to ensure their data is accurate. Use of % symbol and decreasing/increasing dp button. <u>History</u> – Look at when the UK converted to decimal currency. https://www.bbc.co.uk/news/business-12346083</p> <p><u>Thematic Questions:</u> <u>The World Beyond Us:</u> How does the use of decimals help us to accurately measure distance from our planet to other planets? <u>The World Around Us:</u></p>	

Explain the impact of decimalisation on our country. Why do you think it took Britain so long to convert to decimal currency in comparison to other countries?

Modern Britain:

What impact has decimalisation had on the UK? Why do you think the UK did not convert to decimal currency sooner? How has the decimal currency affected the trading of goods between countries? Do you agree that Britain should continue to use the pound when other countries do not?

Healthy Bodies & Healthy Minds:

Find an example of how decimals are used by hospitals today. Consider the impact of a different currency system when funding medical research.

Culture:

Do you think our culture has benefitted from decimalisation? What impact might the changes have had on people's lives? Provide an argument that using metric systems to measure height and distance should be a law.

Technology in Action:

What issues with technology might there have been in WW2 when different countries used different systems? Ammunition did not fit the weapons of other allies, trailer connectors and tow hooks did not fit, grades of fuel and ration scales were not standard; describe how Britain responded to the lack of interchangeability and standardisation following WW2.

How has the introduction of decimalisation impacted technology? Consider how calculators, computers and banking have had to adapt.

Links to future learning

Children's understanding of decimals is crucial when applying their knowledge to the FDP units.

As the blocks continue, children will begin to make links between decimals, fractions and percentages.

Children will use this knowledge in Year 7 when learning to convert between fractions and decimal forms.

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: Children will be able to add and subtract totals when using money in every-day life. Understanding decimals and their value in relation to our currency will be crucial.

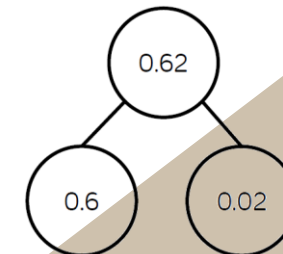
Looking at menus and calculating the total cost of amounts.

The value of digits in numbers given to three decimal places can be represented using a place value chart:

Ones	Tenths	Hundredths	Thousandths
1	0.1 0.1 0.1 0.1	0.01 0.01	0.001 0.001 0.001
1	4	2	3

Ones	Tenths	Hundredths	Thousandths
1	1/10 1/10 1/10 1/10	1/100 1/100	1/1000 1/1000 1/1000
1	4	2	3

You can partition decimals using a part whole model:



Partitioning is splitting numbers into smaller units so it is easier to understand their worth/ value.

It is important to use zero as a place holder! About 3,000 years ago, people needed to tell the difference between numbers like 4 and 40; without the zero they look the same!

So, zero is now used as a "place holder": it shows "**there is no number at this place**", like this: **2.305**

This means 2 ones, 3 tenths, **no hundredths** and 5 thousandths.

Fat Questions:



Using their knowledge of multiplication and division when ordering items online.
Deciding how much pocket money they will need to save to purchase an item.



Why do we say "0.38" as "nought point three eight" rather than "nought point thirty-eight"?

How has decimalisation changed the way we purchase items?

Do you think we will still use decimals in 50 years time?

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
Spring 1 Week 1 - 3 Number: Decimals	To understand decimals up to 2 decimal places. To understand thousandths. To understand numbers to three decimal places. To multiply decimals by 10, 100, and 1,000. To divide decimals by 10, 100, and 1,000. To multiply decimals by integers. To divide decimals by integers.	Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [e.g. $\frac{3}{8}$] Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places multiply one-digit numbers with up to two decimal places by whole numbers use written division methods in cases where the answer has up to two decimal places	tenths, hundredths, thousandths decimal, decimal fraction, decimal point, decimal place, decimal equivalent, equivalent fraction, reduced to, cancel exchanging, rounding to 2dp / 3dp, equal to, equal part, equal grouping equal sharing parts of a whole half, two halves one of two equal parts quarter, two quarters,	GD: Ensure these children develop a deep conceptual understanding of decimals to ensure they have the true depth and rigour of knowledge that is a foundation for higher level maths. Extend children using the editable WRM reasoning and problem solving resources (click here). Ensure children use mathematical vocabulary to support their reasoning and jottings, working out are included. Deepen the moment questions will be used to delve deeper into the learning focus. NCETM and the National Stem Centre E-library have extension activities and challenges to suit each strand of maths. SEND: Ensure QLA has been completed prior to units being taught, consider the use of pre-teaching videos (links to WRM) and the support booklets provided by WRM and Third Space Learning. Pupils to have access to place value chart and should be encouraged to	That the longer a decimal number is the larger it is. That the shorter a decimal number is, the smaller it is. The decimal point moves. That the digits after the decimal point represents a whole number. That fractions are not related to decimals. Children may not understand when and how to use zero as a place holder and why this is important. Children do not convert decimals to the same number of decimal places before comparing and ordering. Children may not line up their digits when adding and subtracting decimals.	Recapping key concepts and ensuring children are revisiting prior learning is essential. WRM Flashback 4 is a useful support for children at the beginning of sessions, allowing misconceptions to be addressed. DTMs to be created using the following resources and based on CT's 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. WRM: click here Classroom Secrets: click here Maths Frame: click here Third Space Maths Hub: click here NCETM: click here Please also see Trust shared for Notebooks and resources to support your teaching.

	<p>To use division to solve problems.</p> <p>To understand decimals as fractions.</p> <p>To convert fractions to and from decimals (1 & 2)</p>	<p>solve problems which require answers to be rounded to specified degrees of accuracy recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	<p>three quarters one of four equal parts one third, two thirds one of three equal parts sixths, sevenths, eighths, remainder</p>	<p>use concrete resources to support their understanding.</p> <p>Giving children opportunities to apply their understanding of decimals to real-life contexts and through cross-fertilisation is essential for children to fully master decimals.</p> <p>Use of the NCETM mastery approach document can support teachers when planning their assessment opportunities for children.</p> <p>Ensure pupils have a secure knowledge of key facts (multiplying & dividing by 10) and that these are engrained in their memory and are practised to ensure fluency.</p>		<p>DTM examples:</p> <div data-bbox="1787 165 2072 335"> <p>Tommy says,</p>  <p>The more decimal places a number has, the smaller the number is.</p> <p>Do you agree? Explain why.</p> </div> <div data-bbox="1787 347 2033 545"> <p>Can you find a path from 6 to 0.06? You cannot make diagonal moves.</p> <table border="1" data-bbox="1845 386 2027 523"> <tr> <td>6</td> <td>×10</td> <td>×10</td> <td>÷100</td> </tr> <tr> <td>÷10</td> <td>×100</td> <td>×100</td> <td>÷10</td> </tr> <tr> <td>×10</td> <td>÷10</td> <td>÷1,000</td> <td>÷100</td> </tr> <tr> <td>÷1,000</td> <td>×1,000</td> <td>×100</td> <td>0.06</td> </tr> </table> <p>Is there more than one way?</p> </div> <div data-bbox="1787 564 2092 753"> <p>Eva says,</p>  <p>When you divide by 10, 100 or 1,000 you just take away the zeros or move the decimal point.</p> <p>Do you agree? Explain why.</p> </div>	6	×10	×10	÷100	÷10	×100	×100	÷10	×10	÷10	÷1,000	÷100	÷1,000	×1,000	×100	0.06
6	×10	×10	÷100																			
÷10	×100	×100	÷10																			
×10	÷10	÷1,000	÷100																			
÷1,000	×1,000	×100	0.06																			

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 Ponfracr 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: T:\Primaries\Departments\KS2\Year 5 & 6 Curriculum Planning\Cycle B\Spring - Goodnight Mr Tom\Maths\Year 6\Year 6 Number - Decimals

Week 1 L1-4

Week 2 L5-8

Year 6 Knowledge Organiser: Decimals

Fat Questions:

Why do we say "0.38" as "nought point three eight" rather than "nought point thirty-eight"?

Who invented decimals?

How has decimalisation changed the way we purchase items?

Do you think we will still use decimals in 50 years time?

Key vocabulary

decimal place
decimal fraction
recurring decimal
equivalent fraction
tenth
sharing
partitioning
exchanging
rounding to 2d.p.
rounding to 3d.p.
hundredth
thousandth
equal to
remainder
grouping

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

Intent

We aim to develop our understanding of decimals (and their relationship with fractions and percentages) in order to apply our knowledge in real life situations. With this decimal knowledge, we are able to solve multi-step problems mathematically, where more precision is required than whole numbers.

It is important to use zero as a place holder!

About 3,000 years ago, people needed to tell the difference between numbers like 4 and 40; without the zero they look the same!



VIPs:

When we write numbers, the position (or "place") of each digit is important. As we move right, each position is **10 times smaller**. The decimal point is the most important part of a decimal number, without it, we don't know what each position means. Digits can be placed to the left or right of a decimal point, to show values greater than or less than one.

The value of digits in numbers given to three decimal places can be represented using a place value chart:

Ones	Tenths	Hundredths	Thousandths
1	4	2	3

Ones	Tenths	Hundredths	Thousandths
1	4	2	3

Decimal Number is a whole number plus tenths, hundredths, thousandths etc.

45.6 has 4 tens, 5 ones and 6 tenths, like this:



Decimal Fraction:

2.3 looks like $\frac{23}{10}$ and 13.76 looks like $\frac{1376}{100}$

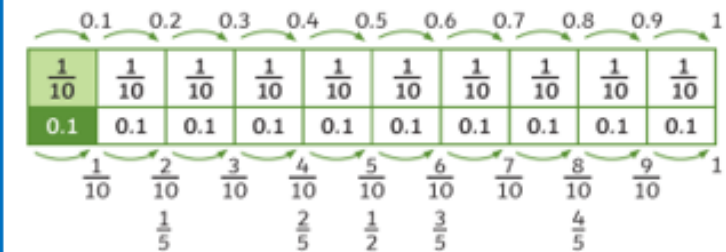
Whole Number plus a Decimal Fraction:

2.3 looks like 2 and $\frac{3}{10}$ and 13.76 looks like 13 and $\frac{76}{100}$

Fractions, Decimals, Percentages and Money Equivalents (£ and p)

	1	100%	£1.00 or 100p	
	$\frac{1}{2}$ = 0.5	50%	£0.50 or 50p	
	$\frac{1}{4}$ = 0.25	25%		
	$\frac{2}{8}$ = 0.2	20%	£0.20 or 20p	
	$\frac{1}{8}$ = 0.125	12.5%		
	$\frac{1}{10}$ = 0.1	10%	£0.10 or 10p	
	$\frac{2}{20}$ = 0.1	10%	£0.10 or 10p	
	$\frac{1}{20}$ = 0.05	5%	£0.05 or 5p	
	$\frac{1}{50}$ = 0.02	2%	£0.02 or 2p	
	$\frac{1}{100}$ = 0.01	1%	£0.01 or 1p	

Decimal Numbers as Fractions



Fractions to decimals

$$\frac{7}{20} = \frac{35}{100} \text{ or } 0.35 \quad \frac{7}{25} = \frac{28}{100} \text{ or } 0.28$$

$$\frac{7}{50} = \frac{14}{100} \text{ or } 0.14 \quad \frac{8}{200} = \frac{4}{100} \text{ or } 0.04$$

When the denominator is not a factor or multiple of 100

$$\frac{7}{8} = 7 \div 8$$

	0	8	7	5
8	7	0	6	4