Grange
Primary School

Learning together. Respecting each other. Achieving our potential.

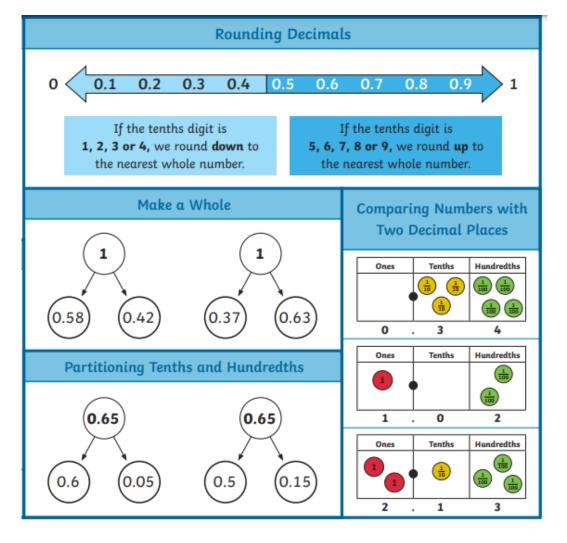**Knowledge Organiser**

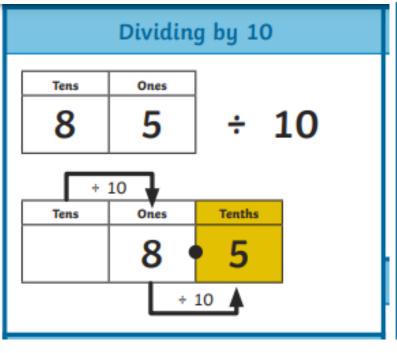| Year Group	Subject	Topic
4	Mathematics	Decimals

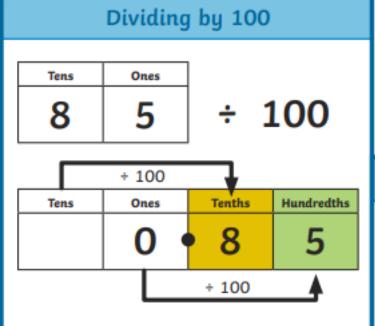**What does the decimals unit consist of?**

In this unit, pupils will be taught to:

- 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 or hundredths
- recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
- 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

tenths

hundredths

decimal tenths

decimal hundredths

decimal equivalents

part-whole model

rounding

decimal point

place value

Rounding Decimals

0 ← 0.1 0.2 0.3 0.4 | 0.5 0.6 0.7 0.8 0.9 → 1

| If the tenths digit is **1, 2, 3 or 4,** we round **down** to the nearest whole number. | If the tenths digit is **5, 6, 7, 8 or 9,** we round **up** to the nearest whole number. |

Make a Whole

1 → 0.58, 0.42

1 → 0.37, 0.63

Partitioning Tenths and Hundredths

0.65 → 0.6, 0.05

0.65 → 0.5, 0.15

Comparing Numbers with Two Decimal Places

Ones	Tenths	Hundredths
	$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$	$\frac{1}{100}$ $\frac{1}{100}$ $\frac{1}{100}$ $\frac{1}{100}$
0 .	3	4

Ones	Tenths	Hundredths
1		$\frac{1}{100}$ $\frac{1}{100}$
1 .	0	2

Ones	Tenths	Hundredths
1 1	$\frac{1}{10}$	$\frac{1}{100}$ $\frac{1}{100}$ $\frac{1}{100}$
2 .	1	3

Dividing by 10

Tens	Ones
8	5

$\div 10$

÷ 10 ↓

Tens	Ones	Tenths
	8 •	5

÷ 10 ↑

Dividing by 100

Tens	Ones
8	5

$\div 100$

÷ 100 ↓

Tens	Ones	Tenths	Hundredths
	0 •	8	5

÷ 100 ↑

Tenths and Hundredths

Tenths

$$\frac{0}{10} \quad \frac{1}{10} \quad \frac{2}{10} \quad \frac{3}{10} \quad \frac{4}{10} \quad \frac{5}{10} \quad \frac{6}{10} \quad \frac{7}{10} \quad \frac{8}{10} \quad \frac{9}{10} \quad \frac{10}{10}$$

0   0.1   0.2   0.3   0.4   0.5   0.6   0.7   0.8   0.9   1

Hundredths

$$\frac{0}{10} \quad \frac{1}{100} \quad \frac{2}{100} \quad \frac{3}{100} \quad \frac{4}{100} \quad \frac{5}{100} \quad \frac{6}{100} \quad \frac{7}{100} \quad \frac{8}{100} \quad \frac{9}{100} \quad \frac{1}{10}$$

0   0.01   0.02   0.03   0.04   0.05   0.06   0.07   0.08   0.09   0.1

Fraction and Decimal Equivalents

$= \frac{1}{2} = 0.5$

$= \frac{1}{4} = 0.25$

$= \frac{3}{4} = 0.75$

$= \frac{1}{10} = 0.1$

Tenth and Hundredth Decimal Equivalents

$\frac{1}{10} = \frac{10}{100} = 0.1$

$\frac{2}{10} = \frac{20}{100} = 0.2$

$\frac{3}{10} = \frac{30}{100} = 0.3$

$\frac{4}{10} = \frac{40}{100} = 0.4$

$\frac{5}{10} = \frac{50}{100} = 0.5$

$\frac{1}{100} = 0.01$

$\frac{2}{100} = 0.02$

$\frac{6}{10} = \frac{60}{100} = 0.6$

$\frac{7}{10} = \frac{70}{100} = 0.7$

$\frac{8}{10} = \frac{80}{100} = 0.8$

$\frac{9}{10} = \frac{90}{100} = 0.9$

$\frac{10}{10} = \frac{100}{100} = 1$

$\frac{23}{100} = 0.23$

$\frac{68}{100} = 0.68$

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