Decimals
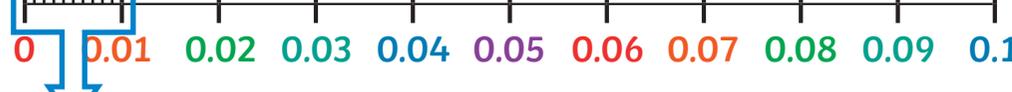
Key Vocabulary

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

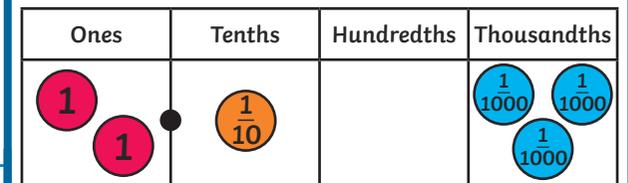## Tenths, Hundredths and Thousandths

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

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

$\div 10$ $\div 10$ $\div 10$

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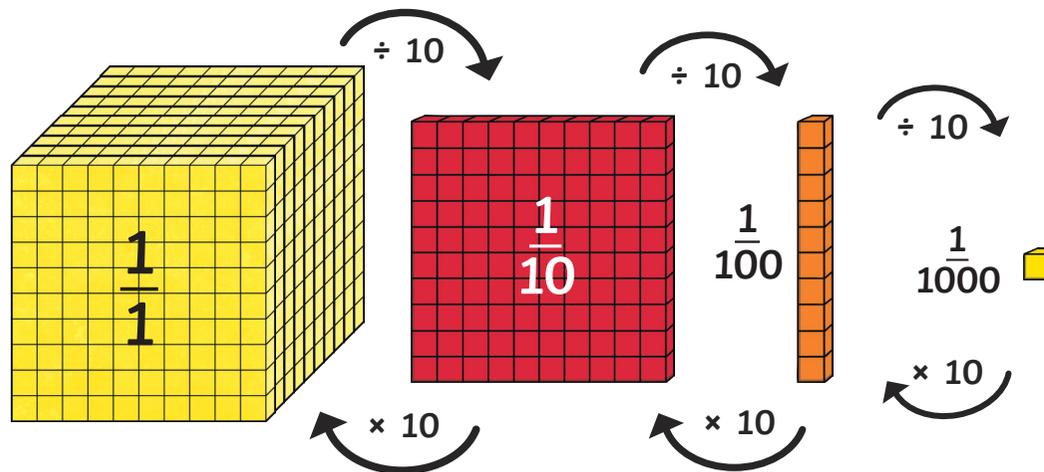
$\times 10$ $\times 10$ $\times 10$

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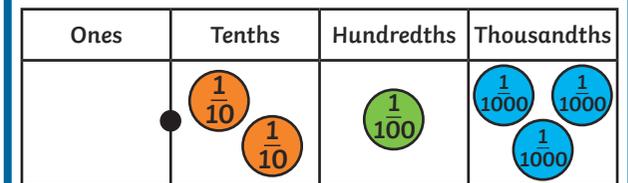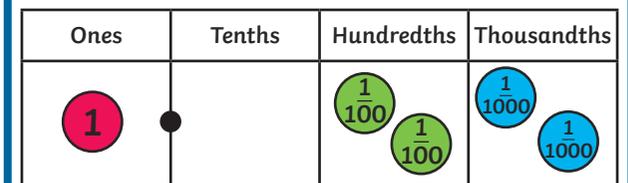
Ones	Tenths	Hundredths	Thousandths
1 1	$\frac{1}{10}$		$\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{1000}$
2 .	1	0	3

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

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.

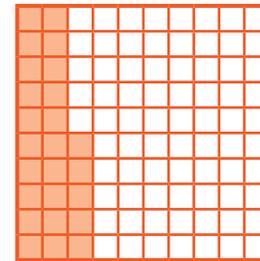1.1 ← 1.11 1.12 1.13 1.14 | 1.15 1.16 1.17 1.18 1.19 → 1.2

If the hundredths digit is 1, 2, 3 or 4, we round down to the nearest tenth.

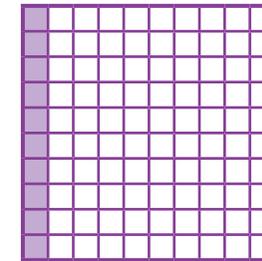If the hundredths digit is 5, 6, 7, 8 or 9, we round up to the nearest tenth.
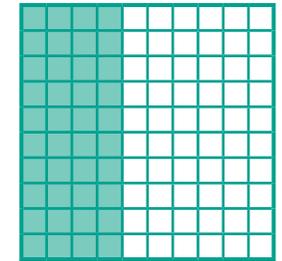
Percentage and Decimal Equivalents
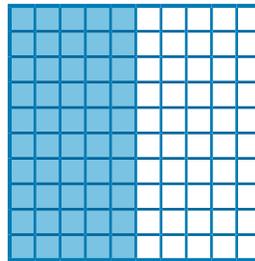
$50\% = \frac{50}{100} = \frac{1}{2} = 0.5$

$25\% = \frac{25}{100} = \frac{1}{4} = 0.25$
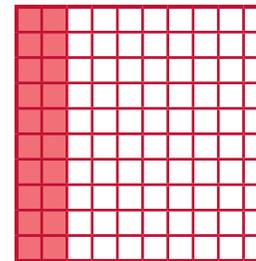
$10\% = \frac{10}{100} = \frac{1}{10} = 0.1$
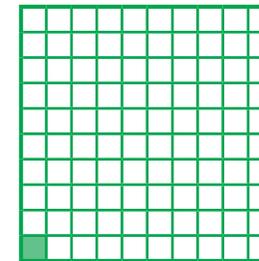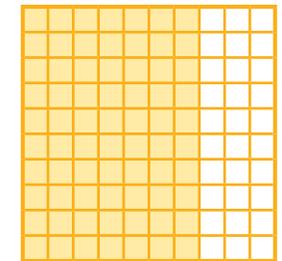
$40\% = \frac{40}{100} = \frac{2}{5} = 0.4$

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

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

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

Crossing the Whole

$0.82 + 0.63 = 1.45$

$2.531 - 0.6 = 1.931$