Downview Primary School

Guidance for Parents

Helping your child with maths

We have put together this booklet in response to parents' requests for guidance on how to assist their child with their Maths learning. This is a guide for you to see the progress through the school. Please encourage your child and be positive in their approach to Maths. Point out the maths in everyday life. We hope this is useful for you.

1 2 3 Counting Ideas

- Practise chanting the number names. Encourage your child to join in with you. When they are confident, try starting from different numbers.
- Sing number rhymes together – there are lots of commercial 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 (more difficult!) Try lights on the ceiling, window panes, jumps or claps.
- Play games that involve counting (e.g., snakes and ladders, dice games)
- Look for numerals in the environment. You can spot numerals in the home, in the street or when out shopping.
- Cut out numerals from newspapers, magazines or birthday cards. Then help your child to put numbers in order.
- 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.

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 bus or train timetable. Ask your child to work out how long a journey between two places should take?
- 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 the more motivated they will be to solve it.

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.
- 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 doubling or halving with your child. You say a number. They reply with double or half as quickly as they can.
- Throw 2 dice. Ask your child to find the total or 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.
- Give your child an answer (e.g.,10 = □ + □). Ask them to find as many ways to make this answer as they can.

Shapes and Measures

- Choose a shape of the week, e.g., a cylinder. Look for this shape in the environment. Ask your child to describe the shape (3 faces, 2 curved edges).
- Play 'guess my shape'. You think of a shape. Your child asks questions to try to identify it but you can 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.
- Make a model using boxes/ containers or different shapes and sizes. Ask your child to describe their model.
- Practise measuring the lengths or heights of objects (in metres or cm). 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. Help them to measure ingredients accurately using weighing scales or measuring jugs. Talk about what each division on the scale stands for.
- Practise telling the time with your child. Estimate how long an activity will take.

Calculation

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

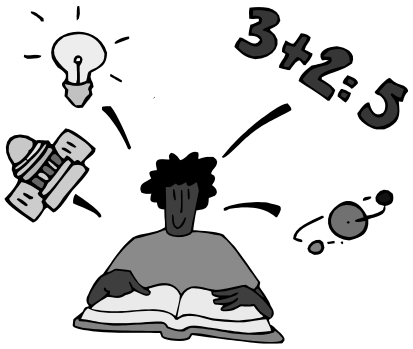
Discussing the efficiency and suitability of different strategies is an important part of maths lessons.

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?
- What facts do I know that could help me?

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

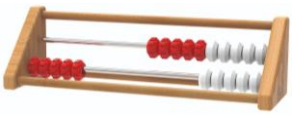
- Is the answer sensible?



Encourage your child to work from…

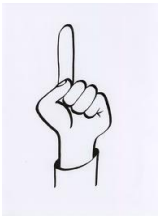
The following pages explain the steps that are used to teach each form of mathematical calculation. The steps are sequential. If your child is struggling to understand a method, it may mean that they are not secure in their understanding of previous steps. Refer back to previous steps and try solving the problem using that method. There is no set rule as to when your child should move onto the next step. This will depend on their understanding. However, "at Key Stage 1, calculations should be recorded in **horizontal** form, so that the written record closely resembles the way in which the children calculate mentally and would describe their working." (DFES 1999, p13)

Apparatus used:

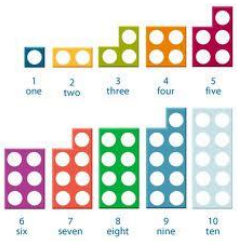


Rekenrek

fingers



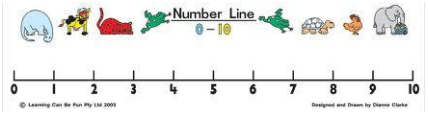
Numicon



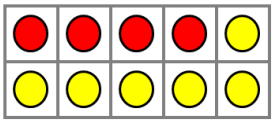
Cuisenaire Rods

multilink cubes

number lines



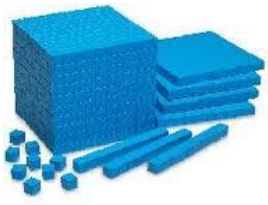
number frames



hundred squares

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Dienes

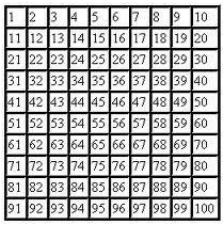
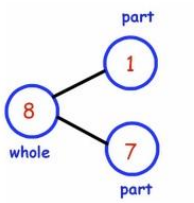
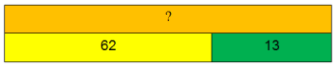
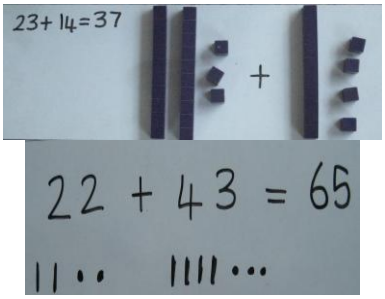
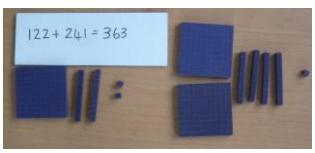
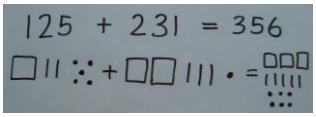
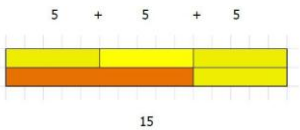


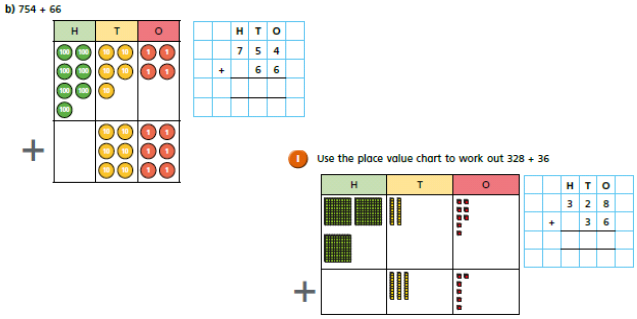
Place value counters

Addition

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

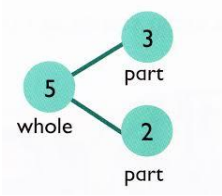
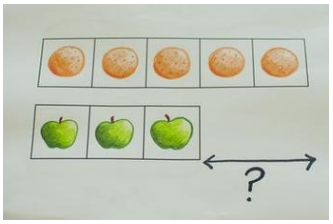
"1 + 1 = □"	Use objects / people to practically add together. Make the signs with your arms to support understanding.
"Show me 2 fingers, if I have 1 more, how many would I have?"	1 more and 1 less Practical activities using fingers.
3 + 1 = □ I have 3 then I add 1, how many does that make altogether?	Children will use fingers, numicon, multilink cubes and real-life objects and number lines to work out the answers.
□ = 3 + 2 At a party, I eat 2 cakes and my friend eats 3. How many cakes did we eat altogether? 	Children could draw a picture to help them work out the answer.
Missing number questions 3 + □ = 5	Children could use different apparatus to help them work out the answer.

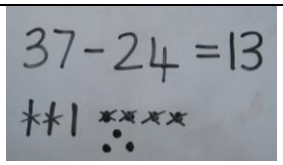
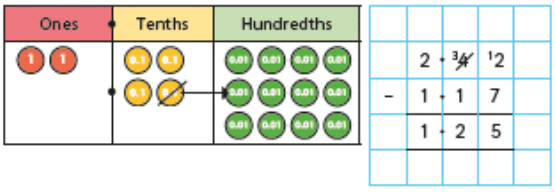
Best friends to 10 and 20	Children need to become confident with number bonds to 10 and 20.
Number facts to all numbers to 20.	Children need to know all facts that make a given number.
26 + 7 = 	As the numbers get bigger the children will use a 100 square to work out the answers.
 	Solve number problems using part-part-whole and bar modelling.
23 + 14 = □ 23 people are on the bus. 14 more get on. How many people are on the bus now? 	Children use the numicon / dienes / Counters to help them solve the question. This leads on to the children drawing dots and dashes.
  	With higher calculations children continue to use the dienes/ Place value counters to help them solve the question. This leads onto the children drawing squares, dots and dashes.

24 + 22 = 46 20 4 20 2 + 40 6 26 + 36 = 50 + 12 = 62 20 6 30 6 + 50 12	Children partition the number down into tens and ones and add these together. They continue to use apparatus with place value grids to support this. 
12786 + 2568 = ▯ 1 2 7 8 6 + 2 5 6 8 1 5 3 5 4 ' ' '	When children are confident using the expanded method, this can be squashed into the traditional compact method. This may involve 'exchanging.'
£3.34 + £2.65 = 3.34 2.65 + £5.99	Use efficient written methods to add decimals with up to 2 places

Subtraction

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

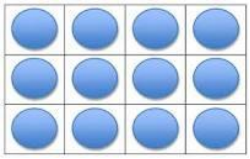
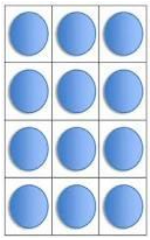
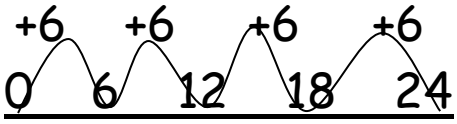
2 - 1 = □	Use objects, people to practically add together. Make the signs with your arms to support understanding.
"Show me 3 fingers, if I have 1 less, how many would I have?"	1 more and 1 less Practical activities using fingers.
4 - 1 = □ I have 4 then I take away 1, how many does that make altogether?	Children will use fingers, numicon, multilink cubes, real life objects and number lines to work out the answers.
5 - 2 = □ First, I had five balloons. Then two burst. Now how many do I have left?	Drawing a picture helps children to visualise the problem. Children can use multilink cubes, numicon, Cuisenaire rods and number lines to solve these calculations
 	Solve number problems using part-part whole and bar modelling.
A teddy bear costs £5 and a doll costs £2. How much more does the bear cost? 	Children will use various apparatus, including money and real objects, to work out this calculation.

8 – 3 = Mum baked 8 biscuits. I ate 3. How many were left? ●●●●●●●●	Using dots to represent the problem is the next stage to drawing a picture.
37 – 24 = 	Using dots and dashes with larger numbers. Using Dienes blocks to support their learning.
74 – 23 = □ 70 4 - 20 3 50 1 = 51	When children begin recording subtraction vertically, they will be taught to partition the number into its parts.
663 – 378 = □ 150 500 50 13 600 60 3 - 300 70 8 200 80 5	Children will progress to moving numbers between columns when they are unable to subtract part of a number because it is too large. We call this 'exchanging.' Apparatus such as Dienes and place value counters will be used.
663 – 378 = □ 5 15 13 6 6 3 - 3 7 8 2 8 5 	Finally, children will be taught a more compacted version of the above method. This will lead on to subtraction of decimals.

Multiplication

Children are taught to understand multiplication as repeated addition. It can also describe an array of dots. **It is extremely important that you support your child in learning times table facts.** Children begin by learning to count in 2s, 5s and 10s in year 1. By the end of year 4 they should know **all** their tables facts to 12x12, this will include being able to apply them to solving division problems. In year 5 and 6 they need to improve their speed of recall of these facts.

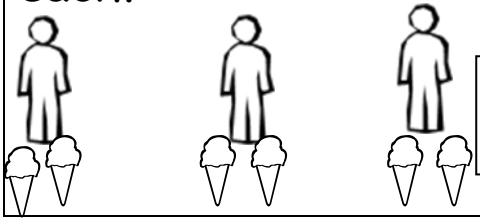
Count in 2's, 5's and 10's practically.	Using eyes for 2's, toes for 5's and hands for 10's.
Double trouble – double numbers.	Use cubes and numicon to support doubling.
Understand early multiplication as repeated addition. 10+10+10+10	Tactile numicon supports this understanding.
Know multiples of 2, 5 and 10 to 100.	Use patterning on hundred squares to emphasise multiples.

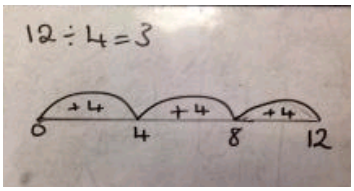
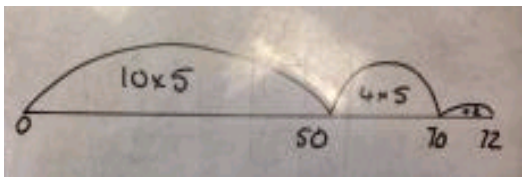
4 x 2 = 8 A rabbit has two ears. How many ears do four rabbits have?  +2 + 2 + 2 + 2	Pictures can be useful. Use of part-part-whole and bar modelling to support working this out.
4 x 3 = □ A chew costs 4p. How much do 3 cost?  	Drawing an array of dots gives children an image of the answer. It also helps develop the understanding that 4x3 is the same as 3x4.
4 x 6 = □  	Children could count on in equal steps, recording each jump on an empty number line.
6 x 124 = □ x | 100 20 4 6 | **600** **120** **24** = **744**	This is called the grid method. 124 is partitioned (split) into parts (100, 20 and 4). Each of these is multiplied by 6. The three answers are then added together.

72 x 34 = □ x | 70 2 30 **2100** **60** = **2160** 4 **280** **8** = **288** **2448**	This method also works for 'long multiplication'. Again, partition the numbers and multiply each part. Add across the rows, then add those two answers together.
24 x 6 becomes 24 X 6 144 2 Answer: 144	This is called the short multiplication method. The children will be introduced to this when they are confident using the grid method to multiply by a single digit number.
72 x 34 = □ A cat is 72cm long. A tiger is 34 times longer. How long is the tiger? 72 x **34** 8 (**4** x 2) 280 (**4** x 70) 60 (**30** x 2) 2100 (**30** x 70) 2448	When children are confident with the grid method, they are taught to record their multiplication vertically although still recording all the steps to ensure accuracy. Initially they may need to record this alongside the grid method.
56 x 27 = □ 56 books were sold at a cost of 27p each. How much money was taken? 56 x£ 0.27 £ 3.92 £11.20 £15.12	Multiplication by a 2-digit number can then be done in 2 steps – multiplication by the ones digit and then the tens digit. The children put in the place holder (0) when multiplying by the tens digit.

Division

Children are taught to understand division as sharing and grouping.

When we share, we make it fair!! Practical sharing of objects.	Use of sharing circles.
4 eggs shared by 2 people. How many do we each have?	Use of practical objects.
Solve halving problems - sharing into equal groups.	Using multilink cubes, numicon pegs, Counters
6 ÷ 2 = □ 6 ice-creams are shared between 2 children. How many ice-creams does each child get?  sharing between 2 There are 6 ice-creams. How many children can have two each?  Grouping in 2's	More pictures! Drawing often gives children a way into solving a problem.

12 ÷ 4 = □ 12 apples are put into baskets in groups of 4. How many baskets will be filled? 	How many 4's are in 12? Children make groups of 4 and count until they reach the target number. Use of part-part whole and bar modelling.
12 ÷ 4 = 	To work out how many 4's there are in 12, draw jumps of 4 counting forwards along a number line. This shows you need 3 jumps of 4. If appropriate, remainders can then be calculated by looking at the jump that is left at the end.
72÷5= 	The children should then be asked to make links with multiplications that they can already calculate mentally. Encourage them to estimate first. This extends to counting forwards in larger jumps (chunking).

458 ÷ 3 = □ 152 r2 3 | 4¹58	Some children may be confident enough to progress onto using the traditional short division for dividing by a single digit.
432 ÷ 15 becomes 2 8 r 12 1 5 | 4 3 2 3 0 0 1 3 2 1 2 0 1 2 Answer: 28 remainder 12 432 ÷ 15 becomes 2 8 1 5 | 4 3 2 3 0 0 15×20 1 3 2 1 2 0 15×8 1 2 $\frac{12}{15} = \frac{4}{5}$ Answer: $28\frac{4}{5}$ 432 ÷ 15 becomes 2 8 · 8 1 5 | 4 3 2 · 0 3 0 ↓ 1 3 2 1 2 0 ↓ 1 2 0 1 2 0 0 Answer: 28·8	The short division method can also be used for dividing by 2-digit numbers. The children will create a 'fact box' – for example if dividing by 19, they will first work out their 19x table. These are long division methods for dividing by a two-digit number. These will be used by the most confident children.

Homework

We hope that the steps explained will give you greater confidence when supporting your child with their maths learning and their homework. Just sitting with your child in a quiet area, away from distractions and asking them to explain what they are doing will greatly benefit your child's mathematical understanding.

Finally, if you and your child are unsure what is required of them to support their learning or complete their homework, ask the class teacher. They will be happy to help!

There are some websites that we use in school to support learning in maths. These can be accessed at home on a laptop or other device.

My Maths
Times tables Rockstars
Purple Mash