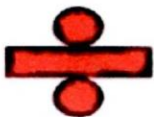
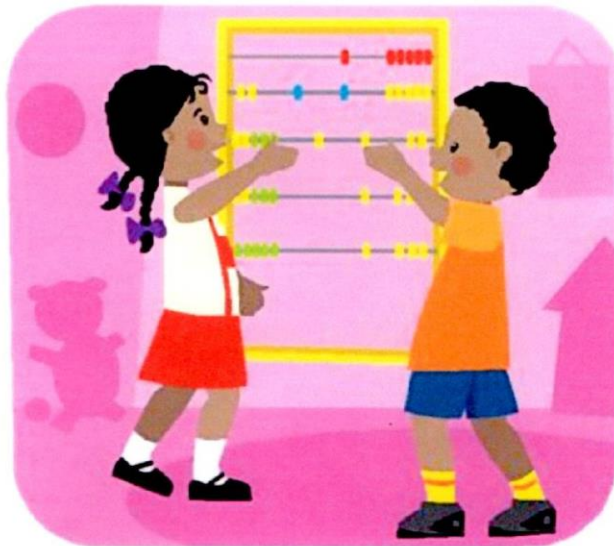




Ysgol Bro Tawe

Help your child with maths



Whilst children learn about numbers and maths at school (Numeracy), there are also lots of ways that you can support your child at home. It doesn't have to be by doing pages of sums or text books – there are lots of fun activities and games you can do or include in your everyday routines!

Here are a few ideas to help you...

CALCULATION

Talk to your child about how you work things out. Ask your child to explain their thinking. The maths work your child is doing at school may look very different to the kind of 'sums' you remember. This is because children are encouraged to work mentally, where possible, using personal jottings to help support their thinking. Even when children are taught more formal written methods (from around year 3 onwards), they are encouraged to use these methods for calculations to support mental strategies in their heads. However, we aim to provide children with one written method for each of the 4 operations which is reliable and efficient.



Discussing the efficiency and suitability of different strategies is an important part of maths lessons.

Talk to your child about how you work things out.



Ask your child to explain their thinking.



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?



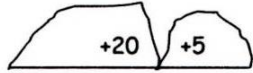
Also help your child to estimate and then check the answer.
Encourage them to ask...

Is the answer sensible?

ADDITION	
Children are taught to understand addition as combining two sets and counting on.	
It is crucial that children learn their number bonds to 10 and 20	
<p>2+3= At a party, I eat 2 cakes and my friend eats 3. How many cakes did we eat altogether?</p> 	<p>Children could draw a picture to help them work out the answer.</p>
<p>7+4= 7 people are on the bus. 4 more get on at the next stop. How many people are on the bus now?</p> 	<p>Children could use dots or tally marks to represent objects (quicker than drawing a picture)</p> <p>Also use of number bonds to help- if I know $6 + 4 = 10$ then $7 + 4$ must be 11.</p>

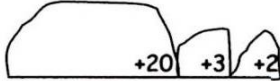
$47+25=$

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



47 67 72

Or



47 67 70 72

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

Children can also partition into tens and units

$$\begin{aligned} 47 + 25 \\ = (40 + 20) + (7+5) \\ = 60 + 12 \\ = 72 \end{aligned}$$

$487+546=$

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

$$\begin{array}{r} 546 \\ + 487 \\ \hline 900 \\ 120 \\ \hline 13 \\ \hline 1033 \end{array}$$

Children will be taught written methods for those calculations they cannot do 'in their heads'. Expanded methods build on mental methods and make the value of the digits clear to children. The language used is very important (500+400, 40+80, 6+7, then from right 0+0+3, 0+2+1, 9+1)

FINAL WRITTEN METHOD

$12786 + 2568=$

12 786 people visited the museum last year. The numbers increased by 2 568 this year. How many people altogether visited this year?

$$\begin{array}{r} 12786 \\ + 2568 \\ \hline 15354 \\ 111 \end{array}$$

When children are confident using the expanded method, this can be 'squashed' into the traditional compact method.

Numbers are 'carried' under the line.

Use words 'carry 10' or 'carry one hundred' not 'carry 1'.

SUBTRACTION

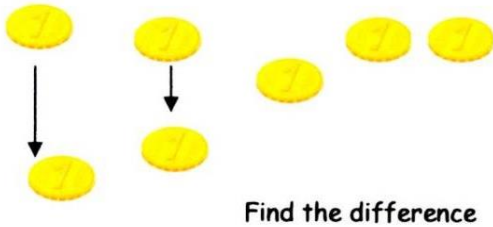
Children are taught to understand subtraction as taking away (counting back) and finding the difference (counting up).

5-2=

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



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



Drawing a picture helps children to visualise the problem.

7-3=

Mum baked 7 biscuits. I ate 3.
How many were left?



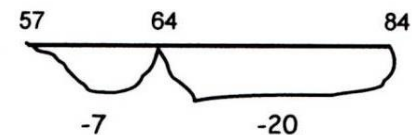
Lisa has 7 felt tip pens and Tim has 3. How many more does Lisa have?



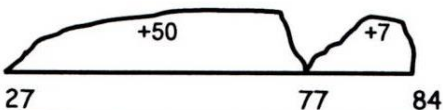
Using dots or tally marks is quicker than drawing a detailed picture.

84-27=

I cut 27cm off a ribbon measuring 84cm. How much is left?



or
count up from 27



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 84, -20, then -7).

FINAL WRITTEN METHOD

$$\begin{array}{r} ^8 ^1 \\ 492 \\ - 187 \\ \hline 305 \end{array}$$

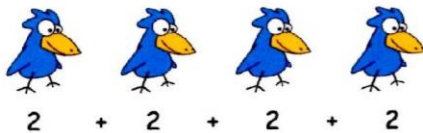
This traditional compact method involves 'taking 1' from the next column in order to complete the subtraction. i.e. 2-7 you can't do **SO** take 1 ten from the 9 which leaves 8 and give it to the 2 to make 12. 12-7 is 5.

MULTIPLICATION

Children are taught to understand multiplication as repeated addition.

2x4=

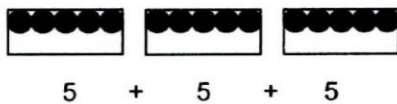
Each bird has two legs. How many legs do four birds have?



Again a picture can be useful.

5x3=

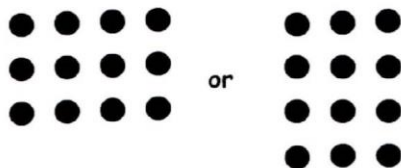
There are 5 cakes in a pack. How many cakes in 3 packs?



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

4x3=

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 4x3 is the same as 3x4.

6x4=

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.

Expanded short multiplication

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 56 \quad 8 \times 7 \\ 210 \quad 30 \times 7 \\ \hline 266 \end{array}$$

This helps the children to understand that the first step is 30×7 not 3×7 , although the relationship between the 2 can be stressed.

FINAL WRITTEN METHOD

56×27 is approximately $60 \times 30 = 1800$.

$$\begin{array}{r} 14 \\ 56 \\ \times 27 \\ \hline 392 \\ 1120 \\ \hline 1512 \\ 1 \end{array}$$

x7 first

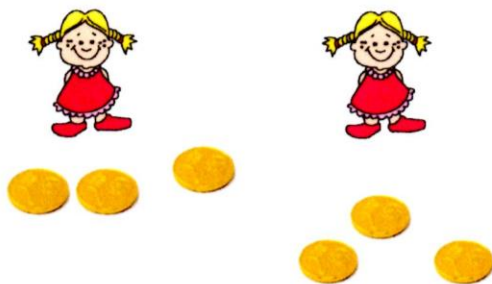
x2 next We add a 0 before we multiply 56 by 2 to show that we know it is really 20

DIVISION

Children are taught to understand division as sharing and grouping.

$6 \div 2 =$

6 chocolate coins are shared between 2 children. How many coins do they get each?



Sharing between 2

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



More pictures!

Drawing often gives children a way into solving the problem.



Grouping in twos.

$$12 \div 4 =$$

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

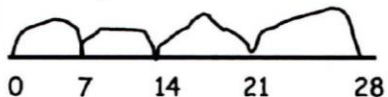


Grouping in fours

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

$$28 \div 7 =$$

A chew bar costs 7p. How many can I buy with 28p?



To work out how many 7's there are in 28, draw jumps of 7 along a number line. This shows you need 4 jumps of 7 to reach 28.

FINAL WRITTEN METHOD 10

We use a method called 'chunking'. This involves subtracting multiples of the number you are dividing by in 'chunks'. eg

$$\begin{array}{r} \overline{)196} \\ - 60 \quad 6 \times 10 \\ \hline 136 \\ - 60 \quad 6 \times 10 \\ \hline 76 \\ - 60 \quad 6 \times 10 \\ \hline 16 \\ - 12 \quad 6 \times \underline{2} \quad (10 + 10 + 10 + 2) \\ \hline 4 \quad \quad 32 \end{array}$$

Answer: 32 R4 (32 remainder 4)

This method then leads to the long division method...

How many packs of 24 can we make from 560 biscuits? Start by multiplying 24 by multiples of 10 to get an estimate. As $24 \times 20 = 480$ and $24 \times 30 = 720$, we know the answer lies between 20 and 30 packs. We start by subtracting 480 from 560.

$$\begin{array}{r} \overline{)560} \\ - 480 \quad 24 \times 20 \\ \hline 80 \\ - 72 \quad 24 \times \underline{3} \\ \hline 8 \quad \quad 23 \end{array}$$

Answer: 23 R 8

The digits of the answer can also be recorded above the line as shown below.

$$\begin{array}{r} \overline{)560} \\ 23 \\ - 480 \\ \hline 80 \\ - 72 \\ \hline 8 \end{array}$$

Answer: 23 R 8

COUNTING IDEAS

- ① 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 . . .
- ② Sing number rhymes together - there are lots of commercial tapes and CD's available.
- ③ 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.
- ④ Count things you cannot touch or see (more difficult!!). Try lights on the ceiling, window panes, jumps, claps or oranges in a bag.
- ⑤ Play games that involve counting (e.g. snakes and ladders, dice games, games that involve collecting objects).
- ⑥ Look for numerals in the environment. You can spot numerals at home, in the street or when out shopping.
- ⑦ Cut out numerals from newspapers, magazines or birthday cards. Then help your child to put the numbers in orders.
- ⑧ Make mistakes when chanting, counting or ordering numbers. Can your child spot what you have done wrong?
- ⑨ 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.



REAL LIFE PROBLEMS

- * Go shopping with your child to buy two or three items. Ask them to work out the total amount spent and how much change you will get.
- * Buy some items with a percentage extra free. Help your child to calculate how much of the product is free.
- * Plan an outing during the holidays. Ask your child to think about what time you will need to set off and how much money you will need to take.
- * Use a TV guide. Ask your child to work out the length of their favourite programmes. Can they calculate how long they spend watching TV each day / each week?
- * Use a bus or train timetable. Ask your child to work out how long a journey between two places should take? Go on the journey. Do you arrive earlier or later than expected? How much earlier/later?
- * Help your child to scale a recipe up or down to feed the right amount of people.
- * Work together to plan a party or meal on a budget.



These are just a few ideas to give you a starting point. Try to involve your child in as many problem-solving activities as possible. The more 'real' a problem is, the more motivated they will be when trying to solve it.



Progression in Mathematics



What should my child achieve? There are targets that each year group work towards. Most children are expected to achieve these targets, however some children may work beyond them into the next level and others may need more time and practice to reach the expected level.

These targets are outlined below with the mental maths strategies that are practiced regularly in each year group.

Targets	Strategies used in class
<p>Reception</p> <p>By the end of this year, most children should be able to...</p> <ul style="list-style-type: none">• say and use the number names in order in familiar contexts.• count reliably up to 10 everyday objects.• Recognise numerals 1 to 9.• Use language such as <i>more or less</i>, <i>greater or smaller</i>, <i>heavier or lighter</i>, to compare two numbers or quantities.• In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting.• Find one more or less than a number from one to ten.• Begin to relate addition to combining two groups of objects and subtraction to 'taking away'.• Talk about, recognise and recreate simple patterns.• Use language such as <i>circle or bigger</i> to describe the shape and size of solids and flat shapes.• Use everyday words to describe position.• Use developing mathematical ideas and methods to solve practical problems.	<ul style="list-style-type: none">• count on / back from a given number 0 to 20.• know 1 more / 1 less with numbers 1 - 10.• count on in 1's and 2's to 20.• recognise the largest / smallest number in a pair.• use number rhymes and songs counting forwards and backwards.• identify numbers in between 2 given numbers.• doubling numbers to 5.

Year 2

By the end of this year, most children should be able to...

- Count up to 100 objects by grouping them and counting in tens, fives or twos; explain what each digit in a two-digit number represents, including numbers where 0 is a place holder; partition two-digit numbers in different ways, including into multiples of 10 and 1.
 - Derive and recall all addition and subtraction facts for each number to at least 10, all pairs with totals to 20 and all pairs of multiples of 10 with totals up to 100.
 - Add or subtract mentally a one-digit number or a multiple of 10 to or from any two-digit number; use practical and informal written methods to add and subtract two-digit numbers.
 - Use the symbols +, -, x, ÷ and = to record and interpret number sentences involving all four operations; calculate the value of an unknown number in a number sentence.
(e.g. $\square \div 2 = 6$, $30 - \square = 24$)
 - Visualise common 2-D shapes and 3-D solids; identify shapes from pictures of them in different positions and orientations; sort, make and describe shapes referring to their properties.
 - Use units of time (seconds, minutes, hours, days) and know the relationships between them; read the time to the quarter hour; identify time intervals, including those that cross the hour.
 - Use lists, tables and diagrams to sort objects; explain choices using appropriate language, including 'not'.
- Number bonds to 20
 - 2X,3X,4X,5X and 10X tables
 - Doubles to 20 plus multiples of 5 and 10
 - Counting on and back in 2's,5's and 10's
 - Place value - tens and units
 - Minutes in 1, $\frac{1}{2}$ and $\frac{1}{4}$ hour
 - Ordinal numbers from 1st to 20th
 - $\frac{1}{2}$ and $\frac{1}{4}$ of numbers to 40
 - Order numbers to 100
 - Numbers before and after
 - Language - lots of, multiply, divide, groups of, share
 - Inverse operations
(e.g. $7 + 3 = 10$ so $10 - 7 = 3$, or $3 \times 2 = 6$ so $6 \div 2 = 3$)
 - Number sentence families
(e.g. $10 + 4 = 14$, $4 + 10 = 14$, $14 - 10 = 4$, $14 - 4 = 10$)
 - Partitioning numbers to add or subtract, not crossing 10's
(e.g. $17 + 12 = 10 + 10 + 7 + 2$, $35 - 21 = 30 - 20 - 5 - 1$)



Targets	Strategies used in class
<p data-bbox="245 322 336 353">Year 4</p> <p data-bbox="245 394 842 461">By the end of this year, most children should be able to...</p> <ul data-bbox="300 501 847 1765" style="list-style-type: none"><li data-bbox="300 501 847 645">● Use diagrams to identify equivalent fractions (e.g. $\frac{6}{8}$ and $\frac{3}{4}$ or $\frac{70}{100}$ and $\frac{7}{10}$); interpret mixed numbers and position them on a number line. (e.g. $3\frac{1}{2}$)<li data-bbox="300 685 847 824">● Derive and recall multiplication facts up to 10×10, the corresponding division facts and multiples of numbers up to the tenth multiple.<li data-bbox="300 864 847 931">● Add or subtract mentally pairs of two-digit numbers (e.g. $47 + 58$, $91 - 35$)<li data-bbox="300 972 847 1155">● Develop and use written methods to record, support and explain multiplication and division of two-digit numbers by a one-digit number, including division with remainders (e.g. 15×9, $98 \div 6$)<li data-bbox="300 1196 847 1290">● Know that angles are measured in degrees and that one whole turn is 360°, compare and order angles less than 180°.<li data-bbox="300 1330 847 1581">● Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and, where appropriate, use decimal notation to record measurements (e.g. 1.3m or 0.6kg)<li data-bbox="300 1621 847 1765">● Answer a question by identifying what data to collect; organize, present, analyse and interpret data in tables, diagrams and graphs.	<ul data-bbox="927 501 1342 1473" style="list-style-type: none"><li data-bbox="927 501 1342 607">● add and subtract multiples of 10 and 100 (e.g. $74 + 40 =$, $347 - 100 =$)<li data-bbox="927 647 1342 790">● add and subtract by adjusting numbers (e.g. $135 + 29 = 135 + 30 - 1$ or $563 - 80 = 563 - 100 + 20$)<li data-bbox="927 831 1198 862">● Practice all tables<li data-bbox="927 866 1342 1005">● Partition numbers in order to add and subtract (e.g. $120 + 36 + 79 = 100 + 20 + 30 + 70 + 6 + 9$)<li data-bbox="927 1010 1342 1115">● Checking answers by using the inverse (e.g. $137 - 42 = 95$ check with $95 + 42 =$)<li data-bbox="927 1120 1342 1187">● know square numbers - 2×2, 3×3 etc.<li data-bbox="927 1191 1342 1296">● Spotting patterns with tables - double $2x$ for $4x$, double $4x$ for $8x$ and double $3x$ for $6x$<li data-bbox="927 1301 1342 1406">● Use tables to work out division (e.g. $36 \div 4 = \square$ how many 4's make 36?)<li data-bbox="927 1411 1342 1473">● Multiply and divide a number by 10 and 100



Targets	Strategies used in class
<p data-bbox="229 365 320 394">Year 6</p> <p data-bbox="229 434 826 499">By the end of this year, most children should be able to...</p> <ul data-bbox="284 539 831 1765" style="list-style-type: none"><li data-bbox="284 539 831 680">● Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions<li data-bbox="284 721 831 862">● Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7, $4.8 \div 6$)<li data-bbox="284 902 831 1115">● Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer<li data-bbox="284 1155 831 1330">● Visualise and draw on grids of different types where a shape will be after reflection, after translations, or after rotation through 90° or 180° about its center or one of its vertices<li data-bbox="284 1370 831 1545">● Select and use standard metric units of measure and convert between units of measure using decimals to two places (e.g. change 2.75 litres to 2750ml or vice versa)<li data-bbox="284 1585 831 1765">● Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask	<ul data-bbox="911 434 1331 1765" style="list-style-type: none"><li data-bbox="911 434 1331 575">● Use most appropriate way of approaching calculation (e.g. $800 - 198$, count on from 198 to 200 then on to 800)<li data-bbox="911 575 1331 788">● Know that number facts are related (e.g. $8 \times 7 = 56$ SO $56 \div 7 = 8$ and $56 \div 8 = 7$. $156 + 234 = 390$ SO $390 - 156 = 234$ and $390 - 234 = 156$)<li data-bbox="911 788 1331 1077">● Partitioning numbers into hundreds, tens and units to multiply, add or take away (e.g. $123 + 76 = 100 + 70 + 20 + 3 + 6$ and $360 - 223 = 300 - 200 - 60 - 20 - 3$ and $43 \times 6 = (40 \times 6) + (3 \times 6) = 240 + 18 = 258$)<li data-bbox="911 1077 1331 1149">● Recall of all tables up to 10×10<li data-bbox="911 1149 1331 1290">● Understand mathematical language e.g. product, prime number, mean, mode, median, quotient, factor.<li data-bbox="911 1290 1331 1440">● Find fractions of amounts (e.g. $\frac{1}{2}$ of £12, $\frac{3}{4}$ of £24 SO divide by bottom number, multiply by top number)<li data-bbox="911 1440 1331 1581">● Must know: $\frac{1}{2} = 0.5 = 50\%$, $\frac{1}{4} = 0.25 = 25\%$ $\frac{3}{4} = 0.75 = 75\%$, $\frac{1}{5} = 0.20 = 20\%$, $\frac{1}{3} = 0.33 = 33\%$<li data-bbox="911 1581 1331 1765">● Must know: 1 litre = 1000 millilitres $\frac{1}{2}$ l = 500 ml, $\frac{1}{4}$ l = 250 ml and similarly amounts for kilometres and kilograms