Year 5

Knowledge Organiser Decimals and Percentages

THIRD SPACE LEARNING

Key vocabulary

tenth, hundredth, thousandth, decimal, percentage, equivalent, ascending, descending, rounding

Thousandths

One thousandth = $\frac{1}{1000}$ = 0.001 = 1 ÷ 1000

One hundredth ($\frac{1}{100}$) = ten thousandths ($\frac{10}{1000}$) = 0.01, or 0.010 = 1 ÷ 100

One tenth ($\frac{1}{10}$) = one hundred thousandths ($\frac{100}{1000}$) = 0.1, or 0.100 = 1 ÷ 10

Fraction, decimal and percentage equivalence

Percentage = 'out of one hundred'

Percentage	Fraction	Decimal
1%	$\frac{1}{100}$	0.01
2%	$\frac{2}{100}$ or $\frac{1}{50}$	0.02
4%	$\frac{4}{100}$ or $\frac{1}{25}$	0.04
5%	$\frac{5}{100}$ or $\frac{1}{20}$	0.05
10%	$\frac{10}{100}$ or $\frac{1}{10}$	0.1
20%	$\frac{20}{100}$ or $\frac{1}{5}$	0.2
25%	$\frac{25}{100}$ or $\frac{1}{4}$	0.25
40%	$\frac{40}{100}$ or $\frac{2}{5}$	0.4
50%	$\frac{50}{100}$ or $\frac{1}{2}$	0.5
75%	$\frac{75}{100}$ or $\frac{3}{4}$	0.75
80%	$\frac{80}{100}$ or $\frac{4}{5}$	0.8
100%	$\frac{100}{100}$ or $\frac{1}{1}$	1.0

Order and compare decimals

Always look at the biggest place value first when ordering and comparing decimals.

Using a place value chart when ordering and comparing decimals can be helpful, as shown below.

Ones	Tenths	Hundredths	Thousandths
3	2	3	4
3	1	6	
3	2	0	8
3	1	4	5

We can see here that in ascending order, the decimals are:
3.145, 3.16, 3.208, 3.234

A common misconception is that 3.4 < 3.22 because 4 < 22. However, 0.4 means 40 hundredths, and 40 hundredths is bigger than 22 hundredths. It may be easier to view it as 3.40 > 3.22.

Rounding decimals

When rounding to the nearest whole number (in the 'ones' column), look at the digit in the tenths column.
If this digit is 0 → 4, round to the previous 'one'; if this digit is 5 → 9, round to the next 'one'.
E.g. 4.56 rounded to the nearest whole number = 5.

When rounding to the nearest tenth, look at the digit in the hundredths column. If this digit is 0 → 4, round to the previous tenth; if this digit is 5 → 9, round to the next tenth.
E.g. 4.71 rounded to the nearest tenth = 4.7

When rounding to the nearest tenth, the number will always have one decimal place.

Read and write numbers with decimals

When reading a number with decimals, we say each decimal digit separately.

E.g. 3.65 = "three point six five", **not** "three point sixty five".

Th	H	T	O	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$