

# Helping Your Child With Numeracy



At Bedgrove Infant School

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Numeracy is an important life skill.

Numeracy involves using mathematics efficiently in our day-to-day lives. Every day we use number, measurement and space. Each time we shop or go to the bank we use numbers. Our understanding of space is used to pack a lunchbox or to park a car. We need to understand how to measure things when we sew, cook, build, tell the time or listen to a weather report.

Children need to become confident enough to tackle mathematical problems without going immediately to teachers, friends or parents for help. They should see its value as part of everyday life beyond the classroom.

## How we believe children become numerate

- By developing an understanding of mathematics through a variety of practical experiences
- By using different mathematical equipment to develop new concepts
- By talking about their ideas and sharing their thinking with others
- By developing positive attitudes towards mathematics
- By observing adults using everyday mathematics in everyday life
- By playing mathematical games
- By having the opportunity to use the correct mathematical vocabulary in context
- By recognising numerals and units of measurement in their environment
- By having the opportunity to use and apply their numeracy skills

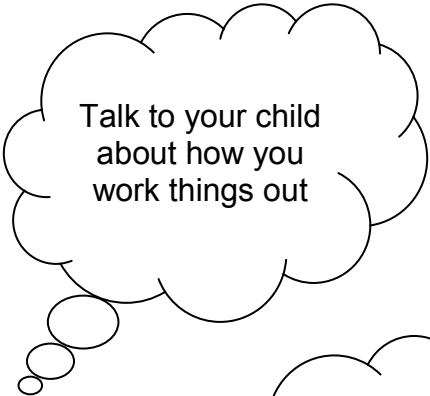
## Mathematics at school

- A strong emphasis on mental calculation
- A variety of equipment is used to help develop mental images
- Games are used to develop and practise new concepts
- Formal recording is usually delayed until Key Stage 2
- Using the correct mathematical vocabulary in context
- Quick recall of number facts
- Children become involved in the learning of mathematics

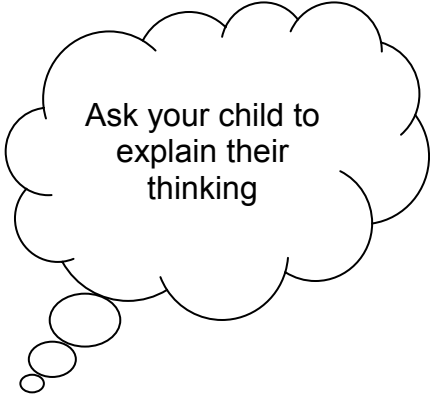
A typical daily numeracy lesson in Key Stage 1

Whole Class	<p>Mental and oral starter</p> <ul style="list-style-type: none"> <li>• Oral and mental work to rehearse and sharpen skills</li> </ul>	About 5—10 mins
Whole class/ groups/ pairs/ individuals	<p>Main teaching and pupil activities</p> <ul style="list-style-type: none"> <li>• Clear objectives shared with children</li> <li>• Direct teaching input</li> <li>• Practical and or written work for children on the same theme for all the class</li> <li>• If group work, usually differentiated at no more than three levels with focused teaching of 1 or 2 groups for part of the time</li> <li>• Continued interaction and intervention</li> <li>• Misconceptions identified</li> </ul>	About 30—40 mins
	<p>Plenary</p> <ul style="list-style-type: none"> <li>• Feedback from children to identify progress and sort misconceptions</li> <li>• Summary of key ideas, what to remember</li> <li>• Links made to other work, next steps</li> </ul>	About 5—10 mins

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 (in Key Stage 2 at a Junior School), they are only encouraged to use these methods for calculations they cannot solve in their heads.



Talk to your child  
about how you  
work things out



Ask your child to  
explain their  
thinking

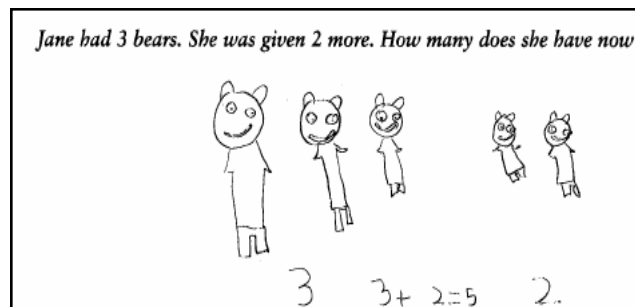
## Looking at Addition

Children in Years 1 and 2 are **not** expected to do vertical sums like:



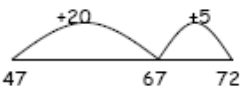
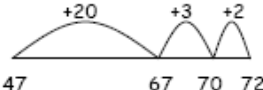
$$\begin{array}{r} 6 \\ +4 \\ \hline 10 \end{array}$$

but that doesn't mean they won't learn that  $6+4=10$

They will be involved in a daily mixture of practical, mental and oral work including lots of counting, talking about numbers and using numbers in real life activities. They will begin to record what they've done with pictures and numbers. These recordings will help them to understand what is happening and to show how they've worked something out. Here is an example of early recording.

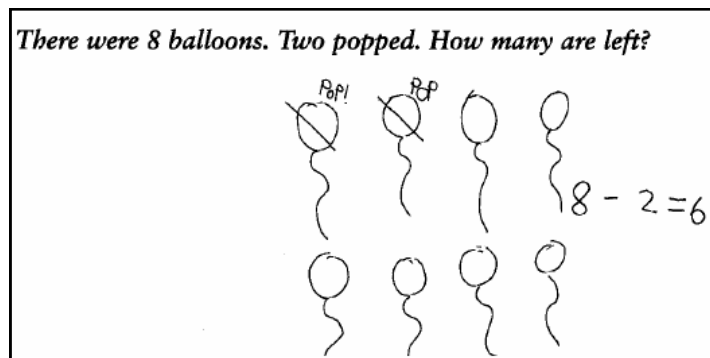


Children are taught to understand addition as combining two sets and counting on.

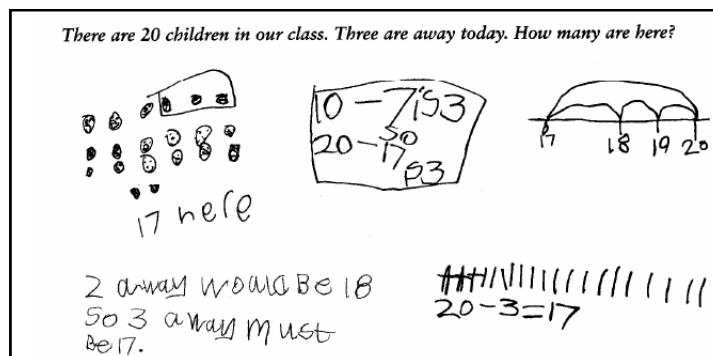
<p><b>2+3=</b>            At a party, I eat 2 cakes and my friend eats 3.            How many cakes did we eat altogether?</p> 	<p>Children could draw a picture to help them work out the answer.</p>
<p><b>7+4=</b>            7 people are on the bus. 4 more get on at the next stop. How many people are on the bus now?</p> 	<p>Children could use dots or tally marks to represent objects (quicker than drawing a picture)</p>
<p><b>47+25=</b>            My sunflower is 47cm tall. It grows another 25cm. How tall is it now?</p>  <p>or</p> 	<p>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.</p>

## Looking at Subtraction

Here is an example of early subtraction recording.






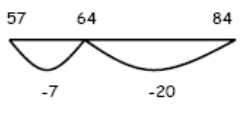
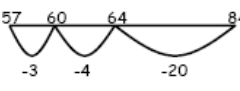
This next example shows how different children have worked out and recorded the answer to the same problem.



These diagrams and jottings help the children to see what is happening to the numbers and to use facts they already know to help them work out others.

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

<p><b>5-2=</b> I had five balloons. Two burst. How many did I have left?</p>  Take away <p>A teddy bear costs £5 and a doll costs £2. How much more does the bear cost?</p>  Find the difference	<p>Drawing a picture helps children to visualise the problem.</p>
<p><b>7-3=</b> Mum baked 7 biscuits. I ate 3. How many were left?</p>  Take away <p>Lisa has 7 felt tip pens and Tim has 3. How many more does Lisa have?</p>  Find the difference	<p>Using dots or tally marks is quicker than drawing a detailed picture.</p>

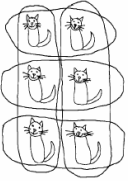
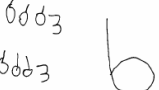
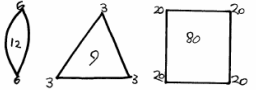
<p><b>84-27=</b> I cut 27cm off a ribbon measuring 84cm. How much is left?</p>  <p>or</p> 	<p>Children could count back using an empty number line. This is a really good way for them to record the steps they have taken (start on 84, -20, then -7).</p>
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## Looking at multiplication



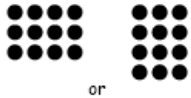
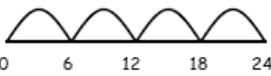
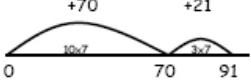
The early work children do will introduce them to the ideas of multiplication and division. They will be counting in different patterns, helped to see how multiplication is repeated addition and taught to understand place value (that in 234 the 2 is 200, the 3 is 30 and the 4 is 4 ones (units)).

This knowledge and understanding, with much of the work being done in their heads, opens up a whole world of facts for them and they don't all have to be memorised. That can make working with numbers feel a lot easier.

In years 1 and 2, the children will be recording to demonstrate how they have done something and to show that they've understood what is happening, as below.



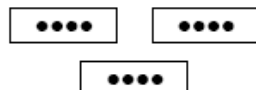
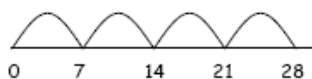
		
<p>2x3 cats = 6 cats or 3x2 cats = 6 cats</p>	<p>2 lots of 3 apples makes 6 apples.</p>	<p>12 = 2x6 9 = 3x3 80 = 4x20</p> <p>80 ÷ 4 = 20 80 ÷ 20 = 4</p>

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

<p><b>2x4=</b> Each child has two eyes. How many eyes do four children have?</p>  <p>2 + 2 + 2 + 2</p>	<p>Again a picture can be useful.</p>
<p><b>5x3=</b> There are 5 cakes in a pack. How many cakes in 3 packs?</p>  <p>5 + 5 + 5</p>	<p>Dots or tally marks are often drawn in groups. This shows 3 groups of 5.</p>
<p><b>4x3=</b> A chew costs 4p. How much do 3 chews cost?</p> 	<p>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.</p>
<p><b>6x4=</b> There are 4 cats. Each cat has 6 kittens. How many kittens are there altogether?</p> 	<p>Children could count on in equal steps, recording each jump on an empty number line. This shows 4 jumps of 6.</p>
<p><b>13x7=</b> There are 13 biscuits in a packet. How many biscuits in 7 packets?</p> 	<p>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 (10x7 and 3x7).</p>

## Looking at division

Children are taught to understand division as sharing and grouping.

<p><math>6 \div 2 =</math> 6 Easter eggs are shared between 2 children. How many eggs do they get each?</p>  <p>Sharing between 2</p> <p>There are 6 Easter eggs. How many children can have two each?</p>  <p>Grouping in twos</p>	<p>More pictures! Drawing often gives children a way into solving the problem.</p>
<p><math>12 \div 4 =</math> 4 apples are packed in a basket. How many baskets can you fill with 12 apples?</p>  <p>Grouping in fours</p>	<p>Dots or tally marks can either be shared out one at a time or split up into groups.</p>
<p><math>28 \div 7 =</math> A chew bar costs 7p. How many can I buy with 28p?</p> 	<p>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.</p>

## Supporting Numeracy at Home

Try to be enthusiastic about mathematics  
- it can be catching!

Here are a few practical ideas of how you might support your child's learning of mathematics at home.

Helping your child with **counting**:

One of the earliest skills children have to develop is counting. To "count" we need to match the number words with the correct number of objects, then we need to remember the numbers in order.

Helping your child with **space**:

Mathematics is also about ideas relating to shapes, objects and their position. Children need to be able to describe shapes and objects and their position.

Helping your child with **measurement**:

Children need to observe how measurement is used in practical situations. First, they need to talk about the things we can measure and the tools we can use to measure them. Then they will need to learn about the units we use for measuring, such as litres, kilograms and metres.

## Foundation

### Counting:

- Ask your child to count the number of plates, cups and pieces of cutlery used to set the table
- Count with your child the number of buttons as you do up a shirt or blouse
- Encourage your child to count the number of pegs you use to hang out the washing
- Count the number of eggs in a carton, and again after you remove some
- Count the number of steps it takes to go from the front door to the footpath
- Play dominoes, card games and board games involving one or two die. This will help your child to recognise number patterns
- Play a game of Snakes & Ladders. Use two die and encourage your child to add the two numbers rolled
- Use a dice that has numbers instead of dots to help your child read and recognise numbers
- Encourage and stimulate your child's interest in numbers through counting games, nursery rhymes and play activities such as skipping
- Support your child's interest in number sequences and in numerals - encourage your child to look at the clock on a microwave and count down as the timer display changes

- Sing or say number rhymes together e.g. 1,2,3,4,5 once I caught a fish alive or ten green bottles
- Notice numbers in the environment e.g. on doors, number plates, buses and the pattern of odd and evens on most streets
- Look at page numbers in books
- Look at written numbers and write them on pieces of paper for your child to put in order
- Ask which number is one more/less than another number, e.g. there are four cups on the table, ask your child what is one more or one less than four?
- Play games which improve memory skills
- Count forwards, backwards, in ones or in bigger steps
- Count things you cannot touch or see (more difficult). Try counting lights on the ceiling, window panes, jumps, claps or oranges in a bag.
- Make mistakes when chanting counting or ordering numbers. Can your child spot what you have done wrong?

Activities for Foundation children:

### Collections

You need something to collect, e.g. sticky shapes, dried pasta.

- In turn, one player claps 1, 2, 3 or 4 times whilst the other player closes his eyes and listens
- How many claps did you hear? Take that number of shapes

### Counting and putting numbers in order

Use old magazines, comics or greetings cards. Cut out pictures of animals, or anything else your child is interested in. Label the pictures 1 to 5.

- Shuffle the animal pictures
- Ask your child to put the animal pictures number order from 1 to 5
- Remove one of the animal pictures. Ask your child which number is missing
- Repeat with other numbers and more than one at a time
- Ask your child to say what number comes before or after a number you choose
- When your child can do this, repeat with numbers 1 to 10

### Spot the difference

Draw a row of six big coloured spots



- In turn, one player closes his or her eyes
- The other player hides some of the spots, with a sheet of paper
- The first player looks and says how many spots are hidden
- Try with other numbers of spots, e.g. five or seven

### One more, one less

For this game you need a dice, a coin and some building blocks or Lego bricks.

- Take turns to roll the dice
- Build a tower with that number of blocks or bricks
- Then toss the coin. Heads means take one brick off
- Tails means add one brick on
- If you can guess how many bricks there will be after this, you can keep them!
- The first to collect 20 bricks or more wins.

### Dice Game

Use a “dotted” dice and write the numbers 1 to 6 on a sheet of paper.

- Throw the dice. Can your child guess how many dots there are? Check by counting
- Ask your child which number on the paper matches the dots on the dice

### Build a tower

For this game you need a dice and some building blocks or Lego.

- Take turns
- Roll the dice
- Collect the number of bricks to build your own tower
- The first to 10 wins!

For a change, start with 10 blocks or bricks each. Take away the number on the dice. First to exactly zero wins.

### Dicey Counting

Take turns to roll a dice and count back to zero from the number thrown. For example, roll a 5 and count 5, 4, 3, 2, 1, 0.

### Roll a shape

Cut out 12 shapes. Make 3 triangles, 3 squares, 3 rectangles and 3 circles.

- Take turns to roll a dice and collect a shape that has the same number of sides. E.g. roll a 3, collect a triangle
- The first to collect one of each shape wins
- If you can name each shape you can go first in the next game

### Cupboard Maths

Ask your child to help you sort a food cupboard out, putting **heavier** items on the lower shelf and **lighter** items on an upper shelf.

Shape:

What can you do at home?

- Talk about the position of an object when putting it back on a shelf. "The teddy is next to the car." "Lets put the doll on top of this box"
- Notice shape in the environment e.g. paving blocks, floors, brickwork. Spot objects that are shaped like circles, triangles, squares or rectangles. Look for different sized shapes in different positions
- Fold paper to make a hat, a boat or an aeroplane. Talk about the shapes you are making

- Make your own jigsaw from a picture in a magazine
- Use boxes and containers of different sizes to play “stacking” games
- Talk about the route you are taking when walking to school or to the park
- Make biscuits using cookie cutters or make pretend biscuits from modelling dough. Talk about the shape of each biscuit
- Involve your child in craft activities such as making your own gift wrapping by printing shapes onto paper using corks, empty cotton reels or sponges
- Talk about the number of sides on a shape and if they have corners, or whether the sides are straight or curved

#### Measure:

- Give your child different sized plastic cups and a larger container to play with in the bath or shower. Encourage your child to guess how many of each cup it will take to fill the container
- Talk about how many cups of each ingredient are used in a recipe when you are cooking together
- Put sand in a large plastic tub so children can fill containers with sand. Sieves, colanders, plastic spoons, old clean margarine tubs, plastic bottles and funnels are useful for when playing with sand

- Have children weigh themselves. Weigh other family members and family pets
- Use modelling dough to roll out two “snakes” of different lengths. Talk about one snake being “shorter” and the other snake being “longer”
- Talk about tall, taller, tallest, deep, deeper, deepest
- Use other language such as lighter, heavier, more, less, full, empty, nearly full/empty etc.
- Record your child’s growth on a height chart
- Talk about events in terms of time. E.g. “It’s going to take about three minutes to cook this, so you might have time to butter some bread”
- Mark special events on the calendar and talk about how many days until the event and which day of the week the event will be on
- Cooking at home with a child can support their mathematical development with tasks such as sharing out and cutting up food or weighing and measuring

## Year 1

### Number facts:

- Play “ping-pong” to practise number facts. You say a number, they reply with how much more is needed to make 10. You can also play this game with numbers totalling twenty. Encourage your child to answer quickly, without counting or using fingers.
- Throw two die. Ask your child to find the total of the numbers (+) and the difference between the two numbers (-). Can they do this without counting?
- Play Bingo. Each player chooses five answers (e.g. numbers 1 to 10, to practise simple addition, multiples of 5 to practise the five times table). Ask a question, if a player has the answer, they can cross it off. The winner is the first player to cross off all their answers.

### Shape:

- Choose a shape of the week e.g. cylinder. Look for this shape in the environment e.g. candles, tins etc.
- Ask your child to describe the shape to you, e.g. cylinder, two circular faces, one curved face, two curved edges
- Play “guess my shape”. You think of a shape, your child asks questions to try and identify it but you can only answer yes or no. E.g. Does it have more than 4 corners?

- Look for symmetrical pictures and patterns
- Make a model using boxes or containers of different shapes and sizes. Ask your child to describe their model

Measure:

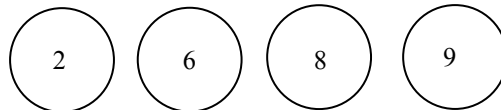
- Choose some food items out of the cupboard. Try to put the objects in order of weight, by feel alone. Check by looking at the amounts on the packets

Activities:

### Adding Circles

For this game, you need a dice and pencil and paper.

- Each of you should draw four circles on your piece of paper. Write a different number between 2 and 12 in each circle



- Roll the dice twice, add the two numbers
- If the total is one of the numbers in your circles then you may cross it out
- The first person to cross out all four circles wins

### Out and about

On the way to school, see how many cuboids, spheres and cylinders you can spot. Which did you see most of?

### Housey, housey

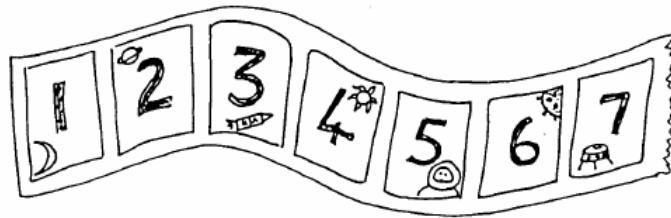
When walking down the street with your child, look at house numbers. These will probably be following a pattern of either odd or even numbers. Can your child predict what number will be on the next house? Talk about the pattern.

### Cupboard Maths

- Choose two tins or packets from your food cupboard
- Ask your child to hold one in each hand and tell you which is heavier, and which is lighter. (Check by reading the weight on the packet.)
- If he/she is right, they keep the lighter one. Then choose another item from the cupboard, trying to find one that is lighter still
- Carry on until your child has found the lightest item in the cupboard. It might be suitable to eat as a prize!

### Track games

Make a number track to 20, or longer. Make it relevant to your child's interests—sea world, space or monsters...then play games on it.



- Throw a dice. Move along that number of spaces. BUT before you move, you must work out what number you will land on. If you are wrong, you don't move! The winner is the first to land exactly on 20. Now play it going backwards to number 1.
- Throw a dice, find a number on the track that goes with the number thrown on the dice, to make either 10 or 20. Put a counter on it, e.g. you throw a "4" and put a counter on 6 or 16. If someone else's counter is there already, you may replace it with yours! The winner is the first person to have a counter on 8 different numbers.

### Shape activity

At home, or when you are out, look at the surface of shapes.

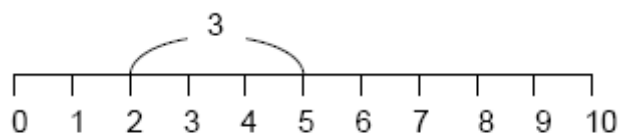
- Ask your child - what shape is this plate, this mirror, the bath mat, the tea towel, the window, the door, the red traffic light, and so on
- Choose a shape for the week e.g. a square. How many of these shapes can your child spot during the week, at home and when you are out?

### Dice Game

You need a 1-6 dice, paper and pencil.

- Take turns
- Choose a number between 1 and 10 and write it down
- Throw the dice and say the dice number
- Work out the difference between your chosen number and the dice number e.g. if you wrote down a 2 and dice shows a 5, the difference is 3

You could also draw a number line to help your child see the difference between the two numbers.



### How old?

Start with your child's age. Ask your child:

- How old will you be when you are 1 year older?
- How old were you last year?
- How old will you be in 10 years from now?

And so on...

### Takings

For this game you will need a dice and a collection of small things such as Lego bricks, sticky shapes or dried pasta. You will also need a pencil and paper.

- Take turns
- Roll a dice, take that number of pieces of pasta. Write down that number
- Keep rolling the dice and taking that number pieces of pasta. BUT, before you take them, you must write down your new total
- For example, if Sally has 7. She throws a 4. She has to work out how many she will have now. She starts counting from seven, 8, 9, 10, 11. She writes down 11
- You can only take your pieces of pasta if you are right
- The first person to collect 20 pieces of pasta wins

### Dicey Coins

For this game you need a dice and twenty 10p coins.

- Take turns to roll the dice and take that number of 10p coins
- Guess how much money this is. Then count aloud in tens to check, e.g. saying ten, twenty, thirty, etc.
- If you do this correctly you get to keep the 10p coins
- First person to collect £1 wins!

### Secret Numbers

- Write the numbers 0 to 20 on a sheet of paper
- Ask your child secretly to choose a number on the paper. Then ask him/her some questions to find out what the secret number is. E.g. Is it less than ten?  
Is it between 10 and 20?  
Does it have a 5 in it?
- Once you have guessed the number, it is your turn to choose a number, your child asks the questions
- For an easier game use numbers up to 10. For a harder game, use only 5 questions or use bigger numbers

## Year 2

### Number facts:

- Practise doubles or times tables for a few minutes at a time
- Give your child a number sentence (e.g.  $3 + 7 = 10$ )  
Ask them what else they can find out from this sentence. (e.g.  $7 + 3 = 10$ ,  $10 - 3 = 7$ ,  $10 - 7 = 3$ ,  $30 + 70 = 100$ ,  $70 + 30 = 100$ ,  $700 + 300 = 1000$  and so on)
- Give your child an addition number sentence, ask them to write down as many addition sentences as they can with that answer (e.g.

$$20 = \square + \square \text{ or } \square + \square = 15 )$$

- You could then try with subtraction and multiplication
- Shopping: paying with cash or allowing pocket money to be managed by the child

### Shape:

- Hunt for right angles around your home. Can your child also spot angles bigger or smaller than a right angle?
- Can your child name different shapes around the home? Are they able to identify 2D and 3D shapes?

### Measure:

- Practise measuring the lengths or heights of objects in metres or centimetres. Help your child to use rulers and tape measurers properly, ensuring that they start from zero.
- Let your child help with cooking at home. Help them to measure out the right amount of ingredients accurately using the weighing scales or measuring jugs. Talk about what each division on the scale stands for.
- Practise telling the time with both analogue and digital clocks. Time how long it takes to do something e.g. brushing teeth.

### Activities:

#### Pasta Subtraction

For this game you need a dice and some dried pasta or buttons.

- Start with a pile of pasta in the middle. Count them
- Throw a dice. Say how many pieces of pasta will be left when you subtract that number
- Then take the pieces of pasta away and check if you were right
- Keep playing
- The person to take the last piece wins

#### Straight Lines

Choose 4 toys and lay them on the table in order of length. Use a ruler to measure each one to the nearest cm.

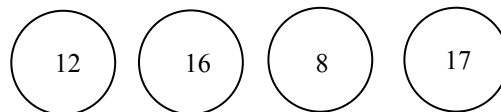
### Shopping Maths

After you have been shopping, choose 6 different items each costing less than £1. Make a price label for each one, e.g. 39p, 78p. Shuffle the labels. Then ask your child to do one or more of these.

- Place the labels in order, starting with the lowest
- Say which price is an odd number and which is an even number
- Add 9p to each price in their head
- Take 20p from each price in their head
- Say which coins to use to pay exactly for them
- Choose any two of the items, and find their total cost
- Work out the change from £1 for each item

### Circle Trios

Draw four circles each on your piece of paper. Write four number between 3 and 18, one in each circle.



- Take turns to roll a dice three times and add the three numbers
- If the total is one of the numbers in your circles then you may cross it out
- The first to cross out all four circles wins

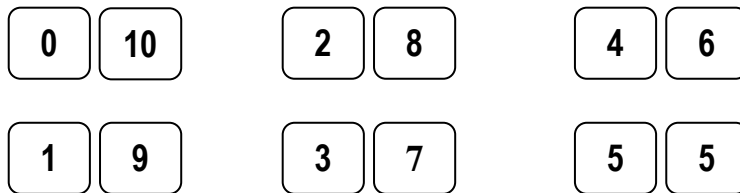
### How much?

- Once a week, tip out the small change from a purse. Count it up with your child.

### Speedy Pairs to 10

Make a set of 12 cards showing the numbers 0 to 10, but with two 5s. If you wish, you could use playing cards.

- Shuffle the cards and give them to your child
- Time how long it takes to find all the pairs to 10



- Repeat later in the week, to see if your child can beat their time

### Guess my shape

- Think of a 2D shape (triangle, circle etc.)
- Ask your child to ask questions to try and guess what it is
- You can only answer yes or no
- See if he/she can guess the shape using fewer than five questions
- Now they choose a shape and you can ask questions

## Board Games

Make a board game like this. The numbers are arranged differently from usual but the game will still work if you use a normal snakes and ladders board.

- Roll a dice twice. Add the two numbers
- Move along that number of spaces. Before you move, you must work out what number you will land on
- If you are wrong, you don't move
- The first to the end of the board wins

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

## Out and about

During a week, look outside for “thirties” numbers, such as 34, or 38. On house doors, number plates etc. How many can you spot? Which is the biggest? Next week look for “fifties” numbers.



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