Decimals

1. What is a decimal?

- A decimal is a way of writing 'in-between' numbers. 5.25,
  for example, is in between the numbers 5 and 6.
  It is more than 5, but less than 6.

- To find out exactly what a decimal number represents,
  use place value headings, that is tenths,
  hundredths etc.

Units		Tenths	Hundredths
5	.	2	5

- The numbers to the left of the decimal point are
  normal whole numbers.

- The numbers to the right of the decimal point are
  parts of whole numbers.

2. Adding and subtracting decimals

Line up the decimal points and then add or subtract as normal
as if the decimal point wasn't there. Don't forget to put the
decimal point in your answer.

```
     1         1         1
  0    .    8      7      5
  1    .    2      2      6   +
  _____
  2    .    1      0      1
  _____
```

3. Ordering decimals

- Ordering decimals means putting them in order from smallest to largest or from largest to smallest.

- Line up the decimal points.

- Compare the digits in each column, starting on the left.
  Write down place value headings if it helps you.

- Below we are comparing 0.459 and 0.495 to see which is bigger.

Units	.	Tenths	Hundredths	Thousandths
0	.	4	5	9
0	.	4	9	5

Both numbers have 0 units. So look in the tenths column.

Both numbers have 4 tenths. So look in the hundredths column.

0.495 has 9 in the hundredths column whereas 0.459 only has 5 in the hundredths column. (There is no need in this example to compare the thousandths column.)

So 0.495 is bigger than 0.459.

4. Converting to and from decimals

- To change a decimal to a percentage, multiply it by 100.

  0.35 = 35%

- To change a fraction to a decimal, divide the top number

(the numerator) by the bottom number (denominator).

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

- A decimal fraction with one decimal place is written as tenths.

$$0.1 = \frac{1}{10} \text{ or one tenth}$$

- A decimal fraction with two decimal places is written as hundredths.

$$0.15 = \frac{15}{100} \text{ or fifteen hundredths}$$

- A decimal fraction with three decimal places is written as thousandths

$$0.053 = \frac{53}{1000} \text{ or 53 thousandths}$$

5. Useful tips

- The numbers 4.2 and 4.20 have the same value. 4.2 means 4 and 2 tenths. 4.20 means 4 and 2 tenths and 0

one-hundredths. The last zero does not need to be there.

. The numbers 4.2 and 4.02 do not have the same value.
4.2 means 4 and 2 tenths. 4.02 means 4 and 0 tenths and
2 one-hundredths.