DECIMALS and PERCENTAGES

Year 5 KNOWLEDGE ORGANISER

Overview

In our unit on 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 %

13.95 — tens, units, hundredths (1/100), tenths (1/10), decimal point
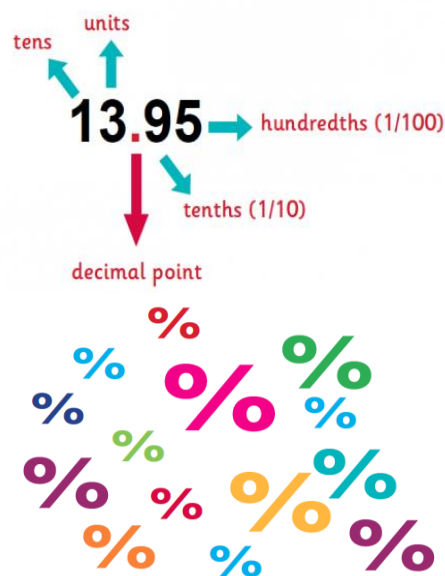
Decimals and Place Value

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.

Multiplying by 1000

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

x1000

Dividing by 1000

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

÷1000

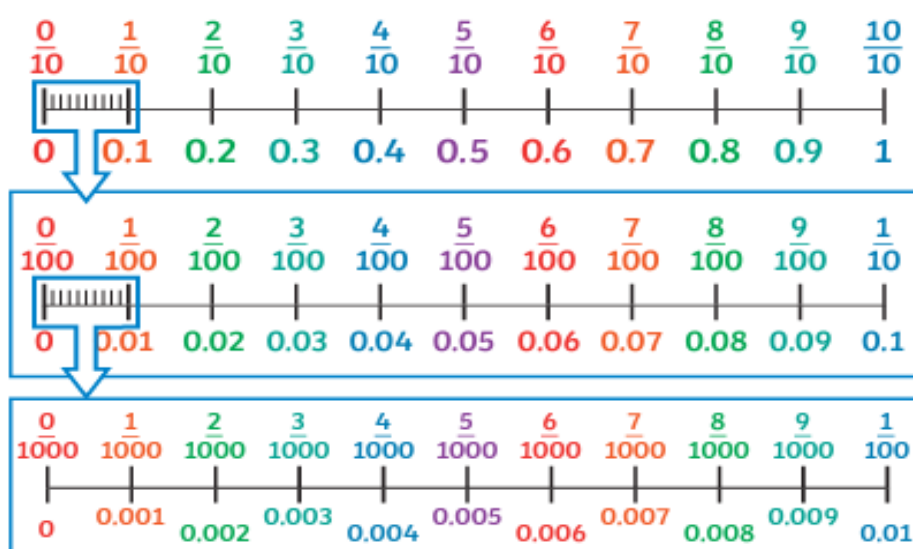#### Rounding Decimals

0   0.1   0.2   0.3   0.4   0.5   0.6   0.7   0.8   0.9   1
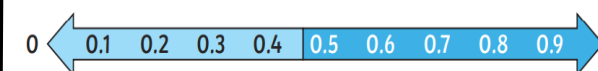
- If the digit to the right of the rounding digit is 4 or below, we round down.
- If the digit to the right of the rounding digit is 5 or above, we round up.

Fractions, Decimals and Percentages Equivalency

0/10 1/10 2/10 3/10 4/10 5/10 6/10 7/10 8/10 9/10 10/10
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

0/100 1/100 2/100 3/100 4/100 5/100 6/100 7/100 8/100 9/100 10/100
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1

0/1000 1/1000 2/1000 3/1000 4/1000 5/1000 6/1000 7/1000 8/1000 9/1000 10/1000
0 0.001 0.002 0.003 0.004 0.005 0.006 0.007 0.008 0.009 0.01

One thousandth = 1/1000 = 0.001 = 0.1%
One tenth = 10/100 = 0.1 = 10%
One quarter = 25/100 = ¼ = 0.25 = 25%
One hundredth = 1/100 = 0.01 = 1%
One half = 50/100 = ½ = 0.5 = 50%
Three quarters = 75/100 = ¾ = 0.75 = 75%

1		100% 1 — One Whole
1/2		50% 0.50 — One Half
1/3		33.3% 0.333 — One Third
1/4		25% 0.25 — One Quarter
1/5		20% 0.20 — One Fifth
1/6		16.6% 0.166 — One Sixth
1/8		12.5% 0.125 — One Eighth
1/10		10% 0.10 — One Tenth
1/12		8.33% 0.0833 — One Twelfth

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 ÷ 2 = 150

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

10% of 300 = 300 ÷ 10 = 30

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

1% of 300 = 300 ÷ 100 = 3

Use multiplication to find other percentages.

For 3% of 300, find 1% - 300 ÷ 100 = 3
Multiply by 3 to find 3%, 3 x 3 = 9

Key Vocabulary

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