## You need:

- pencil and paper

- Which 2 numbers add to make the total nearest to 4000 ?
- Complete the addition and then subtract the total from 4000 to see how close you were.
- Could you get even closer by adding 2 different numbers?
- Find which pairs of numbers add to create the totals closest to $5000,6000,7000,8000,9000$ and 10000.
- Find 6 objects in your house. Each must have 1 length measuring between 25 cm and 100 cm , e.g. width of a coffee table, length of a table mat, height of a small lamp.
- Record the measurements using decimal notation, e.g. 43.8 cm .
- Which object lengths added together make a total nearest to 1 m ?
- Find 2 object lengths which have a difference closest to 20 cm .
- Add all 6 object lengths to find your 'grand total' and convert the answer to millimetres.
- Does the order of your calculations matter? Will you always get the same answer?
Try these working from left to right:

| Start |  |  |  |
| :--- | :--- | :--- | :--- |
| 2400 | $\times 4$ | $\div 6$ | $=$ |
| 2400 | $\div 6$ | $\times 4$ | $=$ |

## You need:

- pencil and paper
- calculator

| Start |  |  |  |
| ---: | ---: | ---: | :--- |
| 1837 | -500 | $\times 4$ | $=$ |
| 1837 | $\times 4$ | -500 | $=$ |

- What do you notice?

Some pairs of operations can be done in any order, but some cannot. Investigate to find out which are which.


## You need:

- pencil and paper
- calculator
- Now put a + sign between each digit and complete the calculation. What total do you get?
- Write the digits 1 to 9 again. This time put a + sign in the first gap, then a - sign in the next gap and keep alternating + and - signs between each digit. Complete the calculation. What is the final answer?
- Now put a $\times$ sign between each digit. What is your answer? You may need to use a calculator!

Try using a combination of,,$+- x$ and $\div$ signs, one between each digit. How close to 100 can you get? Have a go!

writing equations

## You need:

- pencil and paper
- scissors

- Cut out these bars and compare them with each other.
- Use them to write some algebraic equations, e.g.

$$
d+d+b=a \quad f+f=c \quad 3 c+2 b=2 a
$$

- If the value of $c$ is 12 , what are the other values? One value is not a whole number. Which one?

The local bus company has 5 buses: A, B, C, D and E. This week the company has been recording the number of

## You need:

- pencil and paper passengers travelling at midday on each bus.

Individual bus totals have been lost, but some information remains:

Bus $\mathrm{A}+$ Bus $\mathrm{B}=36$ passengers
Bus $B+$ Bus $C=40$ passengers
Bus $\mathrm{C}+$ Bus $\mathrm{D}=37$ passengers
Bus D + Bus E = 39 passengers

- What could the individual bus totals have been? (There is more than 1 possibility.)
- If the total number of passengers travelling on the buses at midday was 99 , which individual totals are the correct ones?

