

Year 6 Decimals: A Step-by-Step Guide for Parents

This step-by-step explanation to year 6 decimals will 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 6 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.

multiply one-digit numbers with up to two decimal places by whole numbers

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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 However, please be aware that every child is different and information can quickly become out of date.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.

Decimals

What Are Children Taught about Decimal Numbers in Year 6?

In year 6, children will continue to practise what they learnt about decimal numbers in year 5 and build on this prior knowledge.

In year 6, children are taught to:

- 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
- 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

This guide will help you support the learning of year 6 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.

Food for Thought

Fractions, percentages 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, percentage and the decimal with your child (each piece is $\frac{1}{10}$ or 0.1 or 10%). 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 $\frac{3}{10}$ or 0.3 pizzas or 30% of a pizza'.

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.

Decimal Card Game

Cut a piece of card into small squares, all the same size. Write a selection of decimal numbers on the cards 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.

Calculate Costs

This is where you can really put your child's maths skills to the test. Ask them questions to do with real-life experiences. For example, if you book a holiday that costs £754 for three people, ask your child to calculate how much it costs per person to the nearest pound. Using money problems is a great way to get your child to practise calculating with decimal numbers in everyday life situations.

Step 1

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

By year 6, children will have already been introduced to decimal numbers to 3 decimal places (thousandths) in year 5. They have also learnt to divide and multiply numbers by 10, 100 and 1000, which they do again in year 6 to consolidate their understanding of the subject.

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, such as this **Decimal Numbers Place Value Chart**. Show your child a number on the place value chart using the counters provided. For example, if you wanted to show the number 142, place 1 counter in the 100s, 4 counters in the tens column and place 2 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 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 so you move the digits 3 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 ten, the numbers 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 ($1000 \times 0.142 = 142$).

Step 2

Multiply One-Digit Numbers with up to Two Decimal Places by Whole Numbers

When multiplying decimals by whole numbers, children can use the formal short method they have already learnt for multiplication. However, they need to ensure that they place the numbers in the correct columns i.e. ones, tenths, hundredths etc. For example, 3×1.212 would be set out like so:

	1s	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	1	2	1	2
x	3			
	3	6	3	6

To help revise how to complete multiplication with decimal numbers, use this **Year 6 Multiplying Decimals by Whole Numbers Display Poster**.

Use Written Division Methods in Cases Where the Answer Has up to Two Decimal Places

By year 6, most children will have learnt to use a formal written method for division in year 5. This is sometimes called the bus stop method. In year 6, children are taught to show the remainder as a decimal when dividing. For example, in the following calculation:

$$3172 \div 8 =$$

Lay the calculation out using a formal written method (the bus stop method):

		0	3	9	6	4
8	3	1	7	2		

The calculation can be completed as normal which would leave a remainder of 4. However, in year 6, children are shown how to change the remainder to a decimal. Sometimes this is taught by adding a decimal point to the number being divided and placing a 0 in the tenths column:

		0	3	9	6	.
8	3	1	7	2	0	

Step 3



You can then divide the remainder in the tenths column which will give you the answer.

		0	3	9	6	•	5
	8	3	1	7	7	•	40

For further practice at home, try these **Division with Remainders Worksheets** at home.



Step 4



Solve Problems Which Require Answers to Be Rounded to Specified Degrees of Accuracy

In year 6, children will experience problems which may involve them rounding their answers to a specified amount. To round a number, they need to have good understanding of place value. Here is how to round the following numbers to 1 decimal place:

1s ones	$\frac{1}{10}$ tenths	$\frac{1}{100}$ hundredths
3	7	8

1s ones	$\frac{1}{10}$ tenths	$\frac{1}{100}$ hundredths
3	7	1

You need to look at the digit in the column to the right of the tenths column (the first decimal place) which is the hundredths column. The rule for rounding is that if the digit to the right is 5 or more, you round up to the next digit. Therefore:

3.78 would round up to 3.8

If the digit to the right is less than 5, the digit stays the same. Therefore:

3.71 would become 3.7

When applying this to problems, children will be asked questions where they have to round the answer to a given amount (such as 2 decimal places or to the nearest whole number). For example:

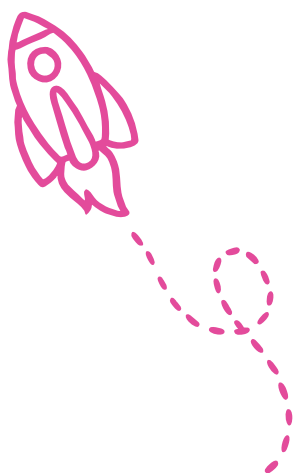
A bicycle costs £209.50. In the sale, there is 25% off the price. Calculate the new price and round the answer to the nearest penny.

In this question, a child has to work out 25% by dividing by four. Then they have to subtract this from the original price and round the answer:

$$\begin{aligned}\text{£}209.50 \div 4 &= \text{£}52.375 \\ \text{£}209.50 - \text{£}52.375 &= \text{£}157.125\end{aligned}$$

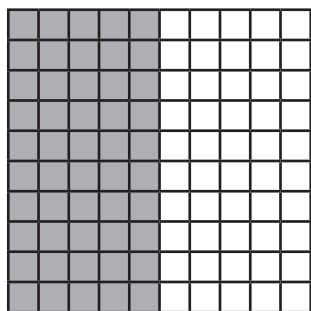
To round this to the nearest penny, you look at the thousandths digit which is 5. As it is 5, we round the hundredths digit up, so the answer becomes £157.13.

For further practice at home, try this [Rounding to Specific Degrees of Accuracy Resource Pack](#).



Recall and Use Equivalences between Simple Fractions, Decimals and Percentages, Including in Different Contexts

By year 6, most children will have experienced fractions, decimals and percentages in the previous year. During maths lessons, children may practise recalling the equivalences between simple fractions, percentages and decimals, such as $0.25 = \frac{1}{4} = 25\%$. Sometimes, diagrams are used to help children understand this visually.



In this diagram, children can see that half ($\frac{1}{2}$) of the hundred squares are shaded. This is the same as 50% (which is 50 out of 100) and 0.5 (as 5 tenths are shaded).

To help your child practise recalling these facts at home, try this **Ultimate Equivalent Fractions, Decimals and Percentages Challenge Worksheet** at home.

Step 5

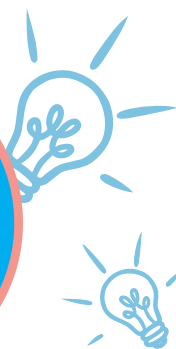


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