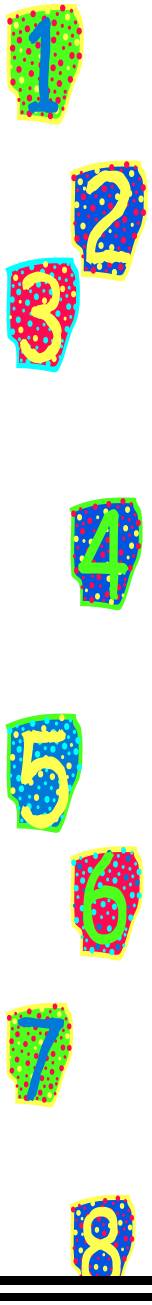
Supporting Maths at home with Foundation Stage and KS1 children.

A guide for Parents

DEVELOPING COUNTING

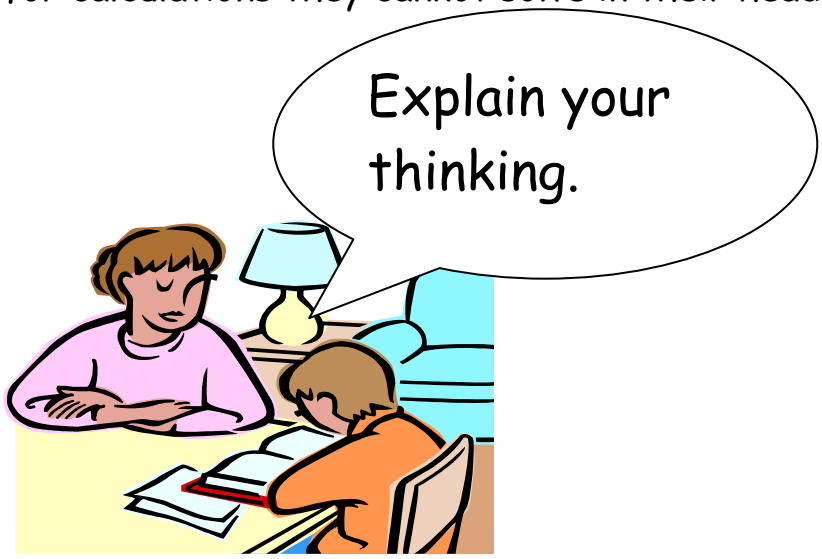
- **Knowing the number names in order**
- **Synchronising saying words and pointing or moving objects**
- **Keeping track of objects counted**
- **Recognising that the number associated with the last object touched is the total number of objects**
- **Recognising a small number of objects without counting them**
- **Counting things you cannot move, touch or see or objects that move around**
- **Counting objects of different sizes**
- **Recognising that if a group of objects already counted is rearranged the number stays the same**
- **Recognising that if objects are added or removed the number changes**

- Practise saying 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- lots of CDs 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, collecting objects, using books.
- Look for numerals around you. 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 counting or ordering numbers. Can your child spot what you have done wrong?



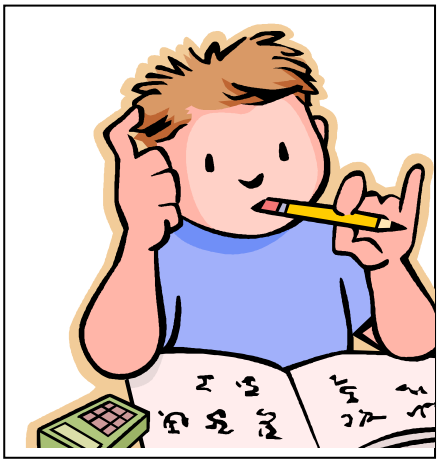
Calculation

The maths work your child is doing at school may look very different to the kind of 'maths' 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 year 3 / 4 onwards) they are only encouraged to use these methods for calculations they cannot solve in their heads.



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?



If they are stuck useful questions:

- What have you got to do?
- How have you started?
- What have you found out so far?

Also help your child to estimate and then check the answer. Encourage them to ask… Is the answer sensible?

ADDITION

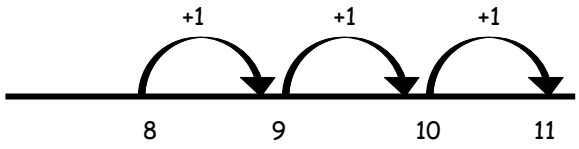
Children are taught to understand addition as combining two sets and counting on.

A progression from R to Y2

2 + 3 =  **Add** At a party, I eat 5 cakes and my friend eats 3. How many cakes did we eat **altogether?**  7 people are at the party. Then 4 arrive. How many people are at the party now? 	**Working practically or drawing a picture helps children to visualise the problem.** **Children are encouraged to progress towards using dots or marks.**

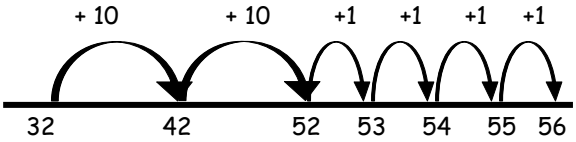
Counting forwards

8 + 3



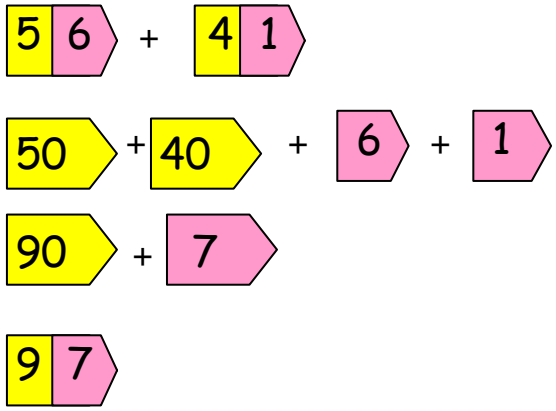
Children can count up using an empty number line. This is a really good way for them to record the steps they have taken.

What is 32 + 24?



They are encouraged to use the most efficient method to solve a given calculation, therefore you may see children putting the largest number first or partitioning a number into tens and ones

56 + 41 =



An expanded approach is introduced when children are secure with the mental calculation methods.

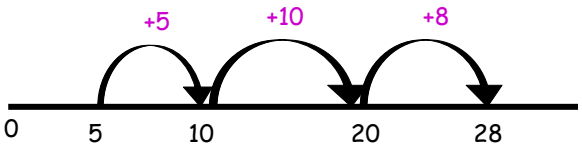
SUBTRACTION

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

A progression from R to Y2

5 – 2 = I had five balloons. Two burst. How many did I have left?  Take away Choosing a present to take to the party. A teddy bear costs £5 and a doll costs £2. How much more does the bear cost?  Find the difference Claire eats 5 cakes and Tom eats 2. How many more cakes does Claire eat? ●●●●● ●●	**Drawing a picture helps children to visualise the problem.** **Children are encouraged to progress towards using dots or marks.**

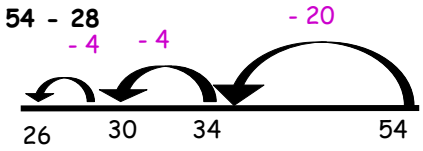
There are 28 children at the party. 5 choose hot dogs. How many have pizza?



23 children have pizza

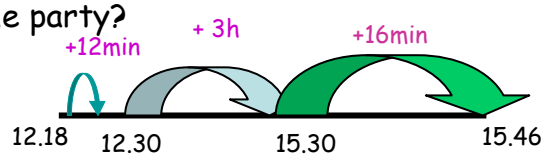
5 + 10 + 8

54 little cakes are made, but the children only eat 28. How many cakes are left?



26 cakes are left

The first child arrives at 12.18 and the last child is picked up at 15.46. How long is the party?



The party lasts for 3h 28min

Children can count up or back using an empty number line. This is a really good way for them to record the steps they have taken.

Children are encouraged to use the most efficient method to solve a given calculation, therefore you may see children using a blank number line to solve money, time, decimal and appropriate calculations.

N.B. The expanded written approach is introduced when children are secure with the mental calculation methods. A more compact method is developed only when the child understands. Numbers are 'exchanged' to enable the children to complete the process.

The compact method hides the understanding and can confuse children – 'I know I need to cross out but which numbers?' They may not reach this stage until they are in KS3.

MULTIPLICATION

Children are taught to understand multiplication as repeated addition.
A progression from R to Y2

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

2 x 4

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

2 + 2 + 2 + 2

6 x 3

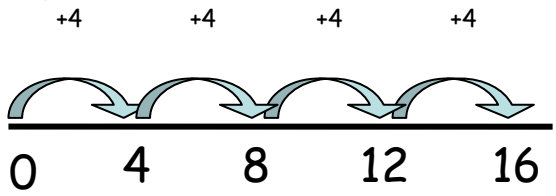
There are 6 crackers in a box. How many crackers in 3 boxes?

●●●●●● ●●●●●● ●●●●●●

6 + 6 + 6

4 x 4

Each child is given a pack of crayons. There are 4 crayons in a pack. How many crayons are there altogether?



4 x 3

●●●●
●●●●
●●●●

3 x 4

●●●
●●●
●●●
●●●

Children are introduced to multiplication by counting on and back in equal steps of ones, twos, fives and tens

Working practically or drawing a picture helps children to visualise the problem.

Dots or tally marks are often drawn in groups. This shows 3 groups of 6.

Children can count on in equal steps using an empty number line. This shows 4 jumps of 4

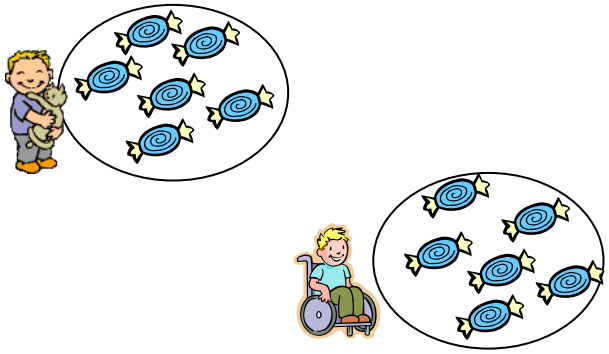
N.B. Children will need a secure recall of 'times tables' facts to successfully use later methods of multiplication.

Drawing an array (3 rows of 4 or 4 rows of 3) gives children an image of the answer. It helps to develop the understanding that 4 x 3 has the same value as 3 x 4.

DIVISION

Children are taught to understand division as sharing, grouping and chunking.

A progression from R to Y2

There are 12 sweets given as prizes for a game and 2 winners. They share the sweets equally, how many sweets does each child have? **Sharing between two**  Each child has 6 sweets	Sharing is a skill children come to school with. 'One for me one for you' is repeated subtraction of one. Working practically or drawing a picture helps children to visualise the problem. In this example children 'share' the 12 sweets between the two children until there are none left.
Grouping in threes There are 12 sweets and each party bag needs three sweets. How many party bags can be made?  There are 4 party bags	Children progress to removing 'groups' of a number. In this example children put 'groups of three sweets' into the party bags until they have no sweets left.

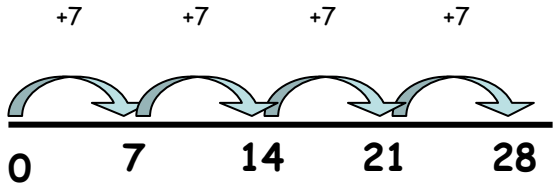
12 ÷ 4=

4 children can sit at a table. are How many tables will you need for 12 children?

●●●● ●●●● ●●●●

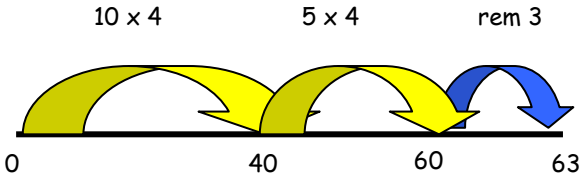
28÷7=

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



63 children need to be seated in groups of 4. How many tables will be needed to seat all the children?

63 ÷ 4 = 15 r 3



16 tables will be needed to seat all the children, one will only have 3 seats.

4 | 63

Dots or tally marks are often drawn in groups. This shows 3 groups of 4.

N.B. A note on remainders! Children need to think of the real context – e.g. what if there are 14 children at the party? You need 4 tables. (See below!)

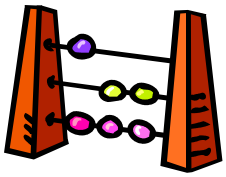
Children can count on in equal steps using an empty number line to work out how many groups of 7 there are in 28. This shows you need 4 jumps of 7 to reach 28.

When numbers get bigger, it is inefficient to do lots of small jumps on a number line. Children begin to jump in 'chunks' of the number they are dividing by, in this example 'chunks of 4' are used. A jump of 10 groups of 4 takes you to 40. Then you need another 5 groups of 4 to reach 60, leaving a remainder of 3.

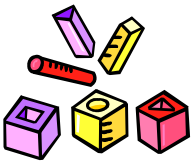
N.B. Children only progress to a formal written method, supported by developing understanding in stages, using a 'chunking' method during KS2. Children need to have a secure knowledge of 'tables' facts and be able to derive associated facts.

A few ideas for you to try at home . . .

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 number bonds 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 = □ + □). 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, 15 + 3=18). Add to the list over the next few days. Try starting with a x fact as well.



SHAPES AND MEASURES

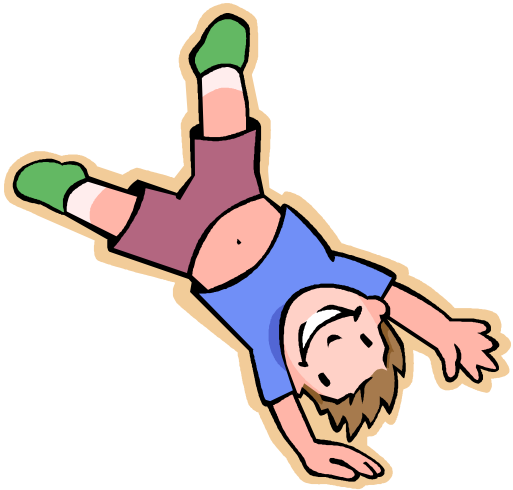
- Choose a shape of the week e.g. cylinder. Look for this shape in the environment (tins, candles etc). Ask your child to describe the shape to you (2 circular faces, 2 curved edges).
- Play 'guess my shape'. You think of a shape. Your child asks questions to try to identify it but only answer 'yes' or 'no' (e.g. Does it have more than 4 corners? Does it have any curved sides?)
- Hunt for right angles around your home. Can your child also spot angles bigger or smaller than a right angle?
- Look for symmetrical objects. Help your child to draw or paint symmetrical pictures / patterns.
- Make a model using boxes/containers of different shapes and sizes. Ask your child to describe their model.
- Practise measuring the lengths or heights of objects (larger than a metre or less to begin with). Later in centimetres. Help your child to use different rulers and tape measures correctly. Encourage them to estimate before measuring.
- Let your child help with cooking at home. (Choose simple amounts to begin with e.g. not 454g.) Show them how to measure ingredients accurately using weighing scales or measuring jugs. Talk about what each division on the scale stands for.
- Estimate, then work out how many glasses of juice can be poured out from a jug.
- Choose some food items out of the cupboard. Try to put the objects in order of weight, by feel alone. Check by looking at the amounts on the packets.
- Practise telling the time with your child. Use both digital and analogue clocks. Ask your child to be a 'timekeeper' (e.g. tell me when it is half past four because then we are going swimming).
- Use a stop clock to time how long it takes to do everyday tasks (e.g. how long does it take to get dressed?). Encourage your child to estimate first. What can they do in one minute?

REAL LIFE PROBLEMS

(Choose simple numbers or calculations which they can handle!)

- Work together to plan their party or when friends come to tea.
- Get an Early Learning catalogue. Spend an imaginary £10/ £100
- Discuss why many prices are written down as £4.99. Add up whole pounds, then take away the one pence at the end.
- 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. Look for bargains. Half price, buy one get one 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. Look at prices of ice creams/ visits. £1 challenge.
- Use a TV guide. Ask your child to work out the length of their favourite programmes. (Try to limit to programmes which start on the hour or half past to begin with.) Can they calculate how long they spend watching TV each day / each week?
- 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.

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.



Make
Maths
Fun!