

Helping your child with maths



Buxton Primary School

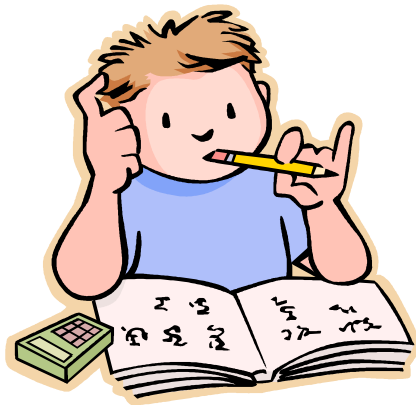
When faced with a calculation problem,
encourage your child to ask...

Can I do this in my head?

Could I do this in my head using
drawings or jottings to help me?

Do I need to use a written method?

Should I use a calculator?





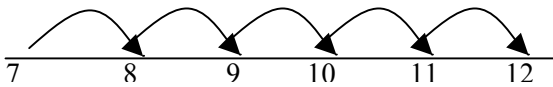
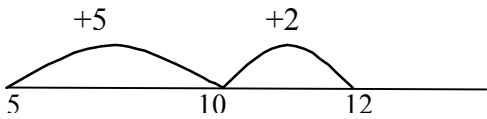
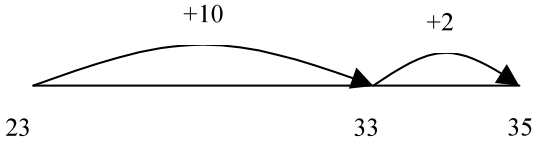


Also help your child to estimate and then
check the answer. Encourage them to ask...

Is the answer sensible?

ADDITION

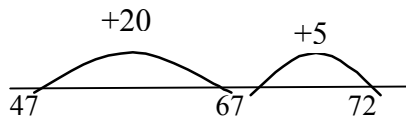
Children are taught to understand addition as combining two sets and counting on.

<p>2+3= <input style="width: 30px; height: 20px;" type="text"/></p> <p>At a party, I eat 2 cakes and my friend eats 3. How many cakes did we eat altogether?</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p>Children could draw a picture to help them work out the answer.</p>
<p>8+4= <input style="width: 30px; height: 20px;" type="text"/></p> <p>8 people are on the bus, 4 more get on at the next stop. How many people are on the bus?</p> <p style="text-align: center;">.....</p> <p style="text-align: center;">....</p> <p>Or</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p>Children could use dots or tally marks to represent objects. (Quicker than drawing a picture)</p>
<p>5+7= <input style="width: 30px; height: 20px;" type="text"/></p> <p>I buy 5 pens from the newsagents and 7 from the supermarket. How many pens do I have altogether?</p> <div style="display: flex; flex-direction: column; align-items: center;">   </div>	<p>Draw a number line and count on in ones. Arrange $5 + 7$ as $7 + 5$ and count on 5 from 7</p> <p>Begin to bridge through 10 and later 20 when adding a single number for example $5+7$</p>
<p>23+12= <input style="width: 30px; height: 20px;" type="text"/></p> <p>There are 23 people in the cinema and 12 arrive late. How many people are there in the cinema now?</p> <div style="display: flex; flex-direction: column; align-items: center;">  </div>	<p>Drawing an empty number line helps children to record the steps they have taken in a calculation. (start on 23, + 10 then + 2)</p>

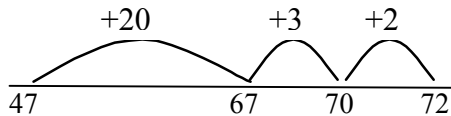
ADDITION

$47 + 25 = \square$

My sunflower is 47cm tall. It grows another 25cm. How tall is it now?



Or



Drawing an empty number line helps children to record the steps they have taken in a calculation (start on 47, + 20 the + 5). This is much more efficient than counting on in ones.

$487 + 546 = \square$

There are 487 boys and 546 girls in a school. How many children are there altogether?

$$\begin{array}{r} 500 + 40 + 6 \\ +400 + 80 + 7 \\ \hline 900 + 120 + 13 = 1033 \end{array}$$

Children are taught written methods for calculations they cannot do 'in their heads'. Expanded methods build on mental methods and make the value of the digits clear. The language used is very important. (6+7, 40+80, 500+400, then, 900+120+13 - *add this mentally NOT in columns*).

$2786 + 588 = \square$

2786 people visited the museum last year. The numbers increased by 588 this year. How many people visited the museum altogether?

$$\begin{array}{r} 2786 \\ + 588 \\ \hline 2000 \quad (2000 + 0) \\ 1200 \quad (700 + 500) \\ 160 \quad (80 + 80) \\ 14 \quad (6 + 8) \\ \hline 3374 \end{array}$$

Use expanded methods until the children understand place value of all the digits. This is arranged in a column. Once children are confident with this method there is no need to continue to write the numbers in the brackets.

This can be extended to decimals (same number of decimal places)

SUBTRACTION

Children are taught to understand subtraction as taking away (counting back) and finding the difference (counting up)

$5-2= \square$

I had five balloons. Two burst. How many did I have left?



Take away

A teddy bear costs £5 and a doll costs £2. How much more does the bear cost?



Find the difference

Drawing a picture helps children to visualise the problem

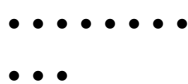
$8-3= \square$

Mum baked 8 biscuits. I ate 3. How many were left?



Take away

Lisa has 8 felt tip pens and Tim has 3. How many more does Lisa have?

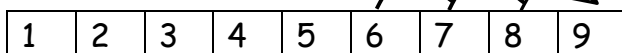
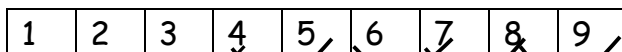


Find the difference

Using dots or tally marks is quicker than drawing a detailed picture.

$9-6= \square$

Mum baked 9 biscuits. I ate 6. How many were left?

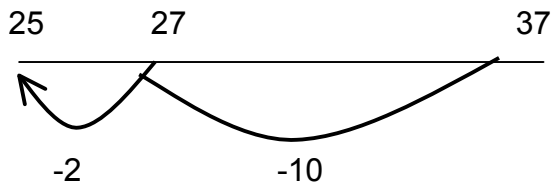


Children should use a completed number or number track to solve subtraction. Both by counting back and finding the difference for example $9 - 6$

SUBTRACTION

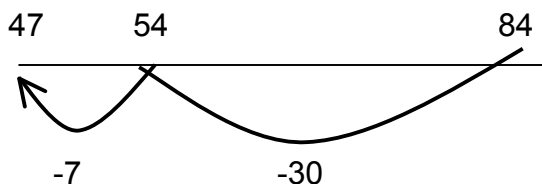
$$37 - 12 = \square$$

I cut 12cm off a ribbon measuring 37cm. How much is left?



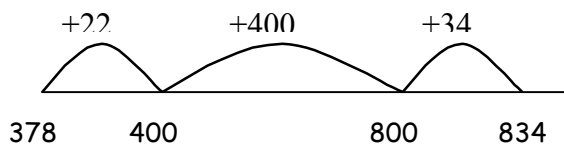
$$84 - 37 = \square$$

I cut 12cm off a ribbon measuring 37cm. How much is left?



$$834 - 378 = \square$$

The library owns 834 books. 378 are out on loan. How many are on the shelves?



22	(400)
400	(800)
34	(834)
456	

Children could count back using an empty number line. This is a really good way for them to record the steps they have taken. (start on 37 and work backwards, take away 10 and then, take away 2)

Extend to taking away multiples of 10. For example 84 cm - 37cm. (Start on 84, -30, then -7)

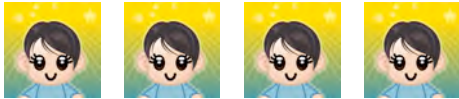
When finding the difference children could count up (from the smallest number to the biggest) using an empty number line. It is easiest to count up in a multiple of 10 or 100 (a friendly number). The steps can also be recorded vertically. This method works really well with any numbers, including decimals.

MULTIPLICATION

Children are taught to understand multiplication as a repeated addition and scaling. It can also describe an array.

$2 \times 4 = \square$

Each child has two eyes. How many eyes do four children have?

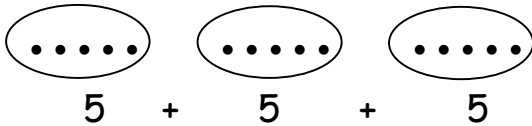


$2 + 2 + 2 + 2$

Again a picture can be useful.

$5 \times 3 = \square$

There are 5 cakes in a pack. How many cakes in 3 packs?

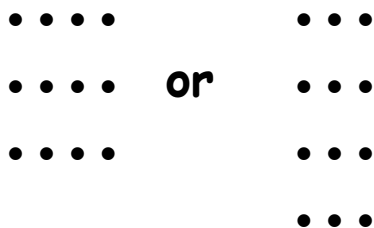


$5 + 5 + 5$

Dots or tally marks are often drawn in groups. This shows 3 lots of 5.

$4 \times 3 = \square$

A chew costs 4p. How much do 3 chews cost?

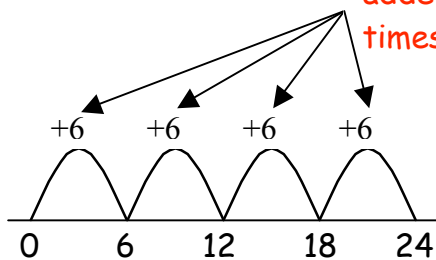


Drawing an array (3 rows of 4 or 3 columns of 4) gives children an image of the answer. It also helps develop the understanding that 4×3 is the same as 3×4 .

MULTIPLICATION

$6 \times 4 = \square$

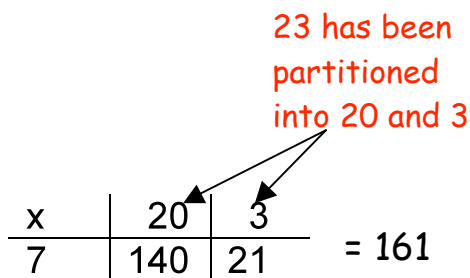
There are 4 cats. Each cat has 6 kittens. How many kittens are there altogether?



Children could count on in equal steps, recording each jump on an empty number line. This shows 4 jumps of 6. (Repeated addition)

$23 \times 7 = \square$

There are 23 biscuits in a packet. How many biscuits in altogether in 7 packets?

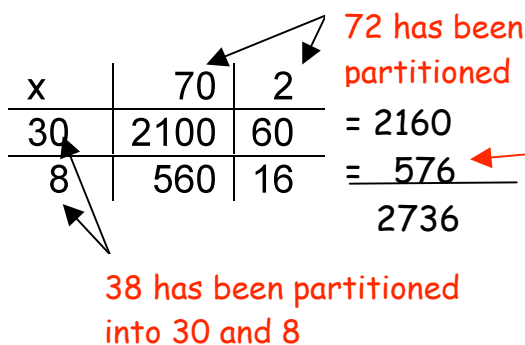


When numbers get bigger it is inefficient to do lots of small jumps.

This method is called the 'grid method'. 23 has been split (partitioned) into tens and units. (20 and 3) Each number is then multiplied by 7. The two numbers are added to give the answer.

$72 \times 38 = \square$

A cat is 72cm long. A tiger is 34 times longer. How long is the tiger?



This method also works for 'long multiplication'. Again split (partition) up the numbers into tens and units and multiply each part.

Add across the rows, and then add those two answers together.

This method can be used in the same way when multiplying larger numbers such as 327×24 . (split into hundreds, ten and units)

DIVISION

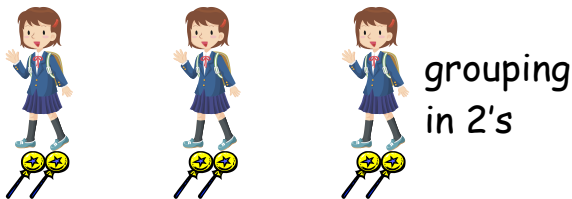
Children are taught to understand division as sharing and grouping

$$6 \div 2 = \square$$

6 lollies are shared between 2 children. How many lollies does each child get?



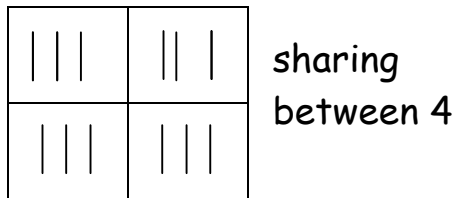
There are 6 lollies. How many children can have two each?



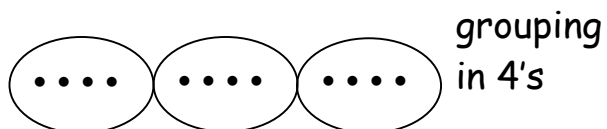
More pictures! Drawing often gives children a way into solving the problem.

$$12 \div 4 = \square$$

12 apples are shared equally between 4 baskets. How many apples are in each basket?



4 apples are packed in a basket. How many baskets can you fill with 12 apples?

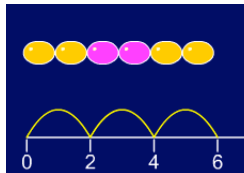


Dots or tally marks can either be shared out one at a time or split into groups.

DIVISION

$$6 \div 2 = \square$$

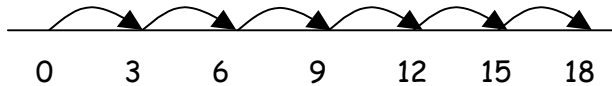
There are 6 sweets. How many people can have 2 each?



This method is known as grouping. To work out how many 2's are in 6, draw jumps of 2 along the number line.

$$18 \div 3 = \square$$

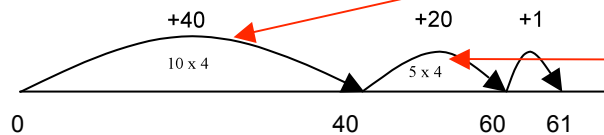
A chew bar costs 3p. How many can I buy with 18p?



To work out how many 3's there are in 18, draw jumps of 3 along a number line. This shows you need 6 jumps of 3 to reach 18.

$$61 \div 4 = \square$$

I need 4 drawing pins to put up a picture. How many pictures can I put up with 61 pins?



It would take a long time to jump in 4's to 61 so children can jump on in bigger 'chunks'. A jump of 10 lots of 4 takes you to 40.

Then you need another 5 lots of 4 to make 60. Altogether that is 15 fours with 1 left over (remainder 1 or r1, $\frac{1}{4}$ or 0.25)

$$61 \div 4 = 15 \text{ r}1 \text{ or } 15\frac{1}{4} \text{ or } 15.25$$

$$184 \div 7 = \square$$

I need 184 chairs for a concert. I arrange them in rows of 7. How many rows do I need?

$$\begin{array}{r} 184 \\ -140 \text{ (20 x 7)} \\ \hline 44 \\ -42 \text{ (6 x 7)} \\ \hline 2 \\ = 26 \frac{2}{7} \end{array}$$

This method is known as chunking. In this example, you are taking away chunks of 7. First subtract 140 (20 lots of 7) and you are left with 44. Then you subtract 42 (6 lots of 7), to leave 2. Altogether that is 26 sevens with $\frac{2}{7}$ left over.

COUNTING IDEAS

Practise chanting the number names.



Encourage your child to join in with you. When they are confident, try starting from different numbers - 4, 5, 6 . . .



Sing number rhymes together - there are lots of commercial tapes and CD's available.

Give your child the opportunity to count a range of interesting objects (coins, pasta shapes, buttons etc.). Encourage them to touch and move each object as they count.



Count things you cannot touch or see (more difficult!!). Try lights on the ceiling, window panes, jumps, claps or oranges in a bag.



Play games that involve counting (e.g. snakes and ladders, dice games, games that involve collecting objects).



Look for numerals in the environment. You can spot numerals at home, in the street or when out shopping.



Cut out numerals from newspapers, magazines or birthday cards. Then help your child to put the numbers in orders.



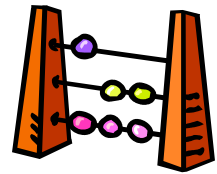
Make mistakes when chanting, counting or ordering numbers. Can your child spot what you have done wrong?



Choose a number of the week e.g. 5. Practise counting to 5 and on from 5. Count out groups of 5 objects (5 dolls, 5 bricks, 5 pens). See how many places you can spot the numeral 5.



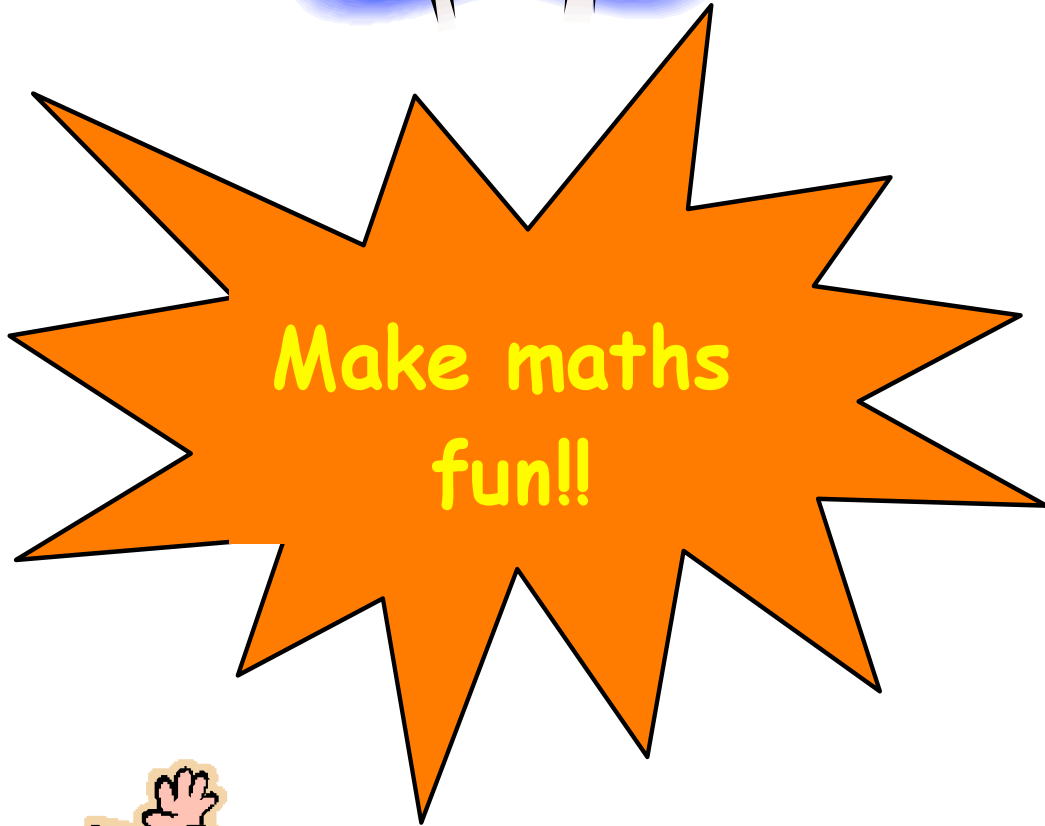
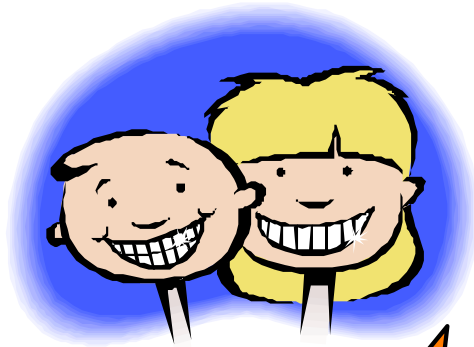
PRACTISING NUMBER FACTS



- ⊕ Find out which number facts your child is learning at school (addition facts to 10, times tables, doubles etc). Try to practise for a few minutes each day using a range of vocabulary.
- ⊕ Have a 'fact of the day'. Pin this fact up around the house. Practise reading it in a quiet, loud, squeaky ... voice. Ask your child over the day if they can recall the fact.
- ⊕ Play 'ping pong' to practise complements with your child. You say a number. They reply with how much more is needed to make 10. You can also play this game with numbers totalling 20, 100 or 1000. Encourage your child to answer quickly, without counting or using fingers.
- ⊕ Throw 2 dice. Ask your child to find the total of the numbers (+), the difference between them (-) or the product (x). Can they do this without counting?
- ⊕ Use a set of playing cards (no pictures). Turn over two cards and ask your child to add or multiply the numbers. If they answer correctly, they keep the cards. How many cards can they collect in 2 minutes?
- ⊕ Play Bingo. Each player chooses five answers (e.g. numbers to 10 to practise simple addition, multiples of 5 to practise the five times tables). Ask a question and if a player has the answer, they can cross it off. The winner is the first player to cross off all their answers.
- ⊕ Give your child an answer. Ask them to write as many addition sentences as they can with this answer (e.g. $10 = \square + \square$). Try with multiplication or subtraction.
- ⊕ Give your child a number fact (e.g. $5+3=8$). Ask them what else they can find out from this fact (e.g. $3+5=8$, $8-5=3$, $8-3=5$, $50+30=80$, $500+300=800$, $5+4=9$, $15+3=18$). Add to the list over the next few days. Try starting with a x fact as well.

NOTES

NOTES



**Give your child lots of
praise and encouragement!**