SUMMER TERM OVERVIEW YEAR 5 – Maths

Term 3 – Mortal Engines

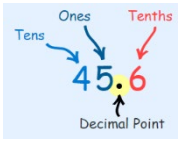
Block 1 -Topic: Decimals

Guide Time = 3 Weeks

Assessment:	WRMH End of block / term assessments Weekly Arithmetic Tests / Skills checks NFER Summer assessments. Daily retention activities / quizzes to ensure children are revisiting prior learning. AFL, MWB activities and feedback from marking
Links to prior learning (sequencing) and canon book	Canon Book – ***Mortal Engines*** In Year 4, children were able to find the effect of dividing a one- or two-digit number by 10 and 100. They identified the value of the digits in the answer as ones, tenths and hundredths. Their prior knowledge includes being able to convert between different units of measurement (e.g. kilometre to metre, hour to minute). Children will have prior knowledge of solving simple measure and money problems involving fractions and decimals to two decimal places. In the spring term, Y5 children completed a unit on decimals which included ordering and comparing, decimals, rounding decimals and finding equivalent fractions, decimals and percentages.
Links to other learning (cross fertilisation)	Geography – When learning about the human and physical features of a local area, children can apply their problem-solving skills when measuring; using decimals to two decimal places. Computing – 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. History – Look at when the UK converted to decimal currency. https://www.bbc.co.uk/news/business-12346083 . Consider how different the Stone Age would have been had they used decimals. How would it have helped them? Could they have integrated this system into their era?

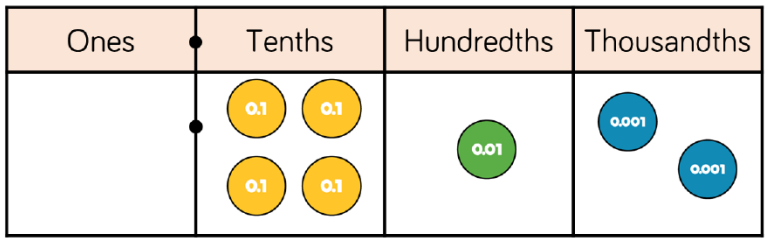
Very Important Points (VIPs):
When we write numbers, the position (or "place") of each digit is important. As we move right, each position is **10 times smaller**.
The decimal point is the most important part of a decimal number, without it, we don't know what each position means.
Digits can be placed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

Here is the number "**forty-five and six-tenths**" written as a decimal number:

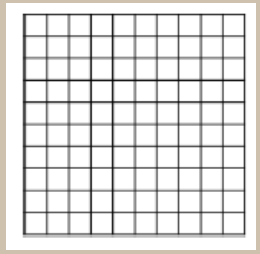


The decimal point goes between Ones and Tenths.

The value of digits in numbers given to two decimal places can be represented using a place value chart: Here is the number 0.412



Each box in this hundred square represents one hundredth of the whole.



Thematic Questions:

The World Beyond Us:
How does the use of decimals help us to accurately measure distance from our planet to other planets?
The World Around Us:
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:
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 and answering questions in their arithmetic sessions.

It is essential pupils have a solid understanding of calculating with decimals as the skills and knowledge taught in this block will be built upon in the spring term of Year 6.

Children will apply their knowledge when giving answers to three decimal places. They will use their understanding of multiplying by 10, 100 and 1,000 when solving more complex problems.

By the end of Year 5, children must be confident with recognising and writing decimal equivalents in order to build on this skill by the end of KS2.

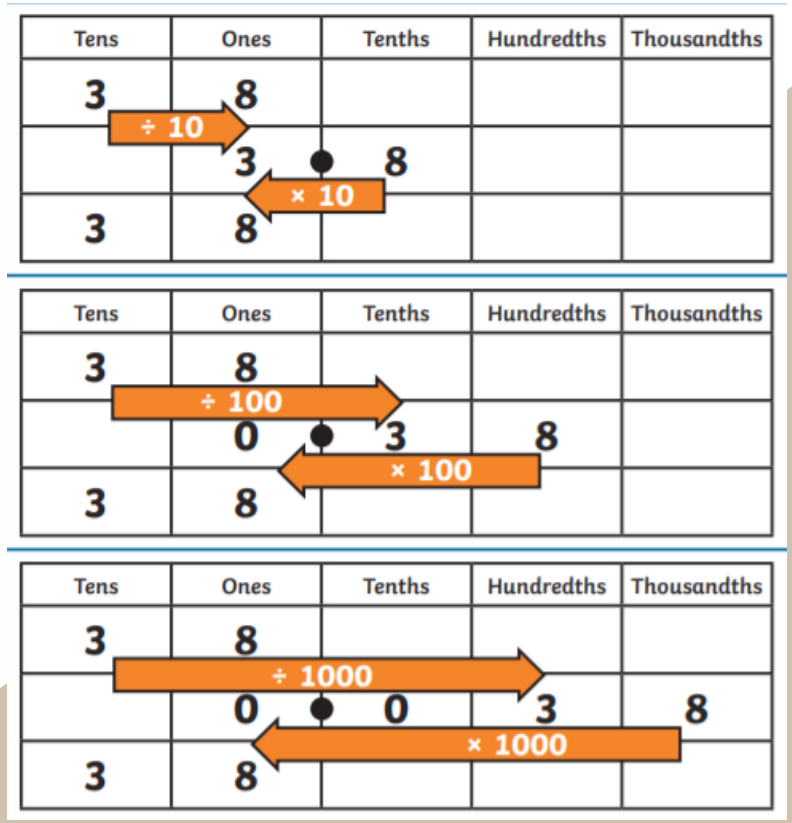
When converting units of measure, children need a good understanding of decimals, e.g. converting cm to m, g to kg etc.

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: **2.05**

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

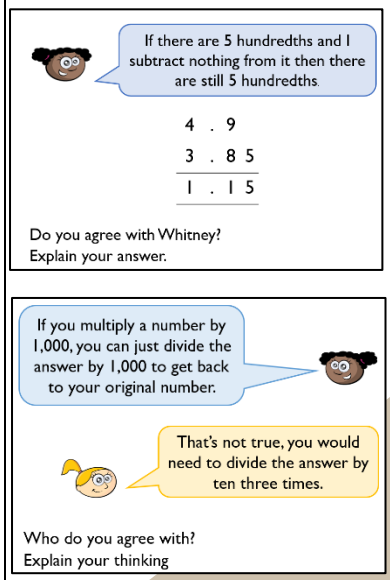
Multiplying by 10, 100 and 1,000:



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. 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.	**Adding and subtracting decimals:** 0.8 + 0.001 = 0.801 1.031 - 0.23 = 0.801 0.4005 + 0.4005 = 0.801 **Crossing the whole:** 0.82 + 0.63 = 1.45 2.531 - 0.6 = 1.931 **Fat Questions:** 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
Summer 1 Week 2-4 Number: Decimals	To add decimals within 1 To subtract decimals within 1 To find decimal complements to 1 To add decimals –crossing the whole To add decimals with the same number of decimal places To subtract decimals with the same number of decimal places To add decimals with a different number of decimal places To subtract decimals with a different number of decimal places To add and subtract wholes and decimals	Recognise and write decimal equivalents of any number of tenths or hundredths. Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Solve simple measure and money problems involving fractions and decimals to two decimal places. Convert between different units of measure [for example, kilometre to metre]	tenths, hundredths, thousandths decimal, decimal fraction, decimal point, decimal place, decimal equivalent, equivalent multiplying, dividing, one decimal place, two decimal places	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. 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. 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.	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. Children do not use their multiplication and division facts to help them make answers 10, 100 or 1,000 bigger or smaller	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.

	To complete decimal sequences To multiply decimals by 10, 100 and 1,000 To divide decimals by 10, 100 and 1,000			Pupils to have access to place value chart and should be encouraged to use concrete resources to support their understanding. 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. Use of the NCETM mastery approach document can support teachers when planning their assessment opportunities for children. 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.		DTM examples: 

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: T:\Primaries\Departments\KS2\Year 5 & 6 Curriculum Planning\Cycle B\Summer - Mortal Engines\Maths\Year 5\Y5 Summer Term 1 - Block 1- Decimals

Year 5 Knowledge Organiser: Decimals

PONTEFRACT ACADEMIES TRUST

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
tenth
hundredth
thousandth
addition
subtraction
multiplication
division
partitioning
exchanging
equal to
place value
exchanging
complements
whole

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.

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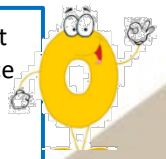


VIPs:

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.

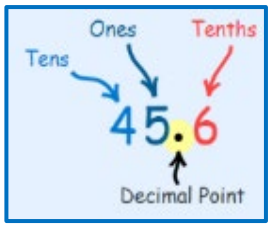
The value of digits in numbers given to three decimal places can be represented using a place value chart:

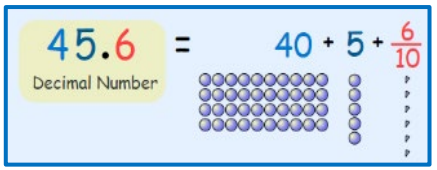
Ones	Tenths	Hundredths	Thousandths
1	4	2	3

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:





Adding and subtracting decimals:

0.8 + 0.001 = 0.801
1.031 - 0.23 = 0.801
0.4005 + 0.4005 = 0.801

Crossing the whole:

0.82 + 0.63 = 1.45
2.531 - 0.6 = 1.931