

# YR4 DECIMALS KNOWLEDGE ORGANISER

## Key Concepts

- Count up and down in hundredths
- Recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10
- Recognise and write decimal equivalents of any number of tenths and hundredths
- Find 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
- Round decimals with 1 decimal place to the nearest whole number
- Compare numbers with the same number of decimal places up to 2 decimal places

## Key Vocabulary

- decimal
- decimal place
- tenths
- hundredths
- round
- compare



## Count Up and Down in Hundredths

**Hundredths** are ten times smaller than tenths. On a place value chart, you can find them to the right of the tenths column in the second decimal place.

When representing one hundredth on a place value chart, we use zeroes as place holders to show there are no ones or tenths.

○ ●	1/10	1/100
0 ●	0	1

When we are counting in hundredths, up to 99 hundredths is just like counting in ones.

For example... 5 hundredths, six hundredths and seven hundredths:

$$\frac{5}{100} \quad \frac{6}{100} \quad \frac{7}{100}$$

These can also be written as 0.05, 0.06 and 0.07

When we reach 100 hundredths, we will need to say the whole.

For example... 99 hundredths, **one**, **one** and 1 hundredth, **one** and 2 hundredths ...

Counting backwards is exactly the same:

27 hundredths, 26 hundredths, 25 hundredths...

0.27, 0.26, 0.27...

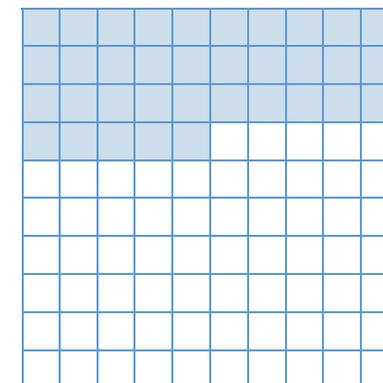


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## Finding Hundredths

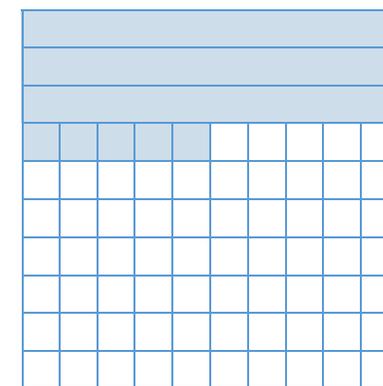
Hundredths arise from dividing one whole into one hundred equal parts.



This grid has been divided into one hundred equal squares.

Each of the shaded squares is worth **1 hundredth** so the amount shaded equals **35 hundredths**.

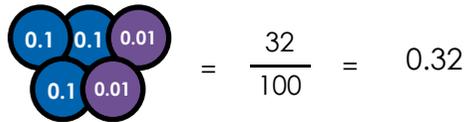
The grid also shows that 1 tenth is equal to 10 hundredths so hundredths can also be found by dividing 1 tenth into ten equal parts.



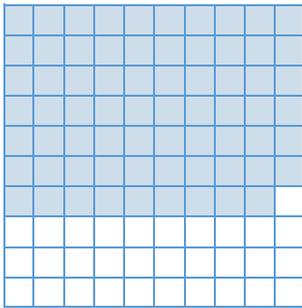
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## Recognising and Writing Tenths and Hundredths

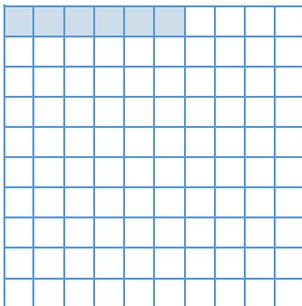
We can use our understanding of hundredths to write numbers with up to 2 decimal places like this.



This grid shows 69 hundredths.



This can be written as 0.69 as it has 6 tenths and 9 hundredths shaded.



This grid shows 0.06 as it has **no** tenths and 6 hundredths shaded.

## Dividing by 10 and 100

To **divide a number by 10**, we move each digit 1 place to the right, using 0 as a place holder where needed.

TH	H	T	O	• 1/10	1/100
		2	9	•	
			2	•	9
					2

$$29 \div 10 = 2.9$$

To divide by 100, we move each digit 2 places to the right and use 0 as a place holder where needed.

TH	H	T	O	• 1/10	1/100
		5	2	•	
			0	•	5
					2

$$52 \div 100 = 0.52$$

## Round Decimals

We can **round decimals** (with one decimal place) to the nearest whole number by looking at the value of the tenths.

If the number in the tenths position is 5 or higher, we round up to the nearest whole number.

$$3.5 \xrightarrow{\text{round up...}} 4$$

If the number in the tenths position is 4 or lower, we round down to the nearest whole number.

$$3.4 \xrightarrow{\text{round down...}} 3$$

## Compare and Order Decimals

We can use our place value knowledge to compare decimals with up to 2 decimal places.

<b>9.16</b> 9 ones and sixteen hundredths	>	<b>9.08</b> 9 ones and eight hundredths
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We can use our understanding of comparing decimal numbers to order them in ascending or descending order.

$$\underline{1.50 \quad 1.53 \quad 1.86 \quad 2.00 \quad 2.09} \rightarrow$$

(ascending order)

$$\underline{8.64 \quad 8.50 \quad 8.01 \quad 7.83 \quad 7.80} \rightarrow$$

(descending order)

