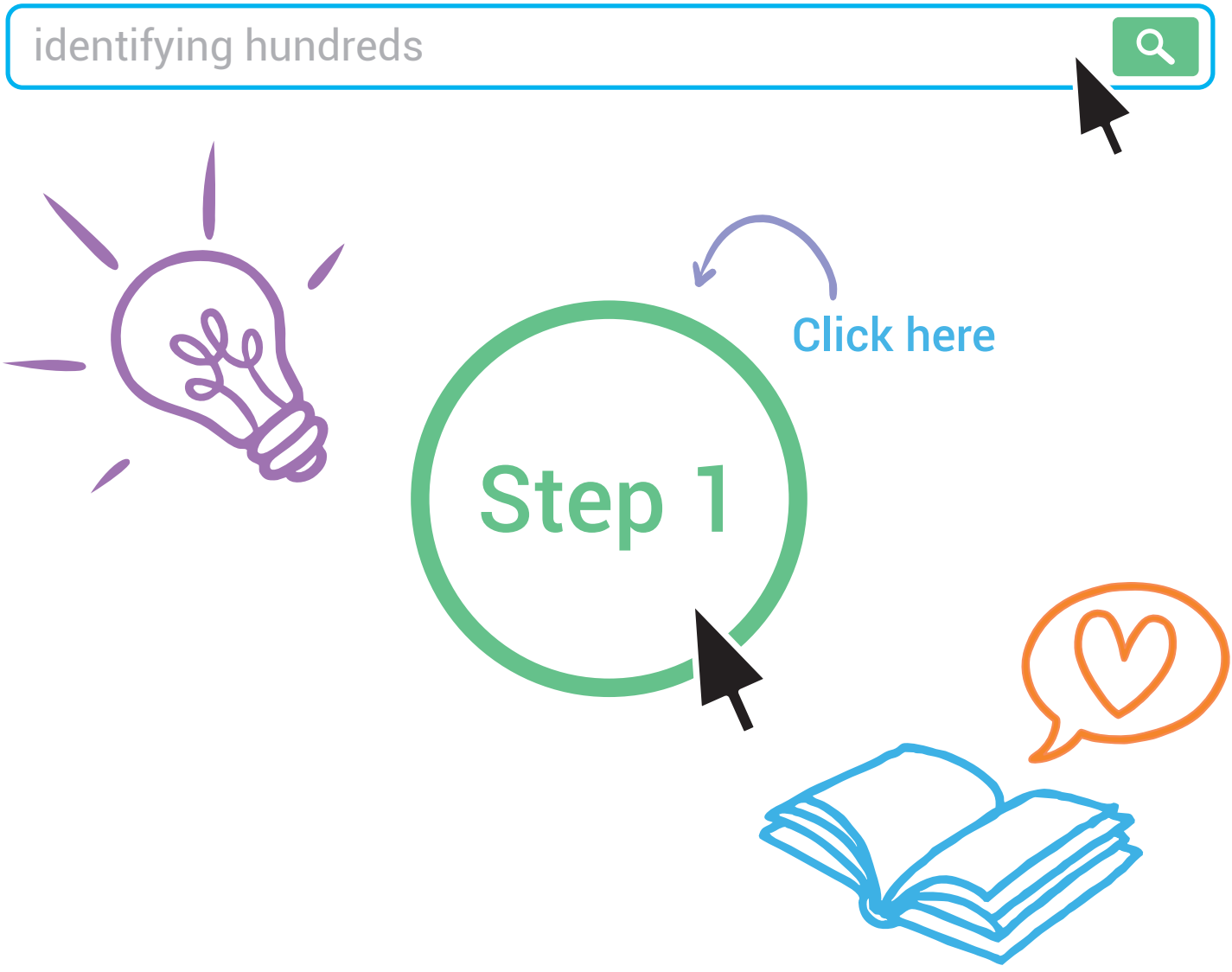
Year 5 Decimal Numbers: A Step-by-Step Guide for Parents

This step-by-step explanation to year 5 decimals can help you support your child's learning at home. The subject is broken down into manageable chunks, providing you with a simple guide to follow when learning about year 5 decimal numbers either to support your child's homework, or if you decide to give your child some extra support. In this guide, you will find a step that matches your child's level of understanding and then have suggested activities which can be used to support that step.

Within **this area of the website**, you will find a selection of resources intended to help your child learn about each step of this guide. Each step also contains a keyword or phrase that you can use to search the Twinkl site for more resources and activities, designed to support your child in achieving that stage. Simply type the keyword or phrase into the search bar and press enter to explore together.



We hope you find the information on our website and resources useful. The contents of this resource are for general, informational purposes only. This guide is intended to offer parents general guidance on what subject areas tend to be covered in their child's year group and where they could support their children at home. However, please be aware that every child is different and information can quickly become out of date. There are some subject areas that we have intentionally not covered due to the nature of how they are taught or because a trained professional needs to teach these areas. We try to ensure that the information in our resources is correct but every school teaches the national curriculum in its own way. If you would like further guidance or are unsure in any way, we recommend that you speak to your child's teacher or another suitably qualified professional.

Decimal Numbers

What Are Children Taught about Decimal Numbers in Year 5?

In year 5, children will continue to practise the what they learnt about decimal numbers in year 4 and build on this prior knowledge.

In year 5, children are taught to:

- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 .
- Read and write decimal numbers as fractions [for example, 0.71 = $\frac{71}{100}$].
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- Round decimals with two decimal places to the nearest whole number and to one decimal place.
- Read, write, order and compare numbers with up to three decimal places.
- Solve problems involving numbers with up to three decimal places.
- Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with the denominator 100, and as a decimal.
- Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.

This guide will help you support the learning of year 5 decimal numbers at home. Each step contains an explanation to that stage and a link to an appropriate resource which can be used at home to support your child's learning.

As well as using the resources in this category, and the keyword searches to help your child with decimal numbers, below are a few ideas for games and activities to help your child practise learning decimal numbers at home.

Decimal Card Game

Cut a piece of card into small squares that are all the same size. Write a decimal number on each card, all with the same number of decimal places (1 or 2 decimal places). Then, ask your child to order the numbers from smallest to biggest. Once completed, ask your child to explain how they knew to place the numbers in that order.

Make a Decimal Poster

This is a fun way for your child to show what they know about decimal numbers and to help them revise decimals. Challenge them to make a poster showing equivalent decimals and fractions. They could use pictures to show fractions pictorially and then label them with the fraction and decimal, such as $\frac{3}{10}$ and 0.3.

Food for Thought

Fractions and decimals can be modelled with food at home. Look for opportunities to make fractions with foods that can be cut into smaller pieces such as cakes and pizzas. Try to cut things into 10 pieces and discuss the fraction and the decimal with your child (each piece is $\frac{1}{10}$ or 0.1). State what fraction you have eaten and then ask your child to do the same. For example, if you have eaten 3 slices of the pizza, you could say 'I have eaten $\frac{3}{10}$ of the pizza' or 'I have eaten 0.3 pizzas'.

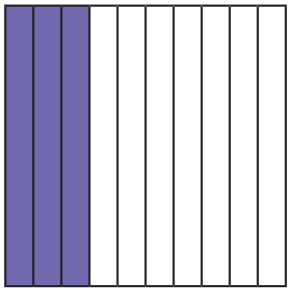
Decimal Counting

Play a game of decimal counting with your child to see how far you can go before making a mistake. To do this, one person chooses a starting decimal number and you must decide if you will count up or down. Then the next person says the next number in the decimal sequence. For example: 0.23, 0.24, 0.25, 0.26, etc. Continue to take turns to do this until somebody makes a mistake.

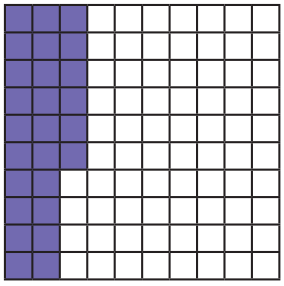
Step 1

Read and Write Decimals as Fractions

In school, children are often introduced to the concept of tenths and hundredths with concrete diagrams such as these squares:



$\frac{2}{10}$ or 0.2



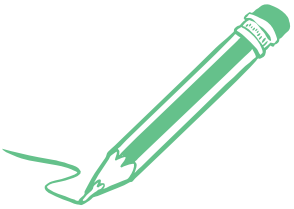
$\frac{26}{100}$ or 0.26

In these two examples, you can clearly see that the first square has been broken down into ten equal parts and the second square has been broken into 100 equal parts. These represent the numbers 0.2 and 0.26. Images like these will be used in school to show fraction and decimal equivalents. Children can also use the diagrams to see that ten hundredths is equivalent to one tenth. Place value cards can also be used to show how to write these pictures in numbers. Try using this **Place Value Support Desk Mat** at home to help your child.

Th	H	T	O	t	h	th
Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
1000	100	10	1	0.1 $\frac{1}{10}$	0.01 $\frac{1}{100}$	0.001 $\frac{1}{1000}$

Using a place value chart, you can show your child how to place the number of tenths in the tenth column and the number of hundredths in the hundredth column. They need to understand that if there is no whole number, a zero needs to be placed before the decimal point.

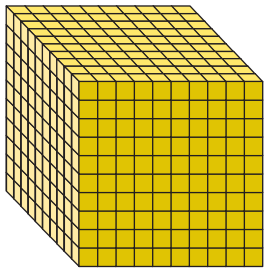
At home, try these **Identifying Hundredths Differentiated Worksheets** to help your child practise writing decimal hundredths.



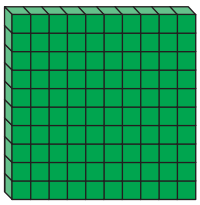
Recognise and Use Thousandths and Relate Them to Tenths, Hundredths and Decimal Equivalents

Step 2

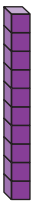
To help children build on their understanding of tenths and hundredths, thousandths are best introduced with a picture representation. This is often done with base ten images in schools. These are 3D images of squares which represent different numbers. For example:



1 whole



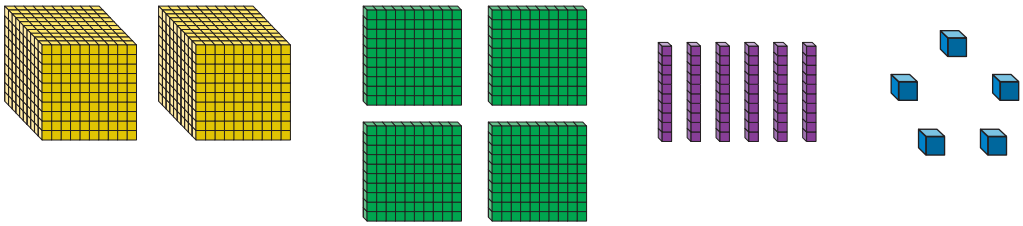
1 tenth



1 hundredth

1 thousandth

At home, you can use these **Four-Digit Number Place Value Base Ten Cut-Outs** to help your child identify and write numbers with thousandths (to 3 decimal places). Simply print and cut up the base ten images. Once you have made your child familiar with the value of each one, you can place some together to make a 4-digit number to 3 decimal places. For example:



Ask your child how many wholes, tenths, hundredths and thousandths are displayed. Model writing this as 2.465. You could use a place value chart to help your child see this:

Ones **1**	**Tenths** $\frac{1}{10}$	**Hundredths** $\frac{3}{100}$	**Thousandths** $\frac{3}{1000}$
2	4	6	5

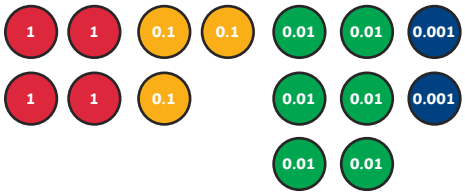
Make several combinations of the base ten cut-outs and ask your child to write them as numbers. This can also be reversed so that you say a number and your child has to make it pictorial using the cut-outs. This is a great way to help your child recognise thousandths.

Step 3

Read, Write, Order and Compare Numbers with up to Three Decimal Places

Once children have developed an understanding of how tenths, hundredths and thousandths are made using pictures, they can begin to count in and compare decimal numbers. At home, you can help your child by counting in tenths and hundredths out loud together. For example, 0.3, 0.4, 0.5 etc. or 1.32, 1.31, 1.30, 1.29 etc. You could challenge your child by saying a decimal number and asking your child: which number would come after it? Which number would come before it?

In school, pictures are also often used to help children compare numbers, such as these decimal counters:



4.362

4.435

Using the place value counters, we can see that the number on the right is the bigger number because it has more tenths. It's important for children to start at the left-hand digit when comparing numbers; in this example, that is the ones. This number has the same amount of counters in the ones column, so the child should look to the tenths column next. The number on the right has more tenths counters than the other, so that indicates it is the bigger number.

Use this **Place Value Chart** to help your child practice this by drawing on your own counters. Represent two different numbers with the counters and ask your child to say what each number is and then say which is the biggest and why. Your child can make two numbers of their own and explain to you which is the biggest and why.

Also, try this **Ordering Numbers Up To 3 Decimal Places Differentiated Worksheet Pack** at home to help your child practise comparing and ordering decimal numbers.

Step 4

Multiply and Divide Whole Numbers and Those Involving Decimals by 10, 100 and 1000

When dividing a number by 10, 100 or 1000, children need to understand that the number is being split into 10 or 100 or 1000 equal parts and gets 10, 100 or 1000 times smaller. A great way to do this at home is by using a place value chart and counters (make your own from coloured paper), such as **this**. Show your child a number on the place value chart using your counters. For example, if you wanted to show the number 142, place one counter in the hundreds column, four counters in the tens column and two counters in the ones column:

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

Explain to your child that when you divide by 10, the number gets 10 times smaller. Therefore, you move the entire number one place to the right. The new number would be 14.2. You can show this by moving the counters on the place value chart.

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

Do this with lots of different examples. Once your child is familiar with dividing by 10, explain to your child that when you divide a number by 100, the number gets 100 times smaller. Therefore, you have to move the number two decimal places to the right. 142 would now become 1.42. You can show this again using the place value chart.

Also, when you divide by 1000, the number gets 1000 times smaller. Therefore, you move the digits three places to the right. 142 would now become 0.142. You can also demonstrate this on the place value chart like the example below.

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

Play this activity several times and write the number each time as a decimal to help familiarise your child with dividing by 10, 100 and 1000.

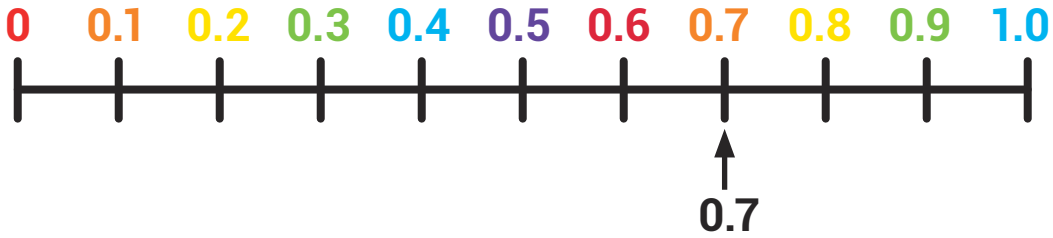
When multiplying by 10, 100 and 1000, the number gets 10, 100 and 1000 times bigger. This too can be modelled using the counters on the place value chart by moving the digits to the left. For instance, if you multiplied 0.142 by 10, the number would move one place to the left which would be 1.42. You move two places to the left when multiplying by 100 ($100 \times 0.142 = 14.2$) and three places to the left when multiplying by 1000 ($1000 \times 0.142 = 142$).

Round Decimals with Two Decimal Places to the Nearest Whole Number and to One Decimal Place

Step 5

A whole number is a number without a fraction or decimal part. In year 5, children are taught to round decimals to the nearest whole number. To do this, they need to use the tenths column to help them decide whether to round a number up or not. If the tenths column contains 5 or above, we round up. For example, 5.72 would round to 6. If the tenths column contains 4 or less, we round down and keep the same whole number. For example, 5.49 would be 5.

In school, a number line is usually used to introduce this as it allows the child to see which whole number the decimal is closest to. For example:



On the number line above, you can clearly see that 0.7 is closer to one than it is to zero.

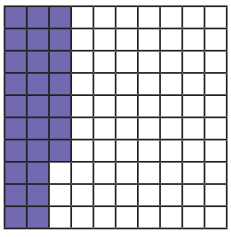
When rounding to the nearest tenth, the same principle applies - except, this time, we use the number in the hundredths column to help us decide if we need to round up or not. For example, in the number 3.47, the digit in the hundredths column is 7 - so you'd round the number up to the next tenth, which would be 3.5. However, if the number was 3.43, you wouldn't round up as the digit in the hundredths column is below 5 - so you would keep the same tenth and the answer would be 3.4.

Try these **Year 5 Round Decimal Numbers Worksheets** at home to help your child practise this skill.

Step 6

Recognise the Per Cent Symbol (%) and Understand That Per Cent Relates to 'Number of Parts per Hundred', and Write Percentages as a Fraction and a Decimal

In year 5, children are introduced to 'per cent' (%) for the first time. They can relate this to fractions or decimals as 'per cent' means the number of parts out of one hundred. This is often introduced with 100 squares (which children will already be familiar with from finding hundredths as fractions and decimals). For example:



In the square above, 27 of the 100 squares are shaded. As a fraction, we would write $\frac{27}{100}$. As a decimal, the number would be 0.27. As a percentage, it would be 27%. Using diagrams like this helps children to relate per cent to fractions and decimals.

At home, try these **Year 5 Visual Representations of Fractions Decimals and Percentages Differentiated Worksheets** to help your child learn about percentages.

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