Decimals and Percentages – Year 5
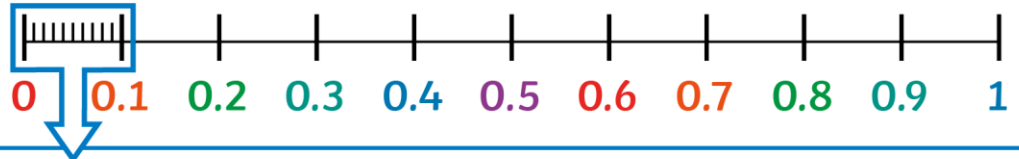
Key Vocabulary

- tenths
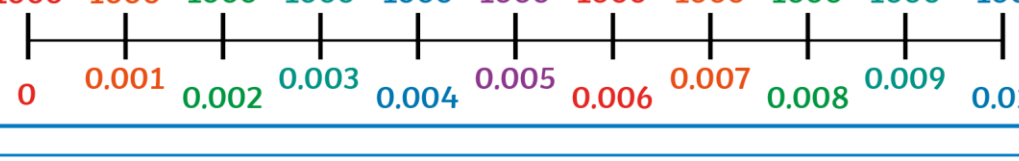- hundredths
- decimal tenths
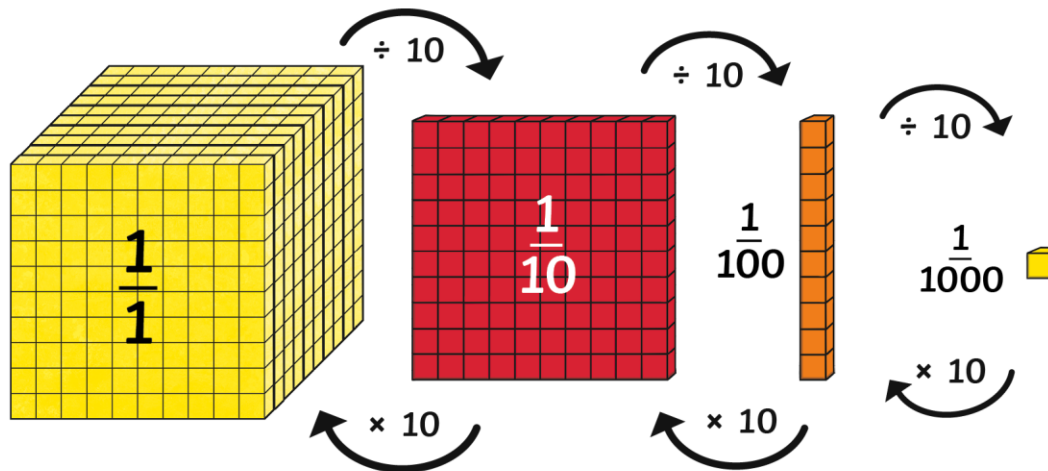- decimal hundredths
- decimal equivalents
- part-whole model
- rounding
- decimal point
- place value

Tenths, Hundredths and Thousandths

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

0   0.1   0.2   0.3   0.4   0.5   0.6   0.7   0.8   0.9   1

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

0   0.01   0.02   0.03   0.04   0.05   0.06   0.07   0.08   0.09   0.1
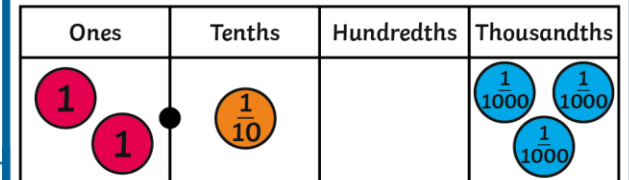
$\frac{0}{1000}$ $\frac{1}{1000}$ $\frac{2}{1000}$ $\frac{3}{1000}$ $\frac{4}{1000}$ $\frac{5}{1000}$ $\frac{6}{1000}$ $\frac{7}{1000}$ $\frac{8}{1000}$ $\frac{9}{1000}$ $\frac{1}{100}$

0   0.001   0.002   0.003   0.004   0.005   0.006   0.007   0.008   0.009   0.01

$\frac{1}{1}$ ÷ 10 $\frac{1}{10}$ ÷ 10 $\frac{1}{100}$ ÷ 10 $\frac{1}{1000}$

× 10   × 10   × 10

Order and Compare Numbers with Three Decimal Places

Ones	Tenths	Hundredths	Thousandths
	$\frac{1}{10}$ $\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{1000}$
0 .	2	1	3

Ones	Tenths	Hundredths	Thousandths
1		$\frac{1}{100}$ $\frac{1}{100}$	$\frac{1}{1000}$ $\frac{1}{1000}$
1 .	0	2	2
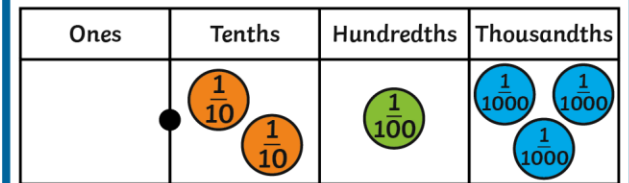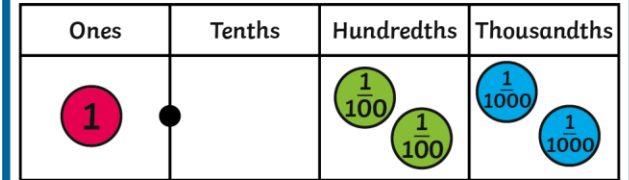
Ones	Tenths	Hundredths	Thousandths
1 1		$\frac{1}{10}$		$\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{1000}$
2 .	1	0	3

Decimal Numbers as Fractions

$$0.71 = \frac{71}{100} = \frac{7}{10} + \frac{1}{100}$$

$$0.37 = \frac{37}{100} = \frac{3}{10} + \frac{7}{100}$$

Decimals and Percentages – Year 5

Multiplying and Dividing by 10, 100 and 1000

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
	3 • 8			
3	8			

÷ 10 → × 10

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
0 •	3	8		
3	8			

÷ 100 → × 100

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
0 •	0	3	8	
3	8			

÷ 1000 → × 1000

Adding and Subtracting Decimals

0.8 + 0.001 = 0.801

1.031 - 0.23 = 0.801

0.4005 + 0.4005 = 0.801

Rounding Decimals

1 ← 1.1 1.2 1.3 1.4 | 1.5 1.6 1.7 1.8 1.9 → 2
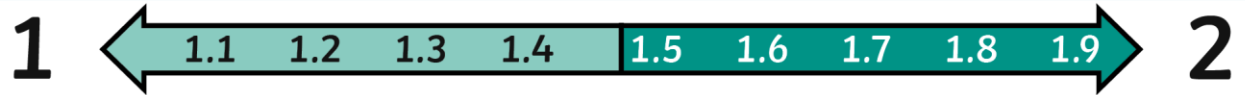
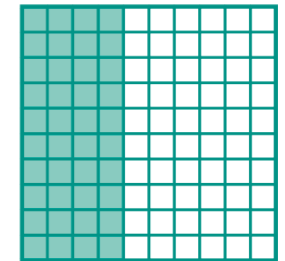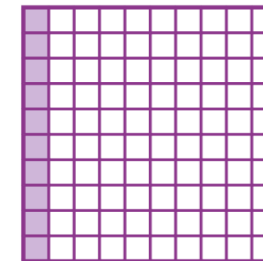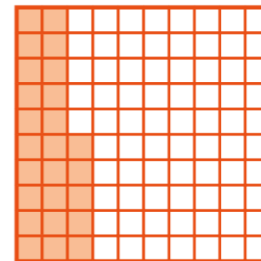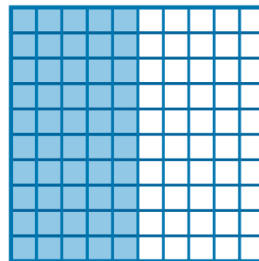If the tenths digit is 1, 2, 3 or 4, we round down to the nearest whole number.

If the tenths digit is 5, 6, 7, 8 or 9, we round up to the nearest whole number.

1.1 ← 1.11 1.12 1.13 1.14 | 1.15 1.16 1.17 1.18 1.19 → 1.2
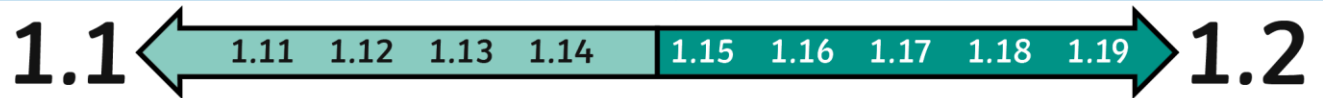
If the hundredths digit is 1, 2, 3 or 4, we round down to the nearest tenth.

If the hundredths digit is 5, 6, 7, 8 or 9, we round up to the nearest tenth.

Percentage and Decimal Equivalents

$50\% = \frac{50}{100} = \frac{1}{2} = 0.5$
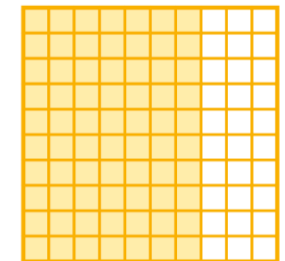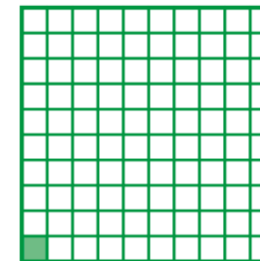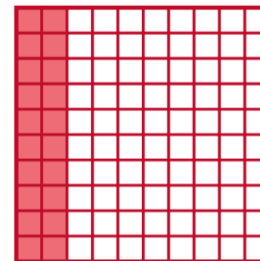
$25\% = \frac{25}{100} = \frac{1}{4} = 0.25$

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

$40\% = \frac{40}{100} = \frac{2}{5} = 0.4$

$20\% = \frac{20}{100} = \frac{1}{5} = 0.2$

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

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

Crossing the Whole

0.82 + 0.63 = 1.45

2.531 - 0.6 = 1.931