

# Helping your deaf child to develop maths skills

For parents with a  
5-11 year old



Our vision is of a  
world without barriers  
for every deaf child.

# Introduction

This booklet provides practical ideas to help your child develop some of the important maths skills they will be learning at primary school. It doesn't cover all the areas of maths your child will learn but it will enable you to help your child understand some key aspects of maths.

This booklet is for parents of children aged 5–11. You may wish to read the booklet for children aged 3-4, especially if your child has just turned 5.

There is a lot of information in this booklet, but the key points to remember are:

- give your child lots of opportunities to talk about maths to enable them to develop their language,
- provide opportunities to be creative in play to help develop their maths thinking and understanding,
- ensure that learning is as fun as possible, including through games,
- recognise what your child does well and praise them for it.

Many of the ideas and activities in this booklet can be done with both hearing and deaf children, but deaf children may benefit from spending more time on the activities and doing them more often.

Your child's teacher or Teacher of the Deaf can tell you about how to support your child's learning and what strategies they are using in school.

Don't forget that you can talk to other parents of deaf children about their ideas and experiences around developing their child's maths skills on NDCS's Parent Place forum: [www.ndcs.org.uk/parentplace](http://www.ndcs.org.uk/parentplace).

NDCS uses the word 'deaf' to refer to all levels of hearing loss.

The information in this publication is also suitable for families whose child has **glue ear**.

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# Getting started

Many people think maths is all about understanding numbers and calculations, but understanding language is also very important. This section suggests ways to help your child develop the language they then need to develop their maths skills.

## Why is listening important?

Whether it is the language of maths, English or any other subject, most children pick up language through listening. 'Listening' means to actively pay attention to what you hear – it is not the same as 'hearing'. It is a skill that most children can be actively encouraged to practise.

Hearing children overhear words used by adults and children in the home, on the television, etc. This is called 'incidental learning'. Your child may not be able to do this easily but, where appropriate, you can make sure that you and your home environment are set up to help them to listen and hear more clearly.



## A good listening environment

These tips will help you make your home as easy to communicate in as possible.

- Keep background noise to a minimum (for example, turn off the television when you're not watching it).
- Use soft furnishings such as carpets and curtains to stop sounds echoing.
- Make sure you are close to your child and in their field of vision when you communicate – this helps to improve sound quality, and your face and body will give visual clues. (The range of hearing aids is about three metres in a good listening environment.)
- Think about the light and how it affects communication. Don't sit or stand with your back to the light, as your face will be in shadow.
- Don't sit your child facing the window because they will be looking into bright light. Make sure that people's faces are visible and in good light to help with lipreading and reading facial expressions. If you are supporting your spoken communication with sign language or gesturing, make sure your child can see everyone in the conversation.
- Take turns at speaking so there is only one person speaking at once. You could use a visual clue, such as raising your hand or holding a certain object, to indicate when a person is speaking.

## Using hearing technology

Pay attention to your child's hearing technology to make sure they have the best possible level of hearing. This will help them to experience as much spoken language and communication as possible.

If your child uses hearing aids, you need to check that:

- there is no damage to any part of the hearing aid such as the casing, elbows or tubing,
- there is no buildup of wax in the earmould,
- the tubing is free of condensation (there should be no small drops of water in the tube going into the earmould),
- they are switched on,
- the batteries are working,
- the sound quality is correct (by listening to the hearing aid with a stetoclip).

If your child uses bone anchored hearing aids or cochlear implants, you need to check that:

- there is no damage to the casing,
- wires are not worn or loose in their sockets,
- the batteries are working,
- they are switched on.

Cochlear implants may have a visual indicator to show you that all the parts are working well. The audiologist will show you the best way to check your child's device.

### For more information:

- read NDCS's booklet *Hearing Aids: Information for families*,
- watch NDCS's video How to Use your Hearing Aid Care Kit at [www.ndcs.org.uk/videos](http://www.ndcs.org.uk/videos),
- contact your child's audiologist/Teacher of the Deaf,
- if your child has a cochlear implant, visit the Ear Foundation's Sounding Board: [www.soundingboard.earfoundation.org.uk](http://www.soundingboard.earfoundation.org.uk).



# Developing maths language for primary school

During their early years your child will have been introduced to a wide range of maths vocabulary, which they'll be using in their everyday life without being aware. For example, by the age of five, many children will be able to understand some maths words and phrases, such as bigger than, same as or shorter than.

Children learn most maths language when they are younger, so it is important to pay attention to their language and understanding of the key maths terms in their early years and the first two years of school.

This table shows some of the maths language that teachers will introduce when your child starts primary school. By the end of the first year many of these words will probably be used regularly in class.

These words are not a checklist that you have to work through with your child or force into conversations, but it is useful for you to be aware of them so you can use them naturally in play and everyday activities, such as shopping, cooking and gardening.

## Maths words used in the first year of primary school

|                                       |  |
|---------------------------------------|--|
| <b>Counting</b>                       | Number, 0, 1, 2, 3 to 20 and beyond, 100, none, how many?, count, count (up) to, count on (from, to), count back (from, to), count in 1s, 2s to 10s, more, less, many, few, odd, even, every other, how many times?, pattern, pair, guess how many, estimate, nearly, close to, about the same as, just over, just under, too many, too few, enough, not enough.   |
| <b>Comparing and ordering numbers</b> | The same number as, as many as, 1 more, 10 more, 1 less, 10 less, compare, order, size, 1st, 2nd, 3rd to 10th, last, last but one, before, after, next, between, above, below.<br>Of three or more objects/amounts: what is greatest, most, biggest, largest, least, fewest, smallest? Of two objects/amounts: what is greater, more, larger, bigger, less, fewer, smaller?                                    |
| <b>Adding and subtracting</b>         | Add, more, and make, sum, total, altogether, score, double, 1 more, 2 more, 10 more, how many more to make...?, how many more is... than...?, take (away), leave, how many are left/left over?, how many have gone?, 1 less, 2 less to 10 less, how many fewer is... than...?, difference between, is the same as.   |
| <b>Solving problems</b>               | Pattern, puzzle, answer, right, wrong, what could we try next?, how did you work it out?, count, sort, group, set, match, same, different, list, compare, double, half, halve, pair, count out, share out, left, left over, money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear, costs more, cheap, costs less, cheaper, costs the same as, how much?, how many?, total. |

|  |  |
|--|--|
| <b>Measures (general)</b>                  | Measure, size, compare, guess, estimate, enough, not enough, too much, too little, too many, too few, nearly, close to, about the same as, just over, just under.  |
| <b>Length</b>                              | Length, width, height, depth, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin, longer, shorter, taller, higher, longest, shortest, tallest, highest, far, near, close.  |
| <b>Mass</b>                                | Weigh, weighs, balances, heavy/light, heavier/lighter, heaviest/lightest, balance, weight, scales.   |
| <b>Capacity</b>                            | Full, half full, empty, holds, container.  |
| <b>Time</b>                                | Days of the week, day, week, birthday, holiday, morning, afternoon, evening, night, bedtime, dinner time, playtime, today, yesterday, tomorrow, before, after, next, last, now, soon, early, late, quick, quicker, quickest, quickly, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes less time, hour, o'clock, clock, watch, hands.              |
| <b>Exploring patterns, shape and space</b> | Shape, pattern, flat, curved, straight, round, hollow, solid, corner, face, side, edge, end, sort, make, build, draw.  |
| <b>3D shapes</b>                           | Cube, pyramid, sphere, cone.   |
| <b>2D shapes</b>                           | Circle, triangle, square, rectangle, star.   |
| <b>Patterns and symmetry</b>               | Size, bigger, larger, smaller, symmetrical, pattern, repeating pattern, match.   |
| <b>Position, direction and movement</b>    | Position, over, under, above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, before, after, beside, next to, opposite, apart, between, middle, edge, corner, direction, left, right, up, down, forwards, backwards, sideways, across, close, far, near, along, through, to, from, towards, away from, movement, slide, roll, turn, stretch, bend. |

As your child gets older their school will introduce more maths words. Appendix 1 shows the words your child's teacher may be using by the time your child is 7–10 years. It is a good idea to ask the class teacher if there are any words that your child would benefit from concentrating on at home.

# Developing maths language for primary school

## Helping your child with maths language

This table gives some examples of everyday activities or games that can help your child build and develop an understanding of maths language.

| Ways to support your child  | How to do it   |
|---|--|
| Bring maths into your everyday routine to provide lots of opportunities for using maths language. | <ul style="list-style-type: none"><li>• Look at the different sizes of bowls and spoons used at breakfast – are they large or small? How much cereal is poured in each bowl?</li><li>• Count out the forks and spoons for dinner.</li><li>• Pour water from a jug into four cups.</li><li>• Share six biscuits between two plates.</li><li>• Wrap up a present for a friend’s birthday – is the paper big enough?</li><li>• Tidy up toys into boxes – will they all fit in? If not, what can we do?</li><li>• Talk about the time of day – morning, lunchtime, afternoon, bedtime, etc.</li><li>• Look at the patterns on a pair of socks when putting the laundry away.</li><li>• Look at plants in the home or garden – how much taller is one than another?</li><li>• Look at items you buy when shopping, for example, apples. How many will you buy? How heavy are they? Will you buy the big pack or the small pack?</li><li>• When gardening, ask how many bulbs and seeds will you plant? How deep will you plant them? How far apart? Should you plant them in a row or a pattern? How high will the flowers grow? Which will be the tallest?</li><li>• When travelling, ask how far are you going? How long will it take? When will you get there? How many traffic signals are there? Do you see more or fewer blue cars than red? What is the biggest vehicle you can see?</li></ul> |

|   |  |
|---|--|
| <p>Use open questions instead of questions that can be answered with yes or no – these will encourage and support your child’s problem solving, reasoning and creative thinking in maths.</p> | <p>Instead of asking, “Have we got enough water in the jug to water the plants?” ask, “How much water do we need to water the plants?” and then “Which jug should we use?” and “Why did you choose that jug?”</p>  |
| <p>Look at numbers, patterns and shapes around the home and when out and about.</p>   | <p>Talk about what the numbers mean as a way of giving them meaning. For example:</p> <ul style="list-style-type: none"> <li>• numbers on the remote control,</li> <li>• front door numbers,</li> <li>• numbers on the microwave and timer clock,</li> <li>• page numbers in books,</li> <li>• numbers on the radiators,</li> <li>• circular shapes in the house.</li> </ul> |

## Rhymes, songs and stories

Number and counting rhymes and songs are a good way of helping your child build up their maths language. When they start school children will still enjoy the number songs and stories they experienced when they were three and four so it is important to continue with these. They will also learn new ones that may help with counting backwards and other maths language, such as days of the week.

Your child may need to see or hear the songs and rhymes several times before feeling confident enough to join in so this is something you can practise together.

Different rhymes will use numbers and maths language in different ways, so it can be helpful to learn a mix that may include:

- counting back and counting forward
- no or none (“Ten fat sausages sizzling in the pan...”)
- counting in pairs (“Two, four, six, eight, Mary at the cottage gate”)
- counting to 10 and beyond.

There is a list of number rhymes and songs in the ‘Resources and organisations’ section of this booklet on page 28.

# Helping your child to develop their working memory

A child's working memory affects how easy or difficult they find maths.

Working memory means the ability to hold and use a limited amount of information in our heads for a short amount of time. It can help us solve a particular problem or perform a task, for example, mental arithmetic, using a phone number or following a set of directions. However the amount of information we can hold is limited and the information itself is very unstable – if there is a sudden distraction the information can be lost and you have to start again.

Some deaf children can experience greater difficulty with working memory than hearing children, so it is important that you understand how you can support your child in this area.



These games and exercises can help develop your child's working memory.

| Some challenges your child may face   | Ways to help your child   |
|---|---|
| <b>Focus and concentration.</b>   | Create a quiet play environment with no distractions such as the television. Let your child have short bursts of focused play with breaks when needed. Build this up over time.   |
| <b>Being able to picture things and manipulate the pictures.</b>                      | Give a visual clue – for example, if you are talking about the number 12, ask the child to count out 12 Lego bricks and encourage them to make different patterns for each number (for example, in four rows of three bricks or two rows of six bricks).  |
| <b>Being able to hold two or more ideas, numbers or pictures in the mind at once.</b> | <p>Practise remembering a set of instructions, such as remembering different quantities of two things – for example, three spoons and two forks. Build up your child's working memory by asking them to remember three or more things of different quantities. Ask your child to repeat back to you what you have said.</p> <p>Play a matching pairs game – lay three or four pictures of matching pairs down with the picture facing the table. Take it in turns to turn two over until you have a matching pair. Encourage your child to remember where the different cards are.</p> <p>Play a number guessing game – draw numbers (for example one to eight) on a grid like this:</p> <div data-bbox="927 1384 1139 1599" data-label="Diagram"> <p>The diagram shows a 2x2 grid of squares. A circle is drawn in the center, overlapping the four central squares. The numbers are placed as follows: 4 in the top-left square, 1 in the top-right square, 7 in the top-left square of the circle, 8 in the top-right square of the circle, 3 in the bottom-left square of the circle, 5 in the bottom-right square of the circle, 2 in the bottom-left square, and 6 in the bottom-right square.</p> </div> <p>One person should choose a number and everyone else has to work out what it is by asking questions. Take it in turns to ask questions, such as:</p> <ul style="list-style-type: none"> <li>• Is it in the circle?</li> <li>• Is it below the line?</li> <li>• Is it even?</li> <li>• Is it smaller than six?</li> </ul> <p>It is important for your child to remember the questions that have already been asked and which numbers have been guessed, while thinking of new questions. As children get older, this game can be made more sophisticated by using bigger numbers, adding a second circle or using language such as upper quadrant or right and left.</p> |

# Helping your child to develop their working memory

**Being able to keep one's place in processes such as long division or finding half of a number.**

**For example, working out half of 48 involves a process of splitting the 48 into 40 and 8, and then halving both numbers to 20 and 4, to get 24. Some deaf children may struggle to hold the different numbers in their head at the same time and to keep track of what step of the process they are on.**

Encourage your child to make 'rough working' notes on paper. For example, you could encourage your child to jot down the different processes needed for halving 48 so if they struggle to keep their place, they can check where they are or go back a step.

Draw a picture/diagram of the problem or use blocks or specific maths resources used in schools.

For addition, subtraction, multiplication and division skills, it is important that your child practises a new process once they understand it so they can do it almost automatically. To keep it interesting for your child, you could do time trials where they try to beat their own record.

Your child's teacher or Teacher of the Deaf can give you support and advice on how to help your child develop their working memory and maths language, and overcome any particular difficulties.

## **For more information**

NDCS's *Memory and Learning* resource has been produced for professionals to support deaf children with their working memory. Parents may find it helpful to use some of the exercises within the resource – your child's school or Teacher of the Deaf can advise you on how to do this.

[www.education.ox.ac.uk/ndcs/memory\\_corner.php](http://www.education.ox.ac.uk/ndcs/memory_corner.php)

# Helping your child with numbers

As your child moves through primary school, they will be learning new, more complicated areas of maths. This section highlights areas where some deaf children may experience difficulty and suggests how you can help.

## Tip: Don't give away the answers

If your child is struggling, you may want to tell them the answer. Although this is tempting, giving them the answers won't help them to develop their understanding.

Instead you can ask questions to encourage your child to work it out, for example, what do you think you should do first/next? If their answer is wrong, instead of telling them this, ask what they did to get to that answer, as this could show a basic misunderstanding that could be easily sorted out. Other helpful questions you could ask are:

- why did you choose to do that?
- what could we do differently?
- is there something else we could do to get the right answer?
- what do you think will happen if we try doing it this way?

Once you know your child understands and has grasped the process, encourage them to practise, gradually increasing the difficulty of the task, while making sure it doesn't become too difficult or boring. Remember not to move on to the next level or next skill before your child completely understands the previous one and can do it almost automatically.

## Counting

By the time they are seven most children should be able to count to 20 and then gradually add numbers up to 100. By the end of primary school many children will be able to count up to several thousands and beyond. However, remember that there are always big variations in children's maths levels.

You can help your child by encouraging them to see relationships between numbers and recurring patterns. For example, if your child can count up to 20, it would help them to see the pattern of the numbers if they were shown as follows:

|      |      |      |      |      |   |   |   |   |    |
|------|------|------|------|------|---|---|---|---|----|
| 1    | 2    | 3    | 4    | 5    | 6 | 7 | 8 | 9 | 10 |
| 11   | 12   | 13   | 14   | 15   |   |   |   |   |    |
| 10+1 | 10+2 | 10+3 | 10+4 | 10+5 |   |   |   |   |    |

Ask them whether they can see any relationship between the number in the top box and the number in the box immediately below it. Show them the third line of numbers and how it relates to the number above, for example, 11 is  $10 + 1$ . When they get to 15, ask them to suggest the next number in the top line and the box underneath and what sort of sum would be in the third row.

Next, it is helpful to aim towards creating a '100 square' like the one overleaf. To make sure your child understands it properly, add one row at a time.



# Helping your child with numbers

## 100 square

|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 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 |

You can use this square in many different ways to help your child understand numbers and counting, for example:

- use the far right column to understand counting in 10s
- colour in the squares for counting in:
  - 2s (2, 4, 6, 8, etc.),
  - 3s (3, 6, 9, 12, etc.),
  - 5s (5, 10, 15, 20, etc.)and watch the patterns develop,
- ask your child to close their eyes, put their finger on a number, open their eyes and read the number,
- cover some of the numbers with a counter and ask your child to work out which number is covered,
- turn the square into a snakes and ladders game.

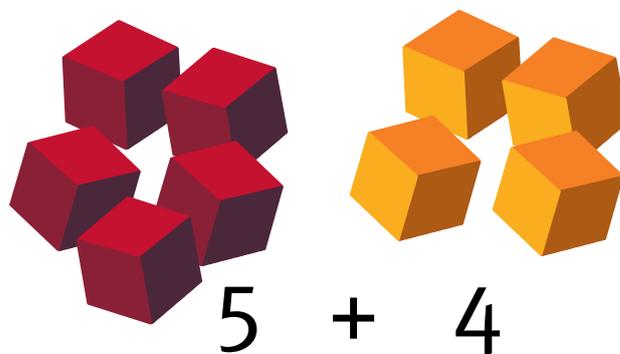
The aim of using the square is to get to a point where your child can count up to 100 very quickly and accurately starting at 1 or at any other number

between 1 and 99. You can practise this at any time of the day, for example, walking to school, in the car or at home.

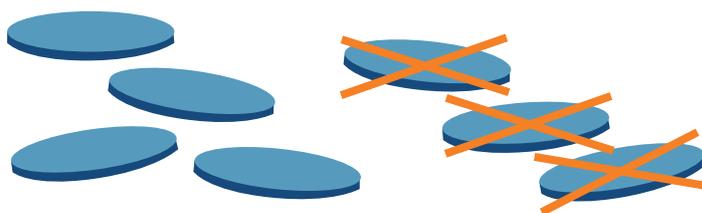
Later your child will be expected to count in 10s, 2s, 3s, etc, and also count backwards. The number square is a good starting point for all these activities.

## Adding and subtracting

By the age of seven many children will be able to undertake simple addition and subtraction in their heads for numbers up to 10. You can help your child with adding by using pictures, marks on paper, counters, toys and games to help them understand the effects of adding and taking away. For example, you could use toy bricks and look at what happens when you add four bricks to five.



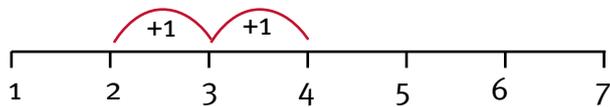
For subtracting you could start with a number of counters and ask how many are left when a certain number of them are taken away. For example, you could show seven minus three as:



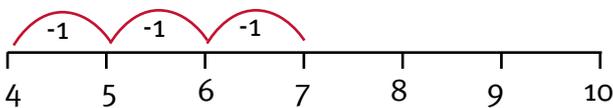
## Number lines

In school, number lines are used to help children understand counting and calculations. You can draw them on paper, download them from websites, buy ready-made ones or your school may give them out.

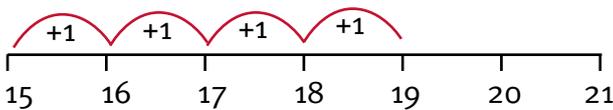
Your child can use the number line to find the answer to  $2+2$  by putting their finger on number two and then counting another two places to arrive at number four.



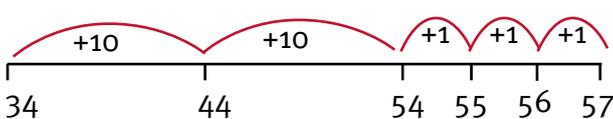
Number lines are also used for subtraction, for example, for  $7-3$ , your child would start on number seven and move three spaces backwards.



As your child gets older, the calculations they do can become more difficult, like the following example of  $15+4 = 19$ .



By the time they are seven, children may be using more complicated number lines that count in units of 10. In the example below, to work out  $34+23$ , the number line jumps from 34 to 44 and then 54 (or two lots of 10 to make 20) and then three units of one to make 57.



As your child gets older they will set out their sums in columns as 10s and units, but it is important to find out from the class teacher how this is being done so that you can practise it in the same way.

## Understanding numbers with more than one digit

It is important that your child understands what each digit or 'numeral' in numbers with more than one digit means, such as 10, 23, 153, 1,000, etc. – this will help their future learning.

For example, with the number 12 they need to understand that the 1 represents 10 units and the 2 represents 2 units:

|   |   |   |   |   |   |   |   |   |    |
|---|---|---|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | 2 |   |   |   |   |   |   |   |    |

or  $12 = 10+2$

This will help children recognise that with the numbers 37 and 45, although the 7 in 37 is a higher number than the 5 in 45, the number 45 is greater than 37. Understanding that in 37 the 3 represents 30, whereas in 45 the digit 4 represents 40, will help them realise this.

As they get older, this knowledge will also help them to understand that in the number 135:

- the 1 represents 10 lots of 10 units ( $10 \times 10 = 100$ )
- the 3 represents 3 lots of 10 units ( $3 \times 10 = 30$ )
- the 5 represents 5 single units ( $5 \times 1 = 5$ )  
or  $135 = 100+30+5$

This understanding is important for doing more complex sums such as:

$$65 + 23$$

represents

$$60 + 5 + 20 + 3$$

so that they can

$$\text{add } 60 + 20 = 80 \text{ and also } 5 + 3 = 8$$

$$\text{and then add } 80 + 8 = 88$$

# Helping your child with numbers

## Helping your child to understand inverse operations

It is useful for children to be able to quickly recall addition and subtraction sums, which is called 'mental arithmetic'. Most children can do this by learning that addition is the opposite or 'inverse' of subtraction. However, some deaf children may find this difficult.

You can help your child to understand this by playing tricks with bricks or counters, like this example.

- 1) Put a group of 8 bricks down and ask your child to count how many bricks are in this group. Then put another group of 6 bricks down and ask your child to count this group too. Ask your child to count all the bricks – it can help if the group of 8 bricks are one colour and the group of 6 are another.
- 2) Repeat the exercise but the other way round by putting the group of 6 bricks down first followed by the group of 8 bricks. Again, ask your child to count each group and then both together.
- 3) Put the 14 bricks together and ask your child to take away 6 and count how many are left.
- 4) Put all the bricks together again and ask your child to take away 8 and count how many are left.

Once you feel they have understood the relationship between these 3 numbers, you can ask them to think of other numbers that add up to 14 (such as  $4+10$ ) and then go through steps 1–3 above to test out this new piece of information. Try giving them a different number of bricks or counters and ask them to make up their own trick.

## Multiplication

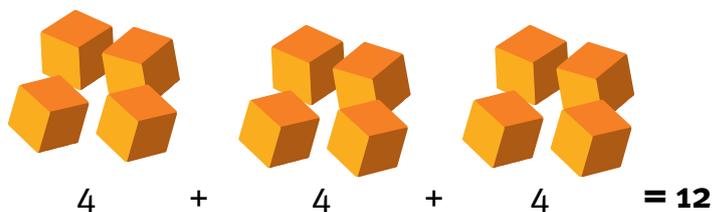
Some deaf children may find it difficult to understand that multiplication is the same as repeated addition. For example:

$3 \times 2 = 6$  is the same as  $2 + 2 + 2 = 6$

In both cases, it is effectively 3 lots of 2.

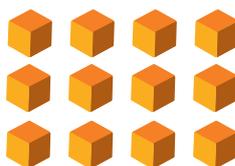
If you have been using a 100 square, your child will have already been introduced to multiplication if they have been counting in 2s or 3s, etc.

You can show that multiplication is repeated additions using bricks or counters. So for the sum  $3 \times 4$  you can ask your child to put 3 groups of 4 bricks together and then count the total number of the 3 groups of bricks together:



You can also arrange the bricks in rows:

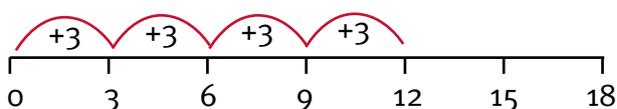
$$3 \times 4 = 12$$



$$4 \times 3 = 12$$



Number lines can also be used. For example,  $4 \times 3$  is 4 jumps of 3 spaces on the number line:



If your child understands multiplication, they will be able to make sense of the times tables that they may be learning from memory.

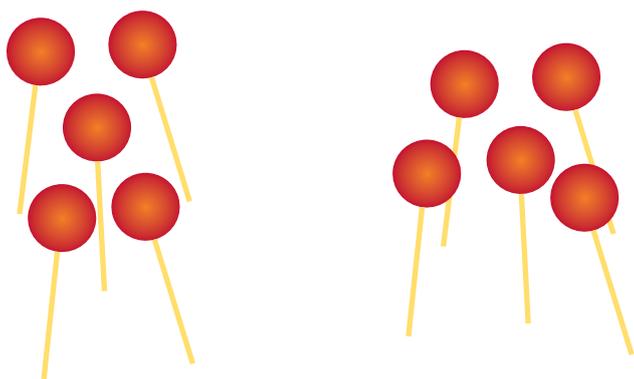
As your child gets older the multiplication they learn will become more complex so using bricks and counters to illustrate it can be difficult. Their school or Teacher of the Deaf can advise on what strategies they are using to teach complicated multiplication. One way to work out sums is to use a grid:

$$23 \times 6$$

|                |              |
|----------------|--------------|
| 20<br>(6 x 20) | 3<br>(6 x 3) |
| =120           | =18          |
| =138           |              |

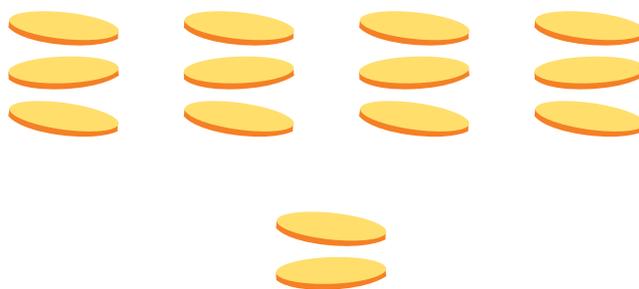
## Division

It can be hard for deaf children to understand that division is the same as grouping or sharing (for example, that  $9 \div 3$  is 9 divided into 3 equal groups or shared between 3 objects or people). Even if they do understand that the principle is the same, you should check that they are familiar with the different terminology and language used. You can help your child to understand this by playing games, such as asking to 'share out' 10 sweets equally between 2 cuddly toys or asking them to put the 10 sweets into 2 'equal groups'.

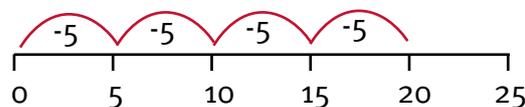


As they get better at doing this you can make the task more difficult, for example, sharing out 16 coins between 4 people or asking how many groups of 4 coins can be made with 12 coins.

Your child will also discover that sometimes sweets or coins can be left over. In the following example, 14 coins have to be shared equally between 4 people leaving 2 left over.



It is likely that at school your child will be using a number line to help them understand that division is the same as repeated subtraction. For example, for the sum  $20 \div 5 = 4$  your child would need to jump back in 5s to 0 – if they count the number of jumps they will get the answer of 4. Your child will learn to understand that it is the number of jumps that gives the answer.



# Helping your child with other areas of maths

## Shapes

By the age of seven, most children should be able to use maths names for common 3D or solid shapes (such as cubes) and 2D or flat shapes (such as triangles) and describe their properties, including their numbers of sides and corners.

You can help your child by explaining the difference between 2D shapes and 3D shapes and by starting to explore different and larger shapes and the different terms used. For 2D shapes, this could involve learning about circles, semicircles, squares, rectangles, triangles and, later on, pentagons, hexagons and octagons. For 3D shapes, you can start with spheres, cubes, prisms and pyramids, and then gradually introduce new shapes.

You can help your child to build up their understanding of different shapes. For example, with 2D shapes you can explain the following points.

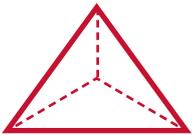
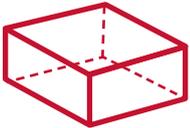
- A circle has one side, but when it is cut in two you have two semicircles each with two sides. If you put two semicircles together you have a circle.
- A triangle has three sides and 'tri' means three (as in tricycle). As they get older, you could explain that there are different types of triangles – some with equal length sides (equilateral), some with two equal length sides (isosceles) and some with sides that are different lengths (scalene). You can also explain to your child that a kite shape is like two triangles put together.
- The differences between a square, rectangle, and other four-sided shapes (known as quadrilaterals).
- An octagon has eight sides, a hexagon has six sides and a pentagon has five sides.

You can encourage your child to identify different shapes when going on walks or out shopping. You could also create and play a board game using two dice, two counters and a board such as the one below. Roll the dice and then put a counter on the shape that has the same number of sides as the number on the dice, for example, if you throw an eight, put the counter on the octagon. If you roll a number for which there is no shape, you can roll again. The first person to cover all the shapes with their counters wins.

|   |  |  |   |
|---|--|--|---|
| Circle<br>            | Semicircle<br> | Equilateral triangle<br> | Hexagon<br>     |
| Scalene triangle<br> | Square<br>    | Rectangle<br>           | Square<br>     |
| Pentagon<br>         | Hexagon<br>    | Octagon<br>             | Semicircle<br> |
| Circle<br>           | Pentagon<br>  | Isosceles triangle<br>  | Octagon<br>    |

As your child learns the four-sided shapes on the board, they could be replaced by other four-sided or quadrilateral shapes, such as rhombus, oblong, kite, parallelogram and trapezium.

A similar game can be played with 3D shapes using the number of sides or faces:

|   |   |   |
|---|---|---|
| Sphere<br>     | Hemisphere<br> | Cone<br>         |
| Cylinder<br> | Prism<br>    | Prism<br>      |
| Cube<br>     | Cuboid<br>   | Octahedron<br> |

As your child gets older other, more complex, shapes can be added, such as tetrahedron, polyhedron and dodecahedron.

## Measurement

Your child can be introduced to quantities and weights in everyday activities, such as cooking, where ingredients can be weighed out, or shopping, where fruit and vegetables can be put on scales at the supermarket. Shopping is also a good way to introduce your child to volume, for example, by encouraging them to compare a litre container of milk with two-litre and four-litre containers. If you are filling a car with petrol you can talk about how many litres it takes to fill the car. Cooking is a good way of introducing smaller quantities such as millilitres. If your child is taking medicine you can talk about the quantity they are taking.



# Helping your child with other areas of maths

## Understanding time

Time is another area where hearing children pick up a lot of information incidentally, so you should make sure your child is aware of and understands 'time' words, such as now, later, soon, tomorrow, yesterday, then, and in a moment.

They may also need your help to learn the days of the week, the seasons and the months of year in the right order, as well as learning the different lengths of the months with rhymes such as "Thirty days hath September".

Many children also learn about the passing of time during a day by realising that some activities usually happen at around the same time, for example getting up, having breakfast and going to school. You should draw your child's attention to this and talk about it. It can also be helpful to make a daily timetable with pictures of different activities happening during the day, initially split into morning and afternoon, and later with actual times attached. This will help to raise your child's awareness of time and they will gradually realise that it is helpful to learn to tell the time.

### Visual weekly diary

NDCS has a free weekly planner that you can use to help your child become more aware of time and everyday activities.



By the time they are five some children may already be interested in learning to tell the time, although they will need to be able to count up to 12 to do so. At first you should focus on helping them tell the time using a clock face or 'analogue' time, and as they get older they can learn about how to tell the time using 'digital' clocks (for example, that quarter to two is 1:45).

These activities can help you explain how to tell the time.

- You and your child could make a clock or buy a practice/toy clock. Start by explaining about the long and short hands and ask them to show you them on clocks you both see. Explain that when the short hand points to a number it tells you what hour of the day it is. You will need to show them that when the long hand is on the number 12 this means o'clock.
- Once your child understands the short hand you can explain about the half hours. To help your child understand this, take a cardboard circle the same size as your clock and cut it in half to show that both halves together form the whole. You can then place the half over your practice clock and explain that when the long hand is on the 6 it means "half past". You can then ask your child to show you when it is half past 2, 5, 11, 7, etc. by moving the short hand to the appropriate number.
- When they are confident with half hours you can introduce the quarters of an hour. Cut a circle into four and label them as quarters. Show your child that two quarters make up half a circle and four quarters make a whole. Place the quarter circle on the clock covering the numbers 1 to 3, explaining that this is a quarter and that when the long hand points to the 3 it is quarter past the hour. By moving the short hand but keeping the long hand on the 3, your child can find quarter past 2, 7, 10, 9, etc.
- Once they understand what quarter past

means, place the quarter of the circle on the clock covering the numbers 9-12. Explain that when the long hand moves to the number 9 it is quarter to the hour. By moving the short hand to just before the numbers of 2, 5, 9, 7 and keeping the long hand on the 9 your child can find quarter to 2, 5, 9, 7, etc.

You can encourage your child to practise these skills by building time into your conversation. For example, tell them you are going to the park at 11 o'clock and ask them what the time is just before you go. You can also play games with cards that have clock faces on and ask your child to place them on the correct place on the playing board, such as the example below:

|   |  |  |
|---|--|--|
| Quarter past 2<br>a.<br> | Half past 4<br>b.<br>   | Quarter to 8<br>c.<br>    |
| Half past 5<br>d.<br>    | Quarter to 10<br>e.<br> | Quarter past 12<br>f.<br> |
| Quarter to 2<br>g.<br>   | Quarter to 9<br>h.<br>  | Quarter past 6<br>i.<br>  |

## Money

All children will eventually need to use money as they become more independent, but until then you can use coins for problem-solving and reasoning activities. For example, two children may each have three coins but if the coins are different then they could have different amounts of money – one may have three pennies and the other may have three pound coins.

You can introduce children to coins in early primary school. You can use play money, but it is useful to use real coins so children get used to their weight and appearance.

One of the most important and challenging aspects of learning about money is equivalent values – for example, understanding that one two-pence coin is equal to two one-penny coins. As your child gets older, the equivalent values you show to them can become more complex, for example, asking them to make up £1.25 in as many different ways as possible. Many children, including some deaf children, will need a lot of practise doing this.

Coins can be used for practise in basic counting, but it's more fun to set up a 'play' shop with your child and take it in turns to be the shopkeeper and customer. This will also introduce your child to the concept of giving and receiving change. As they become older, you can encourage them to use 'their' money in real situations in shops and work out whether or not they have enough money for what they want to buy.

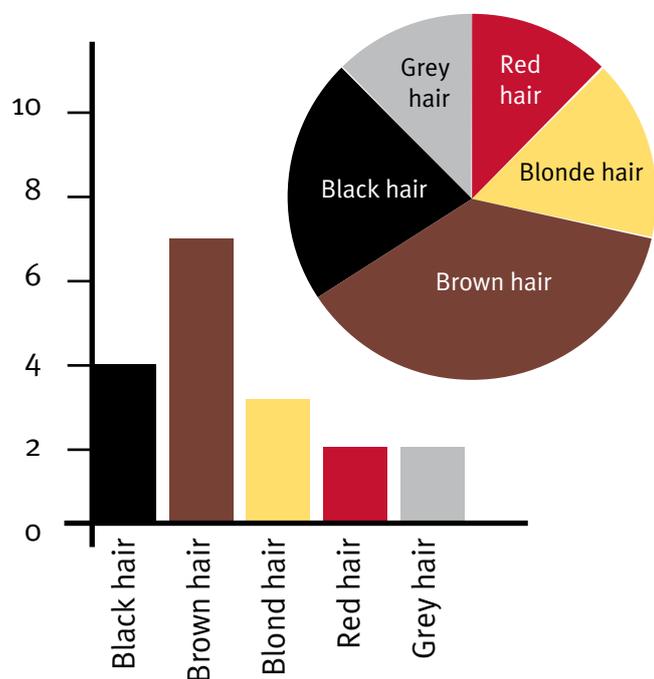
# Helping your child with other areas of maths

## Handling data

By the age of seven, most children should be able to sort objects and classify them by shape and colour to, for example, identify all the blue circles on a table. When they have gathered information, they should be able to record results in simple lists, tables and block graphs, to communicate their findings.

You can help to encourage this by asking your child to do simple tallies of a feature of their family members and friends, like their hair colour.

| Survey of the colour of the hair of my friends and family |               |                        |
|---|---------------|------------------------|
| Colour of hair  | Tally/count   | Total number of people |
| Black hair  | 1,1,1,1,      | 4                      |
| Brown hair  | 1,1,1,1,1,1,1 | 7                      |
| Blonde hair   | 1,1,1,        | 3                      |
| Red hair  | 1,1           | 2                      |
| Grey hair   | 1,1,          | 2                      |



## Problem solving and reasoning

Problem solving is an area that can be difficult for some deaf children as it relies so much on understanding the language of the question and then using language to work out how to get the answer. This is one of the most helpful areas for you and your child to practise together.

It is a good idea to give deaf children ‘story problems’ to solve from a very early age. This stimulates their thinking and gets them familiar with the language being used.

You can start with something simple, such as, “If Tom has two cars and Sanjit has one car, how many cars are there altogether?” Later this could be made more complex, such as, “Tom has three red cars and two blue cars, and Sanjit has two red cars. How many red cars are there? How many blue cars?”



Another way to challenge your child's thinking and reasoning in the early primary years, is to give them 12 cubes (four yellow, four red, four blue) and ask them to put the cubes into groups. First, they may make three groups with the same colour in each group, which is perfectly acceptable, but you should ask them why they put the cubes into these groups and they should be able to give you a reasonable explanation. Next you can ask if they can think of other ways of grouping the cubes.

When giving your child problems to solve, always allow them plenty of time to think through the options and solutions. If they come up with a response that looks incorrect to you, you should try to stop yourself from saying that it is wrong. It is much better to ask a fairly general question, for example "I notice that you have put three cakes on that plate and only two on this plate – why did you decide to do that?" They will usually have good reasons for their actions and their response will often show that they have been thinking about the problem, which is one of the main points of this exercise.



As your child gets older, you will want to give them more complex problems. Deaf children can find problems that are not given in the order in which they happened (or might happen) challenging, such as the following examples.

- Anne bought some oranges, her mother bought four more and she now has six altogether. How many did Anne buy in the beginning?
- The train is leaving the station at 11.00am. It will take 1.5 hours to get to the station from home. At what time will we need to leave home?

Here are some more examples of problem-solving opportunities you can provide for your child.

- Sharing 14 cakes between four plates.
- Building a den using boxes and blankets.
- Wrapping a birthday present with a sheet of paper.
- Which of your teddies is the longest?
- Which toy car can travel the furthest when pushed from a start line?
- How much of each ingredient will you need for the cake if you are doubling/halving the recipe?
- Your comic costs £1.20 and the chocolate bar 70p – you have been given £2.00. Will you have enough money to buy both? If yes, how much change will you get?
- How many more goals has your favourite football team scored compared with the next lower team/the top team/the lowest team in the league?

# Activities and games

Your child, like all others, will like to play and have fun. Communicating with your child during play will help them develop. Play can be a good opportunity to introduce new words and vocabulary. It also helps your child to get to know more about him or herself and the world around them. But remember – the main point of playtime is to have fun!

These tips will help you to make playtime more enjoyable for you and your child.

- Games and activities should be short enough to keep your child's attention so that they can finish what they set out to do.
- Activities should present a challenge, but should not be beyond your child's level of development. If a game is too easy they may get bored, and if it is too hard they may become frustrated and give up.
- Try to play with your child when you are most likely to gain their full attention. It will be difficult for them to enjoy the activity if they are tired, fed up or distracted. It may help if you set aside some time each day to play without interruptions.
- If your child lipreads, take lots of breaks. Lipreading requires a high level of concentration and it can get tiring.
- If you sign with your child, play games and activities that allow your child to maintain eye contact with you as this will make communication easier.
- Give praise throughout the activity and try to end the game or activity on a positive note.

The following games will give you ideas for what to do with your child for playtime. You don't need to play them all but you could pick a few that you think your child would enjoy. At the end of this section there is a table that shows what skills each game helps your child to develop.

## Playing shops

Decide what type of shop you want to create and then collect as many different items for the shop as possible, for example, empty food boxes, toiletries bottles or carrier bags. You could make any type of shop, from a food shop to a shoe shop – they will all involve different areas of maths. Ask your child to help you label each item with its name and a price. Use a tub or a box as a cash register. Try and use real coins, as it is good for children to get used to handling real money, but you can also use other items such as buttons. Have a bag and purse that you or your child can use when you are playing.



## Measuring

This is a simple activity, and you can measure anything, for example, teddies, toys, furniture and garden plants. Measuring things is a good way of introducing size, shape and concepts such as bigger, smaller, longer or shorter. You could draw around your child onto a big piece of paper to make an outline and measure different parts of the body. You can encourage them to estimate before they measure and record the measurements using standard units, for example, centimetres and metres.

## Dominoes

Using the dominoes take it in turns to match the numbers together to make a domino trail.

## **Kim's game**

Put three objects on a tray, ask your child to look at them and then cover them up and take one away. Ask your child to guess which one has gone. You could play the same game but add items instead of taking them away. As your child gets older, add more items to the tray to increase the difficulty of the exercise.

## **Cookery**

Cooking together is a great way for children to learn and have fun as it involves a lot of learning activities such as planning, estimating, measuring and timing, as well as handling the ingredients and cooking utensils. Encourage your child to estimate and measure using the correct standard units of measurements, such as kilograms and grams, and minutes using the clock. As your child gets older you can take a recipe for two people and ask what ingredients they would need to cook it for four or six people. You can ask questions about time, for example, if something takes 40 minutes to bake, what time would it have to be taken out of the oven if it was put in at 10.10am? Once they understand metric weights (grams, kilograms) you can introduce imperial measurements (ounces (oz) and pounds (lbs)).

## **Junk modelling**

Use different old boxes and containers to make models of things that your child is interested in. Talk about the different shape and size of the boxes being used and look at the proportions of the model being made, for example, the size of the legs to the arms if you are making a person. You can download templates (called nets) for making shapes such as cubes, cuboids and prisms from:  
[www.senteacher.org/wk/3dshape.php](http://www.senteacher.org/wk/3dshape.php)  
[www.11plusforparents.co.uk/Maths/shape9.html](http://www.11plusforparents.co.uk/Maths/shape9.html).

## **Building shelters and dens**

Give your child boxes and sheets and show them how to build a den in the garden or home. You can get them to think about whether it will be big enough for them to fit in and use it as a chance to

talk about positional language, such as in, under and behind.

## **Playing school**

If your child likes playing schools, get them to make a class register for their toys and mark them off on the register. Afterwards they can count how many toys are in school today.

## **Sharing**

Get some containers of different sizes and shapes and fill them with water. Let your child explore the different volumes and work out which containers hold the most water. You could give them four cups and a jug of water to share between the cups equally. Do the same with eight biscuits that need to go on four different plates.

## **Height chart and tape measures**

Make your own family height chart and measure family members and friends. You could keep a record of your child's height and look at how they are growing over time. Get your child a tape measure and ruler and encourage them to measure and record the size of different things.

## **Items around the home**

Let your child play with and explore different items that involve numbers, such as tape measures, measuring jugs, weighing scales, timers and digital clocks, etc. They may come up with inventive things to do with them.

## **Sequencing games**

Sequencing games such as putting things in order and looking at what comes before and next can be found online, including at:  
[www.topmarks.co.uk/maths-games/7-11-years/ordering-and-sequencing-numbers](http://www.topmarks.co.uk/maths-games/7-11-years/ordering-and-sequencing-numbers)

[www.bbc.co.uk/bitesize/ks1/maths/number\\_sequences/play](http://www.bbc.co.uk/bitesize/ks1/maths/number_sequences/play)

<http://languageartsgames.4you4free.com/sequencing.html>

# Activities and games

|                                 | Understanding maths language | Developing working memory | Helping solve problems | Numbers and counting | Calculation | Shapes, space and measures |
|---------------------------------|------------------------------|---------------------------|------------------------|----------------------|-------------|----------------------------|
| Cookery                         | ✓                            | ✓                         | ✓                      | ✓                    | ✓           | ✓                          |
| Kim's game                      |                              | ✓                         |                        |                      |             |                            |
| Building shelters and dens      | ✓                            |                           | ✓                      |                      |             | ✓                          |
| Playing shops                   | ✓                            | ✓                         |                        | ✓                    |             | ✓                          |
| Playing school                  |                              | ✓                         |                        |                      |             | ✓                          |
| Dominoes                        | ✓                            |                           |                        | ✓                    |             |                            |
| Measuring                       | ✓                            |                           |                        |                      | ✓           | ✓                          |
| Junk modelling                  | ✓                            |                           | ✓                      |                      |             | ✓                          |
| Height charts and tape measures | ✓                            |                           |                        | ✓                    | ✓           | ✓                          |
| Sharing                         | ✓                            |                           | ✓                      | ✓                    | ✓           |                            |
| Items around the home           | ✓                            |                           | ✓                      | ✓                    |             | ✓                          |
| Sequencing games                |                              |                           | ✓                      | ✓                    |             | ✓                          |

## Board and card games

Board games can also help children to develop different maths skills while having fun. Snakes and Ladders is a good game to start with whilst Battleships is a good game for helping with positioning and learning about coordinates. As your child gets older you could play Monopoly together, which introduces an understanding of money.

Playing card games with a standard pack of playing cards can help to develop maths skills and thinking. You could start with Snap, Old Maid, Go Fish, Animal Noises, My Ship Sails and as your child gets older try more complex games such as Crazy Eights, Pontoon, Knock or Twist and Rummy. These websites give example games:

<http://practicalpages.wordpress.com/2011/09/28/maths-games-with-a-pack-of-cards>  
[www.crewtonramoneshouseofmath.com/math-with-playing-cards.html](http://www.crewtonramoneshouseofmath.com/math-with-playing-cards.html)

## TV programmes and computer games

Your child will enjoy watching many of the maths cartoons and shows that other children of their age are watching. Many young children enjoy watching the same thing over and over again and this can help them to understand the meanings of different ideas. Some deaf children may find it hard to follow what is being said in cartoons, particularly if they rely on lipreading. If so, you can help your child by discussing what's happening on screen with them. As your child gets older, you can also start to introduce your child to subtitles on TV, if you haven't already, so that they can read these.

There are many child-friendly and educational computer games that are suitable for deaf children. Touch-screen, handheld computers, such as iPads, have some great apps that will help your child develop new skills and have fun, including interactive stories, matching games, making cakes, counting, writing numbers and sequencing (some are available from the websites listed on page 28).

At this age, it is particularly helpful if you sit with your child when they are watching a television programme or playing a game or app so that you can discuss it with them and also be aware of any new words that are introduced.

It is also important to check that any games or apps are appropriate for your child and do not rely on sounds that your child may be unable to hear. It may be useful to ask your child's audiologist or Teacher of the Deaf how your child can make best use of their hearing technology when watching television or playing games and apps.



# Resources and organisations

## Websites

There are lots of websites containing ideas and fun activities to help children develop maths skills. Make sure you check the websites as some activities contain sound and your child may need help to work out what to do.

Topmarks:

**[www.topmarks.co.uk/Interactive.aspx?cat=1](http://www.topmarks.co.uk/Interactive.aspx?cat=1)**

Helpful activities and games for Key Stage 1 and Key Stage 2 maths.

Primary Games Arena:

**[www.primarygamesarena.com](http://www.primarygamesarena.com)**

Ideas for activities linked to your child's age (some of the activities link to Skillswise (a site for adults learning basic numeracy skills), which includes video clips that don't have subtitles so you will need to be careful which ones you choose).

Happy Child:

**[www.happychild.org.uk/wks/math/index.htm](http://www.happychild.org.uk/wks/math/index.htm)**

Lots of worksheets to reinforce learning.

Crickweb:

**[www.crickweb.co.uk/ks1numeracy.html](http://www.crickweb.co.uk/ks1numeracy.html)** and  
**[www.crickweb.co.uk/ks2numeracy.html](http://www.crickweb.co.uk/ks2numeracy.html)**

Free online education resources and games.

Maths Games for Early Years:

**[www.comberps.newtownards.ni.sch.uk/maths\\_games\\_for\\_early\\_years.htm](http://www.comberps.newtownards.ni.sch.uk/maths_games_for_early_years.htm)**

A selection of simple games for young children.

Time Monsters:

**[www.timemonsters.com](http://www.timemonsters.com)**

Useful resources for learning to tell the time.

## Number rhymes and songs

These rhymes and songs all involve counting and numbers; you can look the words up at:

**[www.nurseryrhymes.org](http://www.nurseryrhymes.org)**.

- Ten in the bed
- Five little speckled frogs
- Five little ducks
- Five current buns
- One, two, buckle my shoe
- One potato, two potatoes
- Five little monkeys jumping on the bed
- Round and round the garden
- Five little men in a flying saucer
- One, two, three, four, five, once I caught a fish alive
- Ten green bottles
- Ten fat sausages sizzling in the pan

Download pictures of counting rhymes that your child can colour in from Netmums at:

**[www.netmums.com/activities/pictures-to-print/number-rhymes-to-print-and-colour-in](http://www.netmums.com/activities/pictures-to-print/number-rhymes-to-print-and-colour-in)**

The National Deaf Children's Society (NDCS) has a range of publications and resources, including a series of booklets that can help your child develop language and early literacy skills.

Sign up for free membership to order all our resources for free:

- online at [www.ndcs.org.uk](http://www.ndcs.org.uk)
- by phoning NDCS's Freephone Helpline on 0808 800 8880 (voice and text)
- by emailing [helpline@ndcs.org.uk](mailto:helpline@ndcs.org.uk).

NDCS's Family Sign Language website is for families of deaf children who want to use British Sign Language. It teaches the signs and phrases needed for nursery rhymes, stories and playing make-believe games as well as the tools for practical communication about important topics, such as food and sleeping.

Find out more at:

[www.familysignlanguage.org.uk](http://www.familysignlanguage.org.uk)

These organisations give information about resources suitable for deaf children. Don't forget that you can make your own free and fun games and activities at home that can be equally enjoyable.

### **Auditory Verbal UK**

A national charity providing auditory verbal services including intensive, family-based support to enable babies and young children who are deaf to listen and talk.

Tel: 01869 321429

[info@avuk.org](mailto:info@avuk.org)

[www.avuk.org](http://www.avuk.org)

### **Cued Speech**

A national charity that provides information, advice, courses and learning materials about cued speech.

Tel: 01803 832784

[info@cuedspeech.co.uk](mailto:info@cuedspeech.co.uk)

[www.cuedspeech.co.uk](http://www.cuedspeech.co.uk)

### **DELTA: Deaf Education through Listening and Talking**

A national charity supporting deaf children and their families who wish to follow an auditory route. It provides information, publications and an annual summer school for families.

Tel: 0845 1081 437

[enquires@deafeducation.org.uk](mailto:enquires@deafeducation.org.uk)

[www.deafeducation.org.uk](http://www.deafeducation.org.uk)

### **The Ear Foundation**

A national charity that supports people with cochlear implants or bone anchored hearing aids. It runs parent, family and professional courses, and produces publications about communication and language that parents of all deaf children will find helpful. Parents can visit the Sounding Board ([www.soundingboard.earfoundation.org.uk](http://www.soundingboard.earfoundation.org.uk)) to ask questions about cochlear implants.

Tel: 0115 942 1985

[info@earfoundation.org.uk](mailto:info@earfoundation.org.uk)

[www.earfoundation.org.uk](http://www.earfoundation.org.uk)

### **The Elizabeth Foundation**

A national charity that supports deaf babies, young children and pre-school children and their families and provides a home learning course for pre-school children.

Tel: 0203 9237 2735

[info@elizabeth-foundation.org](mailto:info@elizabeth-foundation.org)

[www.elizabeth-foundation.org](http://www.elizabeth-foundation.org)

# Useful resources and organisations

## **Ewing Foundation**

A national charity promoting inclusion and achievement of deaf children through listening and speaking.

Tel: 07879 425397

[www.ewing-foundation.org.uk](http://www.ewing-foundation.org.uk)

## **Forest Books**

Forest Books sells books and other resources about deafness and deaf issues. It has books, videos and CD-roms suitable for deaf children, and resources for people learning sign language.

Tel: 01594 833 858 (voice and text)

Fax: 01594 833 446

[forest@forestbooks.com](mailto:forest@forestbooks.com)

[www.forestbooks.com](http://www.forestbooks.com)

## **Orchard Toys**

Orchard Toys sells games and toys online and in most toyshops.

[www.orchardtoys.com](http://www.orchardtoys.com)

## **Signed Stories**

Signed Stories is an ITV website designed primarily for deaf children, although hearing children will enjoy it too. It is a fun, busy website with subtitles and sign language, which encourages children to explore and offers easy access to a wide range of British books.

[www.signedstories.com](http://www.signedstories.com)

## **Smart Play Network (Scotland)**

Smart Play Network is the support organisation for toy libraries and play resource projects in Scotland.

Tel: 0131 664 2746

[www.smartplaynetwork.org](http://www.smartplaynetwork.org)

## **Stories in the Air CD-rom**

This CD-rom teaches 120 basic British Sign Language signs and is divided by topic.

[contact@learnbsl.org](mailto:contact@learnbsl.org)

[www.learnbsl.org](http://www.learnbsl.org)

# Appendix 1: Maths language used in primary schools

Some deaf children may not do well at maths in school because they don't fully understand some of the maths language used.

Pages 32 and 33 contain a list of some of the maths language introduced to children in their first year in primary school, at around five years old. The list below outlines the maths language that many children are expected to use by the time they are seven/eight (at the end of infant school) and by the time they are 11 years (final year of primary school).

These words are not a checklist that you have to work through with your child or force into conversations, but it is useful for you to be aware of them so you can use them naturally in play and everyday activities, such as shopping, cooking, gardening, etc.

Your child's teacher can advise you on whether there are any particular areas where extra practice at home may be helpful.

| Maths language used in primary school for seven/eight and 11 year olds (end of primary school) |  |
|--|--|
| Counting at age seven/eight  | 100, 200 to 1,000, count in 1s, 2s, 3s, 4s, 5s, etc., count in 10s, 100s, multiple of, sequence, continue, predict, rule.  |
| Comparing and ordering numbers by age seven/eight  | Units, 1s, 10s, 100s, digit, 1-, 2- or 3-digit number, 'teens' number, place, place value, stands for, represents, exchange, equal to, 1 more, 10 more, 100 more, 1 less, 10 less, 100 less, 10 <sup>th</sup> to 20 <sup>th</sup> , 21 <sup>st</sup> , 22 <sup>nd</sup> , half way between.  |
| Comparing and ordering numbers by the end of primary school                                    | 1,000s, 10,000, 100,000, million, 4-digit number, numeral, place, place value, the same number as, as many as.<br><br>Of two objects/amounts: $\rightarrow$ , greater than, more than, larger than, bigger than, $\leftarrow$ , less than, fewer than, smaller than, $\rightarrow$ , greater than or equal to, $\leftarrow$ , less than or equal to.<br><br>Of three or more objects/amounts: greatest, most, largest, biggest, least, fewest, smallest.<br><br>1 to 10 to 100 to 1,000 more/less, compare, order, size ascending/descending order, last, last but one, is approximately equal to, round (up or down), nearest, round to the nearest 10/100/1,000, integer, positive, negative above/below 0, minus. |
| Calculation: adding and subtractions by age seven/eight  | +, addition, plus, near, double, -, subtract, minus, 100 less, half, halve, =, equals, sign.   |
| Calculation: multiplication and division by age seven/eight                                    | Lots of, groups of, x, times, multiplication, multiply, multiplied by, multiple of, once, twice, 3 times, 4 times, 5 times to 10 times, ... times as (big, long, wide, etc.), repeated addition, row, column, double, halve, share, share equally, 1 each, 2 each, 3 each, group in pairs, 3s to 10s, equal groups of, $\div$ , divide, division, divided by, divided into, left, left over, remainder.  |

# Appendix 1: Maths language used in primary schools

|   |  |
|---|--|
| Calculation by the end of primary school                | Increase, how many more to make...?, subtraction, minus, decrease, leave, how much more/less is...? 10s boundary, 100s boundary, units boundary, tenths boundary, inverse, array, factor, quotient, divisible by.  |
| Estimating by age seven/eight                           | Guess how many, estimate, nearly, roughly, close to, approximate, approximately, about the same as, just over, just under, exact, exactly, too many, too few, enough, not enough, round (up or down), nearest (round to the nearest 10).   |
| Fractions at age seven/eight                            | Part, equal parts, fraction, 1 whole, 1 half, 2 halves, 1 quarter, $\frac{2}{3}$ / $\frac{4}{4}$ quarters, $\frac{1}{3}$ , $\frac{2}{3}$ , $\frac{1}{10}$ .  |
| Fractions and decimals by the end of primary school     | Proper/improper fraction, mixed number, numerator, denominator, equivalent, reduced to, cancel, 1 whole, half, quarter, 8th, 3rd, 6th, 9th, 12th, 5th, 10th, 20th, 100th, 1,000th, proportion, ratio, in every, for every, to every, as many as, decimal, decimal fraction, decimal point, decimal place, percentage, per cent, %. |
| Solving problems and money by age seven/eight           | Calculate, calculation, mental calculation, method, jotting, answer, correct, number sentence, sign, operation, symbol, equation, note (£), price, cost, sold, more/most expensive, less/least expensive, value, worth.  |
| Solving problems and money by the end of primary school | Strategy, number sentence, sign, operation, symbol, equation, change, discount, profit, loss, currency.  |
| Handling data by age seven/eight                        | Count, tally, sort, vote, graph, block graph, pictogram, represent, group, set, list, chart, bar chart, table, frequency table, Carroll diagram, Venn diagram, label, title, axis, axes, diagram, most popular, most common, least popular, least common.  |
| Handling data by the end of primary school              | Survey, questionnaire, data, database, mode, range, mean, average, median, statistics, distribution, maximum/minimum value, classify, outcome.   |
| Measures by age seven/eight                             | Measuring scale, division, approximately.  |
| Measures by the end of primary school                   | Unit, standard unit, metric unit, imperial unit.   |
| Length by age seven/eight                               | Further, furthest, distance apart/between... to... from, kilometre (km), metre (m), centimetre (cm), mile, ruler, metre stick, tape measure.   |
| Length by the end of primary school                     | Circumference, millimetre (mm), mile, yard, feet, foot, inches, inch, compasses.   |
| Mass by age seven/eight                                 | Kilogram (kg), half-kilogram, gram (g).  |

|   |  |
|---|--|
| Mass by the end of primary school                                       | Tonne/ton, pound, ounce, balance, scales.  |
| Capacity by age seven/eight   | Capacity, contains, litre (l), half-litre, millilitre (ml), container.   |
| Capacity by the end of primary school                                   | Centilitre (cl), millilitre (ml), pint, gallon container, measuring cylinder.  |
| Time by age seven/eight   | Time, months of the year, seasons, fortnight, month, year, century, weekend, calendar, date, midnight, am, pm, earliest, latest, how long ago?, how long will it be to...?, how long will it take to...?, hour, minute, second, o'clock, half past, quarter to, quarter past, clock, watch, hands, digital/analogue clock/watch, timer, how often?, always, never, often, sometimes, usually, once, twice. |
| Time by the end of primary school                                       | Leap year, century, millennium, timetable, arrive, depart, 24-hour clock, 12-hour clock, Greenwich Mean Time, British Summer Time, International Date Line.  |
| Exploring patterns, shape and space by age seven/eight                  | Point, pointed, surface, right-angled, vertex, vertices, layer, diagram.   |
| Exploring patterns, shape and space by the final year at primary school | Construct, draw, sketch, centre, radius, diameter, circumference, concentric, arc, congruent, intersecting, intersection, plane, base, square-based, layer, diagram, regular, irregular, concave, convex, open, closed, tangram.   |
| Shapes by age seven/eight   | 3D shapes: cuboid, hemi-sphere, cylinder, prism.<br>2D shapes: circular, semicircle, triangular, rectangular, pentagon, pentagonal, hexagon, hexagonal, octagon, octagonal, quadrilateral.   |
| Shapes by the end of primary school                                     | 3D: tetrahedron, polyhedron, octahedron, dodecahedron.<br>2D: equilateral triangle, isosceles triangle, scalene triangle, rhombus, oblong, heptagon, polygon, quadrilateral, kite, parallelogram, trapezium.   |
| Patterns and symmetry by age seven/eight                                | Line of symmetry, fold, match, mirror line, reflection.  |
| Position, direction and movement by age seven/eight                     | Underneath, before, after, centre, ascend, descend, grid, row, column, clockwise, anticlockwise, compass point, north, south, east, west, (N, S, E, W), horizontal, vertical, diagonal, whole turn, half turn, quarter turn, angle, ...is a greater/smaller angle than right angle, straight line, stretch, bend.  |
| Position, direction and movement by the end of primary school           | Journey, route, map, plan, grid, row, column, origin, coordinates, parallel, perpendicular, x-axis, y-axis, quadrant, rotate, rotation, right angle, acute, obtuse, reflex, degree, set square, angle measurer, compasses, protractor.   |

# Notes

A series of horizontal dotted lines for writing notes.

**NDCS provides the following services through our membership scheme. Registration is simple, fast and free to parents and carers of deaf children and professionals working with them. Contact the Freephone Helpline (see below) or register through [www.ndcs.org.uk](http://www.ndcs.org.uk)**

- A Freephone Helpline 0808 800 8880 (voice and text) offering clear, balanced information on many issues relating to childhood deafness, including schooling and communication options.
- A range of publications for parents and professionals on areas such as audiology, parenting and financial support.
- A website at [www.ndcs.org.uk](http://www.ndcs.org.uk) with regularly updated information on all aspects of childhood deafness and access to all NDCS publications.
- A team of family officers who provide information and local support for families of deaf children across the UK.
- Specialist information, advice and support (including representation at hearings if needed) from one of our appeals advisers in relation to the following types of tribunal appeals: education (including disability discrimination, special educational needs (SEN) and, in Scotland, Additional Support for Learning (ASL)); and benefits.
- An audiologist and technology team to provide information about deafness and equipment that may help deaf children.
- Technology Test Drive – an equipment loan service that enables deaf children to try out equipment at home or school
- Family weekends and special events for families of deaf children.
- Sports, arts and outdoor activities for deaf children and young people.
- A quarterly magazine and regular email updates.
- An online forum for parents and carers to share their experiences, at [www.ndcs.org.uk/parentplace](http://www.ndcs.org.uk/parentplace).
- A website for deaf children and young people to get information, share their experiences and have fun [www.buzz.org.uk](http://www.buzz.org.uk).

**NDCS is the leading charity dedicated to creating a world without barriers for deaf children and young people.**

**NDCS Freephone Helpline:  
0808 800 8880 (voice and text)**

**Email: [helpline@ndcs.org.uk](mailto:helpline@ndcs.org.uk)**

**[www.ndcs.org.uk](http://www.ndcs.org.uk)**

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