



DECIMALS and PERCENTAGES

Year 5



KNOWLEDGE ORGANISER

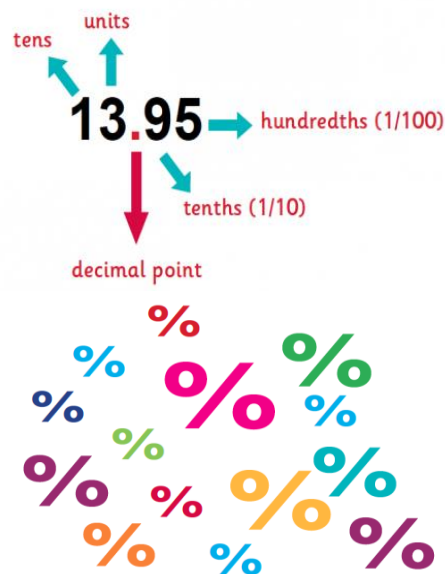
Overview

Decimals and Percentages: we learn:

- Decimals up to 2 places
- Equivalent decimals and fractions
- Thousandths as fractions/decimals
- Order & compare decimals
- Round to the nearest whole
- Round to 1 decimal place
- Understand percentages
- Percentages as fractions/decimals
- Equivalent fractions, decimals and percentages.

Definition: Decimals are a way of showing numbers that are not whole (a bit like fractions). Decimals are 'in between' whole numbers, e.g. 8.3 is in between 8 and 9.

Definition: Percentages is a proportion of a whole number, expressed as a value out of a hundred. The symbol is %



Fractions, Decimals and Percentages Equivalency



One thousandth = $1/1000 = 0.001 = 0.1\%$ One hundredth = $1/100 = 0.01 = 1\%$
One tenth = $10/100 = 0.1 = 10\%$ One half = $50/100 = \frac{1}{2} = 0.5 = 50\%$
One quarter = $25/100 = \frac{1}{4} = 0.25 = 25\%$ Three quarters = $75/100 = \frac{3}{4} = 0.75 = 75\%$

Fraction	Circle Diagram	Percentage	Decimal	Equivalent
1		100%	1.00	One Whole
$\frac{1}{2}$		50%	0.50	One Half
$\frac{1}{3}$		33.3%	0.333	One Third
$\frac{1}{4}$		25%	0.25	One Quarter
$\frac{1}{5}$		20%	0.20	One Fifth
$\frac{1}{6}$		16.6%	0.166	One Sixth
$\frac{1}{8}$		12.5%	0.125	One Eighth
$\frac{1}{10}$		10%	0.10	One Tenth
$\frac{1}{12}$		8.33%	0.0833	One Twelfth

Key Vocabulary

Tenth Hundredth Thousandth Decimal Tenths Decimal Hundredths Decimal Equivalents Percentage Decimal Point

Decimals and Place Value

Place Value Chart

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
1	3	8	2	6	4	5

Decimal point – separates the whole number from the fractional part.

Dividing by 1000

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
1	2	8	.			
				1	2	8

When dividing by 1000, move digits three places to the right along the place value chart.

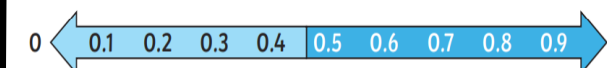
Multiplying by 1000

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
			1	2	8	

When multiplying by 1000, move digits 3 places to the left along the place value chart.

x1000

Rounding Decimals



-If the digit to the right of the rounding digit is 4 or below, we round down.

-If the digit to the right of the rounding digit is 5 or above, we round up.

Adding and Subtracting Decimals/ Percentages of Amounts

Adding and Subtracting Decimals

Pay close attention to place value.

$0.7 + 0.002 = 0.702$	$0.75 - 0.01 = 0.74$
$0.03 + 0.542 = 0.572$	$0.309 - 0.2 = 0.109$
$0.201 + 0.201 = 0.402$	$0.152 - 0.150 = 0.002$

Crossing the Whole

$0.88 + 0.41 = 1.29$	$2.23 - 0.51 = 1.72$
$0.582 + 0.811 = 1.393$	$1.423 + 0.76 = 0.663$

Percentages of Amounts

To find 50% of an amount, divide by 2.

50% of 300 = $300 \div 2 = 150$

To find 10% of an amount, divide by 10.

10% of 300 = $300 \div 10 = 30$

To find 1% of an amount, divide by 100.

1% of 300 = $300 \div 100 = 3$

Use multiplication to find other percentages.

For 3% of 300, find 1% - $300 \div 100 = 3$
Multiply by 3 to find 3%, $3 \times 3 = 9$