

With older children, see who can find the largest number.

- Give children a small bag in which to collect five interesting things, such as a conker, a leaf, a stone, a feather and a twig, then talk about them when the collection is complete.
- Play 'I spy' using descriptions instead of an initial letter, for example, 'I spy with my little eye something that is small and very smooth' or 'long and prickly'.
- Compare two shopping bags to find out which is heavier.

### Maths ideas for rainy days

These activities help children learn about numbers:

- playing with a calculator
- using their own footprints cut out from newspaper to make a trail to the front door
- counting fingers, toes, eyes and noses, socks and shoes
- making a number bundle by stapling or tying together five small re-sealable sandwich bags and, with help, putting one object in the first bag, two objects in the second bag, and so on
- making a birthday card for a friend and writing the number of their birthday on the card
- cutting out numbers in magazines and catalogues, looking for page numbers in books.

- playing card games such as Snap
- sorting out and playing a game of dominoes
- using a dice to play board games, such as Snakes and Ladders
- playing skittle games and keeping score.

These activities will help children learn about shapes and measures (all suitable for pre-school children):

- hiding a small toy in a box of shredded paper and then finding it again
- using empty food packets and boxes to build a castle
- wrapping up pretend presents and sometimes real ones too
- sorting out and playing with a bagful of zips
- filling up small boxes with objects
- rolling out left-over dough
- reflecting things using a hand mirror
- filling up cups with small spoonfuls of whisked-up bubble-bath liquid
- playing making shapes with a light from a torch
- lining up small cars or plastic figures across the table
- dropping small stones in a plastic water jug to make the water level rise
- helping to read a recipe and weighing out the ingredients.

## Maths is everywhere

### Useful publications

Association of Teachers of Mathematics (2003) *Young children learning mathematics*, Derby: Association of Teachers of Mathematics (01332 346599).

Basic Skills Agency (2002) *Count and figure it out together*, London: Basic Skills Agency (020 7405 4017).

BEAM Education (1999) *Maths together*, London: Walker Books, available from BEAM Education (020 7684 3323).

Carole Skinner (2002) *More than numbers: children developing mathematical thinking*, London: Early Education.

### Useful contacts

**Basic Skills Agency** aims to raise standards of reading, writing and maths. Offers courses for children and adults across England and Wales, and produces useful publications (020 7405 4017; [www.basic-skills.co.uk](http://www.basic-skills.co.uk)).

**CBeebies website** – many of the activities and games on this excellent website help to extend young children's experience of maths. Visit it at [www.bbc.co.uk/cbeebies](http://www.bbc.co.uk/cbeebies).

**Early Childhood Maths Group** promotes high-quality maths education for nursery and reception children. It is funded by the Association of Teachers of Mathematics ([www.atm.org.uk](http://www.atm.org.uk)).

**Sesame Street website** – like the CBeebies website, this is a good place to find maths games and activities online. Visit it at <http://pbskids.org/sesame>

**Carole Skinner** and **Sheila Ebbutt** are both experienced early years and primary teachers and are founder members of the Early Childhood Mathematics Group. They have written about young children understanding maths for a wide range of magazines and book publishers. They now work together at BEAM Education which is dedicated to promoting the teaching and learning of mathematics as interesting, challenging and enjoyable.



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### Early Education

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### Learning together series

The *Learning together* series of leaflets aims to help parents and other caring adults understand children's development, play an active part in their learning and enjoy the children they spend time with. The leaflets cover a wide range of topics, including life with babies and toddlers, children's behaviour, being outdoors, drawing and writing, reading, maths, ICT and equality – and more. The leaflets are available free of cost or can be downloaded from the Early Education website. For more details, or to order leaflets, contact Early Education.

Photo **Helen Tovey**

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## Maths is everywhere

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## How to help children learn

- **Try to see things from their point of view.** Understanding how children see the world will help you to help them as they learn.
- **Let children be children.** A skilled five year old grows from a busy four year old, a curious three year old, a cuddled two year old, an adventurous one year old and a communicative baby.
- **Be a playful companion.** You can enjoy childhood with the children as well.
- **Feelings matter** – both the children's emotions and your own are part of any situation with young children. It is very helpful to be aware of your own moods as well as the children's when enjoying yourself with them and during difficult moments.
- **Don't expect to be perfect.** Everyone does something they don't mean sometimes. Children can be forgiving as long as we are thoughtful most of the time and are ready to say sorry when we should.

It's true, maths really is everywhere, and learning about it doesn't happen just at school or nursery. Young children have lots of important mathematical experiences every day and there are lots of ways to help them begin to develop their mathematical skills.

We all use maths many times a day. Numbers and shapes, measuring and solving problems are all needed for simple tasks like measuring out washing powder, making the right number of sandwiches for lunch or cutting a cake in equal portions.

Young children need help to understand what maths is used for and you can do this by talking about the maths you use in your day-to-day routine. Show children how numbers, size, shape and pattern are important in your life by doing things like:

- checking with them the bus number as it arrives
- reading aloud the quantities printed on boxes and tins of food

- pointing out the numbers on the clock
- counting out the money at the check-out
- finding the TV channel on the remote control together
- talking about how things fit and tidying away toys into boxes.

Use everyday maths words. Children may not understand all the maths you use, but they can get to know maths words and numbers. If your family speaks several languages together, encourage the children to learn to count in all of those languages. This will help their understanding about number. Children who are confident with counting get off to a good start in maths.

### How do children learn maths?

All parents and carers of small babies know that singing songs and playing at finger rhymes and games quickly grabs their interest. The repetition in these rhymes means that even

quite young toddlers soon pick up the words and will join in the chorus with you as they begin to get a feel for a pattern. In finger plays, where you wriggle fingers or toes, babies learn that one movement matches one sound.

Babies from as young as four to five months love playing peek-a-boo. If you count '1, 2, 3, boo!' they begin to remember the sequence of word sounds and know when the 'boo!' is coming, so will laugh in anticipation.

You can see toddlers' skill with maths develop when they concentrate on a sorting task, perhaps when playing with the fridge magnets. They organise the magnets as they count, rearrange and recount them or sort them into lines.

When children start school the games they play become more complicated, involving rules, dice and cards. And while playing these games – whether Snakes and Ladders, Snap or Happy Families – children are learning valuable maths skills such as adding up and reading numbers.

### Maths learning at different stages

Here is a rough guide to the age at which children learn particular maths skills. Remember that different children develop at different rates and that some learn maths in a different order.

#### Babies and toddlers

Babies learn first about the space they are in. Then they learn about the order of events and begin to predict what will happen next. They also start to hear and use number names.

From 18 months onwards,

most toddlers will be learning:

- some number words
- their birthday number: 'I'm 2'
- pairs of shoes
- the sequence '1, 2, 3' linked to something they can see
- how to sort out similar objects
- some position words, such as, 'in', 'on top', 'behind'
- how to build with four to six blocks
- how to post shapes.

#### Children age three to four

Children slowly understand more about numbers, shapes and measurement. They may be able to say the numbers up to nearly 20, but only be able to count a small number of objects. Children need plenty of practical experiences to link what they can see, hear and feel with the idea of using numbers. So, at this time children will be learning to:

- say '1, 2, 3, 4'... up to 20
- count up to 10 objects, put them in different patterns and count again
- recognise the written numbers 1, 2, 3, 4... up to 9
- use words to compare things, such as more, less, greater, smaller
- make simple patterns and talk about them
- name shapes such as a circle, square, triangle
- use words to describe where things are, such as over, under, next to.

#### Up to age eight

During their first few years at school, children learn to count up to the hundreds, add and take away, talk about shapes and use measures. They still need to handle things so that the maths is

real and makes sense to them. By about the age of seven to eight they will be learning to:

- count to, read and write numbers up to 100
- count forwards and backwards in ones or tens from two-digit numbers
- add and take away numbers less than 10 in their head
- double and halve small numbers (such as double 9 is 18, and half of 18 is 9)
- find the value of a handful of coins up to £1
- measure and weigh using metres and centimetres, kilograms and litres
- tell the time to half and quarter past or to the hour
- name and describe common shapes.

### Helping children learn their maths skills

Here are lots of ideas for encouraging children to learn more about maths. Each list is arranged roughly in age order, starting with ideas that will work for toddlers. Most ideas are good for children under five, though some of the later ideas are best for school-age children.

#### Maths around the house

- Stand in front of the mirror together. Do an action like putting your finger on your nose and then say what you are doing. Ask your child to follow you. Try out lots of different actions, such as touching the top of your head or scratching behind your ear.
- Talk about which order to get dressed in, and which items to put on first, next and last.
- Sort out clothes to see which

- ones are the right size and which are too big or too small.
- Match pairs of things: shoes, socks, gloves, buttons and button-holes.
- In the bath, use plastic tubs and ducks or small toys. Count how many toys will make the boat sink. Drop some coins in the bath, and see how many the children can find.
- Have a toy clock next to a real clock. Say that the child can get up when the hands on the real clock match the hands on the toy clock. This can be a game played at any time of day or be used to help children work out whether or not it is their real 'getting-up time'.

#### Maths outdoors

- Create an obstacle course outside: large boxes to climb into and through, a board to balance along, a blanket to hide behind, and so on.
- Look for numbers as you are walking along the street together. You could see how many of a particular number you can spy, such as the number 2 (on a bus, on advertising hoardings, on front doors); or look for numbers in order – first 1, then 2, then 3, and so on.

