

## Understanding the benefits of support my child through numeracy...

Family participation in learning is one of the most accurate predictors of a child's success in school and beyond. Providing opportunities to discuss and engage in mathematics supports your child's learning in and out of school. Your child will also begin to connect the importance of maths with their everyday activities, such as navigating public transport, comparing and choosing the best item to buy in stores, setting a budget, and cooking. Talk positively about maths so your child also values it. If your experiences in maths at school were less than ideal, avoid making comments like "I was bad at maths at school," or "I didn't like maths because it was too hard." Comments like these can lower your child's expectations of themselves, and can create myths about people being naturally bad or good at maths. On the other hand, if you did well at maths in school, avoid jumping in with answers or solutions. Encourage your child to talk about how they might work out maths problems. This helps boost their confidence and deepens their understanding. Regardless of your own school experiences in maths, be reassured that maths today is not about learning by rote. Today, the focus is on recognising that there are multiple ways to get an answer, and being able to explain how and why you chose the approach you did. There

More information can be found on our website or in



**TULLOS PRIMARY SCHOOL**  
LIGHTING THE WAY TO BRIGHTER FUTURES!

## Supporting my child with numeracy at home.

**Tullos Primary School, Aberdeen. 2020**

## Numeracy in school.

In Tullos we take a great deal of pride in how we teach our children numeracy. We would like to take this opportunity to share some of these strategies with you, to allow you to be able to support your child at home. We will also provide you with some websites, we feel may help your child progress and develop in numeracy.

### Useful websites:

<https://pages.sundog.com/>  
<https://www.prodigygame.com/>  
<http://amathsdictionaryforkids.com/>  
<https://nrich.maths.org/frontpage>  
<https://www.maths4mumsanddads.co.uk/>  
<https://www.bbc.co.uk/bitesize/subjects/zjxhfg8>  
<https://www.mathsisfun.com/index.htm>  
<https://www.multiplication.com/>

You can also search for “Number Talks” followed by any of the strategies your child has learnt in class into **You Tube** to locate videos to support their learning in Number Talks.

Talk to your child about how you work things out

Ask your child to explain their thinking

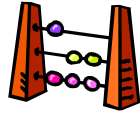


## SHAPES AND MEASURES



- ★ 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 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 / 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 (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.
- ★ 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.

## 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.

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

- Can I do this in my head?
- What strategies could I use to help me do this?
- Where have I seen this before?
- How can I make this problem more




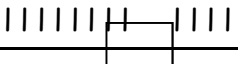
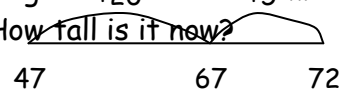
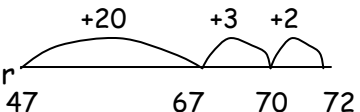
Also help your child to estimate and then check the answer. Encourage them to ask...

- Is the answer sensible?

*In this booklet we will show you the different*

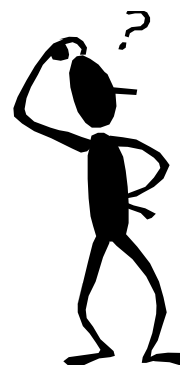
# Addition

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

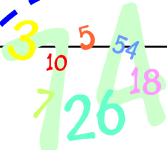
|  |   |
|--|---|
| $2 + 3 = \square$<br><br>At a party I eat 2 cakes and my friend eats 3. How many cakes did we eat altogether?<br><br>   | Children could draw a picture to help them work out the answer  |
| $8 + 4 = \square$<br><br>8 people are on the bus, 4 get on at the next stop. How many people are on the bus now?<br><br>.....<br>Or<br>  | Children could use dots or tally marks to represent pictures (quicker than drawing pictures)  |
| $47 + 25 =$<br><br>My sunflower is 47cm tall. It grows another 25cm. How tall is it now?<br><br><br>or<br> | 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. |

# 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.



## 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.



## Addition

$$487 + 546 = \boxed{\phantom{000}}$$

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

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

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 digit clear to children. The language used is very important

(6+7, 40+80, 500+400, then 900+120+13—*add this mentally NOT in columns*)

$$12,786 + 2,568 = \boxed{\phantom{000}}$$

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

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

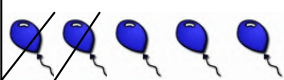
When children are confident using the expanded method, this can be squashed into the traditional compact method.

## Subtraction

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

$$5 - 2 = \square$$

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

$$8 - 3 = \square$$

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

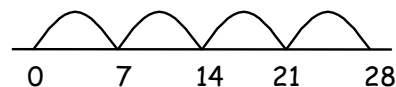
Drawing a picture helps the children to visualise the problem

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

## Division

$$28 \div 7 = \square$$

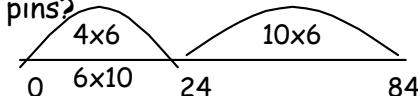
A chew bar costs 7p. How many can I buy with 28p?



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

$$84 \div 6 = \square$$

I need 6 drawing pins to put up a picture. How many pictures can I put up with 64 pins?



It would take a long time to jump in sixes to 84 so children can jump back in bigger 'chunks'. A jump of 10 lots of 6 takes you to 24. Then you need another 4 lots of 6 to take you to 0. Altogether that is 14 lots of 6.

$$184 \div 7 = \square$$

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

$$\begin{array}{r} 26 \text{ r } 2 \\ 7 \overline{) 184} \\ \underline{- 140} \quad \times 20 \\ 44 \\ \underline{- 42} \quad \times 6 \\ 2 \end{array} = 26 \text{ r } 2$$

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 subtract 42 (6 lots of 7) to leave 2. Altogether that is 26 lots of 7 with a remainder of 2



## Division

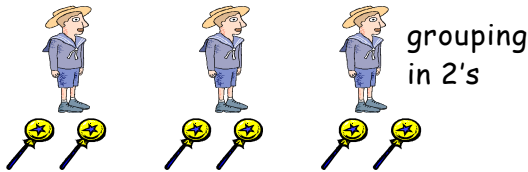
Children are taught to understand division as sharing and grouping.

$$6 \div 2 = \square$$

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

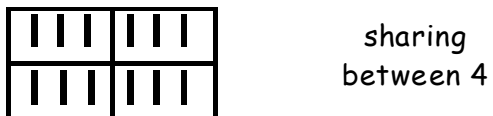


There are 6 lollies. How many children can have two each?



$$12 \div 4 = \square$$

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?



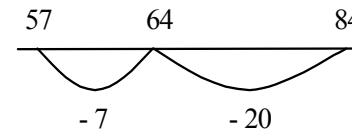
More pictures!  
Drawing often gives children a way into solving the problem.

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

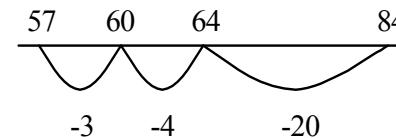
## Subtraction

$$84 - 27 = \square$$

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



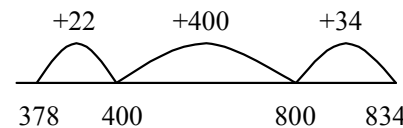
or



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).

$$834 - 378 = \square$$

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



$$\begin{array}{r} 22 \text{ (400)} \\ 400 \text{ (800)} \\ 34 \text{ (834)} \\ \hline 457 \end{array}$$

Children could count up (from the smallest number to the biggest) using an empty number line. It is easiest to count up to a multiple of 10 or 100 (a friendly number). The steps can also be recorded vertically. This method works really well with any number including decimals. They will then progress onto Decomposition (more formal methods) when they are ready.

## Multiplication

Children are taught to understand multiplication as 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?

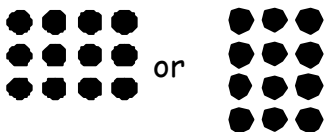


$$5 + 5 + 5$$

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?

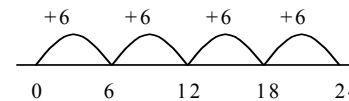


Drawing an array (3 rows of 4 or 3 columns of 4) gives children an image of the answer. It also helps develop the understanding that  $4 \times 3$  is the same as  $3 \times 4$ .

## Multiplication

$$6 \times 4 = \square$$

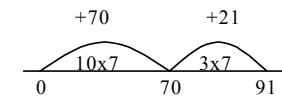
There are 4 cats. Each cat has 6 kittens. How many kittens are there altogether?



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

$$13 \times 7 = \square$$

There are 13 biscuits in a packet. How many biscuits in 7 packets?



When numbers get bigger it is inefficient to do lots of small jumps. Split 13 into parts (10 and 3). This gives you two jumps ( $10 \times 7$  and  $3 \times 7$ ).

$$6 \times 124 = \square$$

124 books were sold. Each book cost £6. How much money was taken?

$$\begin{array}{r|rrrr} & 100 & 20 & 4 & \\ 6 & 600 & 120 & 24 & = 744 \end{array}$$

This is called the grid method. 124 is split into parts (100, 20 and 4) and each of these is multiplied by 6. The three answers are then added together.

$$72 \times 34 = \square$$

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

$$\begin{array}{r|rr|rr} & 70 & 2 & & \\ 30 & 2100 & 60 & = & 2160 \\ 4 & 280 & 8 & = & 288 \\ & & & & 2448 \end{array}$$

This method also works for 'long multiplication'. Again split up the numbers and multiply each part. Add across the rows, then add those two answers together.