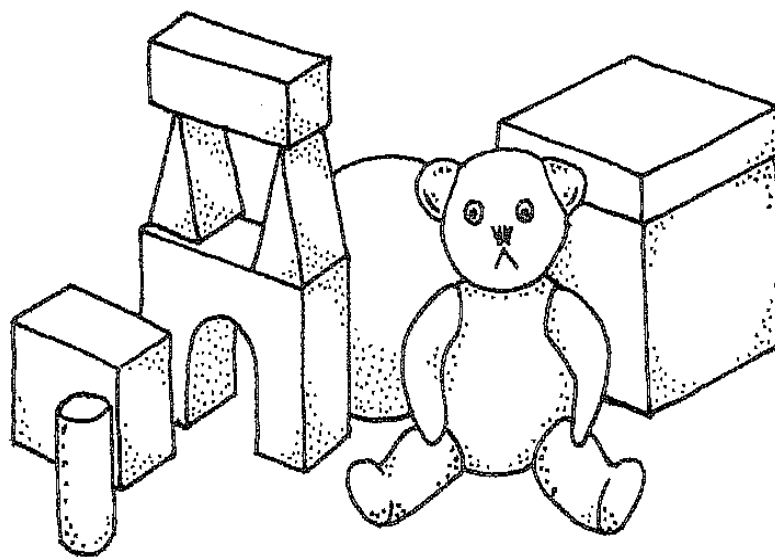
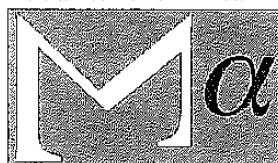


Pre-School Mathematics

Advice for parents and carers
of pre-school children



MATHEMATICAL ASSOCIATION



supporting mathematics in education

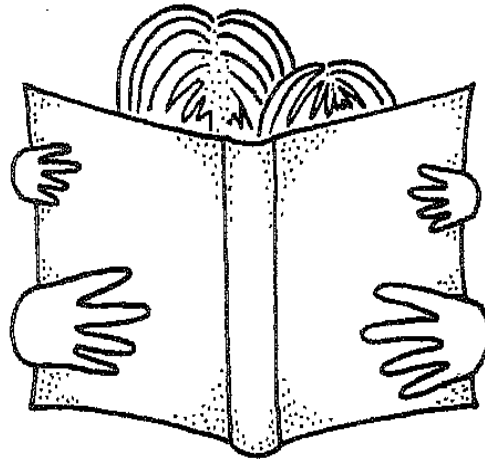
The Mathematical Association

Introduction

Mathematics surrounds a child from the earliest age and they need to make sense of the world into which they have been born.

Children need adults to help them maximise the experiences of their daily lives by:

- a providing information and explanations
- b encouraging questioning by the child
- c developing confidence to ask if they are unsure
- d encouraging the child to think independently
- e providing attainable and challenging experiences
 - too hard and they become distressed
 - too easy and they become bored



Parents and carers are ideally placed to provide individual attention to maximise early experiences, by talking, playing, listening to and interacting with their child in a variety of situations.

This information booklet is intended to highlight mathematics in everyday situations and how such situations could be used to develop a child's mathematical understanding. If you wish to pursue this, there is a list of books that develop the ideas at the end of the booklet.

Language of Mathematics

In the early days talking to your child is important to help them learn the language of mathematics. Counting will need to be repeated, concentrating on one, two, three, at first. Children will need to count and associate each number with an object (1 to 1 matching). They will need to do this in many situations before they can carry it out successfully. Even adults make mistakes! Children also need to find the answer 'How many are there?'

It takes time and many experiences of this before they will be able to count and give the answer. Another skill to be learned is the conservation of number, i.e. 4 cups are still 4 cups, no matter how they are arranged.

The English language is often confusing because some words have the same sound and have more than one meaning. For example, 'to', 'two' and 'too' sound the same to a child but have a variety of meanings. 'Third' can mean the order of something or it can mean a fraction. 'Big' can be used to indicate size or maturity, e.g. 'What a big boy/girl you are!' could mean they have grown in size or that they have dealt with a situation in a mature way. 'Tall' is often misused instead of 'high'.

It is vitally important that mathematical language is used accurately. We need to listen carefully to children to discover their understanding of language and to provide alternative experiences, if necessary, to clarify mathematics for them.

Mathematics uses a wide ranging vocabulary – here is just a short selection to start you off:

big, bigger	small, smaller
more, less	a few, a lot
up, down	high, low
back, front	middle, in between
first, last	over, under
on top, underneath	higher, lower
fast, slow	before, after, now
tall, taller	short, shorter
heavy, heavier	light, lighter
wide, narrow	straight, curvy

BIGGER

Straight

On Top

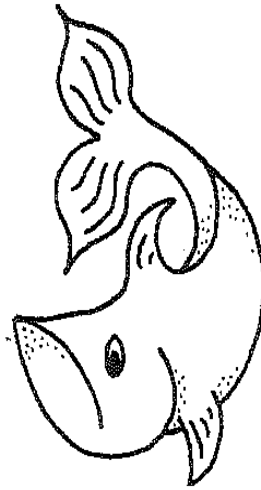
Underneath

Curvy
BIG
TALL
TALLER

Rhymes and stories are a rich source of mathematical language, and allow children to delight in repetition which also plays an important part in learning:

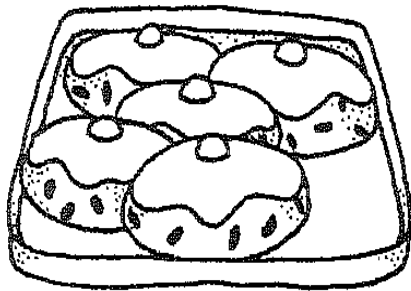
1, 2, 3, 4, 5

1, 2, 3, 4, 5, once I caught a fish alive,
6, 7, 8, 9, 10, then I let it go again,
Why did you let it go?
Because it bit my finger so.
Which finger did it bite?
This little finger on my right.

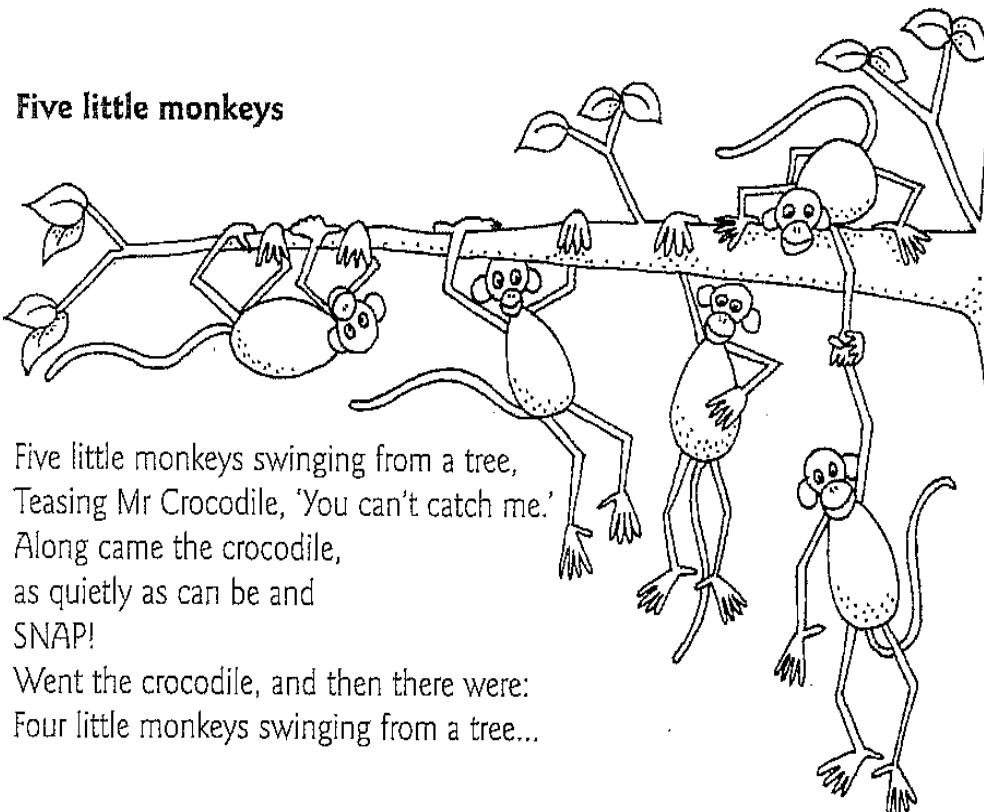


Five Currant Buns

Five currant buns in a baker's shop,
Round and fat with a cherry on the top.
Along came (choose a child),
With a penny one day.
Bought a currant bun and took it away.
Four currant buns in a bakers shop...



Five little monkeys



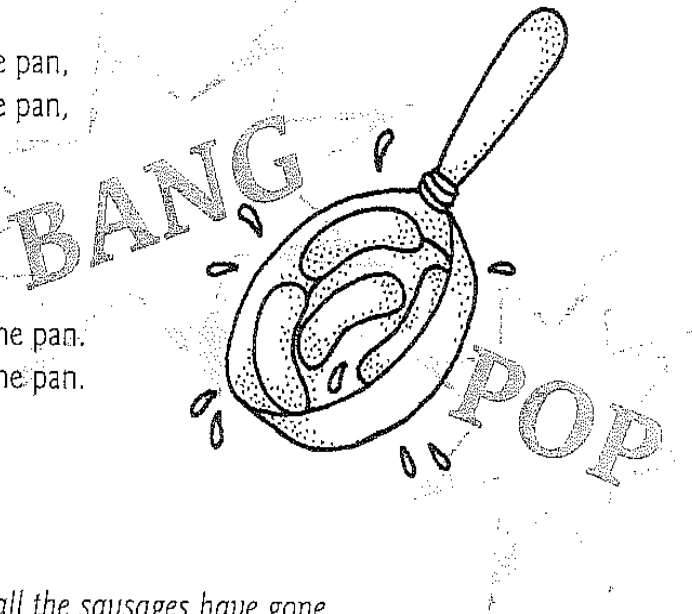
Five little monkeys swinging from a tree,
Teasing Mr Crocodile, 'You can't catch me.'
Along came the crocodile,
as quietly as can be and
SNAP!
Went the crocodile, and then there were:
Four little monkeys swinging from a tree...

Ten Fat Sausages

Ten fat sausages, sizzling in the pan,
Ten fat sausages, sizzling in the pan,
And if one went POP!
and another went BANG!
There'll be eight fat sausages,
sizzling in the pan.

Eight fat sausages, sizzling in the pan.
Eight fat sausages, sizzling in the pan.
And if one went POP!
and another went BANG!
There'll be six fat sausages,
sizzling in the pan.

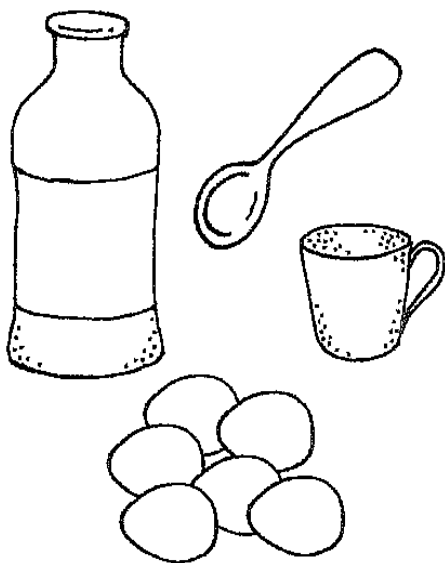
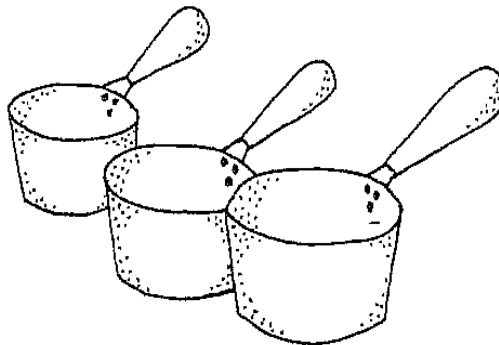
*Continue counting down until all the sausages have gone.
Sung to the tune of Ten Green bottles*



In the Kitchen

Stacking pots and pans

- Which pan is the biggest?
- Which goes at the bottom?
- Which goes next?
- Does this one go above or below?

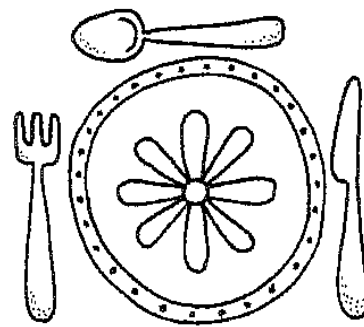
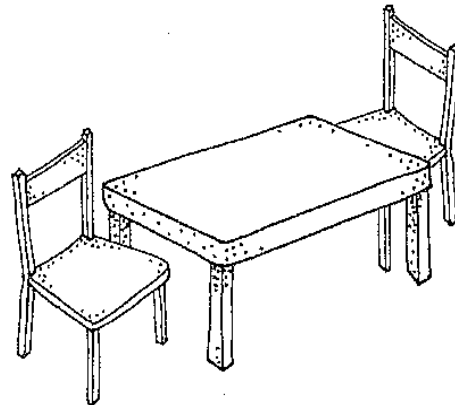


Cooking

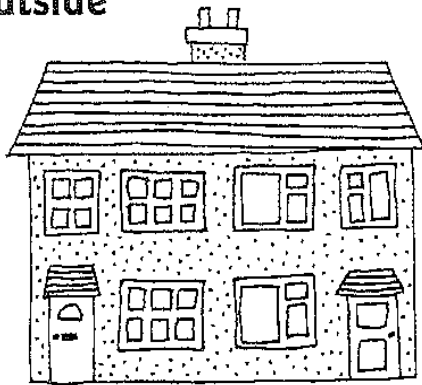
- Which is full?
- Which is empty?
- Which is half full?
- How many cupfuls am I putting in?
- What shape is the tin?
- Is this heavy or light?
- Which is heavier?
- How many eggs?
- How many are broken?

At the table

- How many knives do we need?
- Count them with me.
- How many more do we need?
- Do we have too many?
- Do we have enough?
- How many shall we take off the table?
- Can you match the cups to the saucers?
- How many big plates are there?
- What colour are they?
- What shapes are they?
- How many parts shall we cut the cake into?
- How many pieces do we need?



Outside



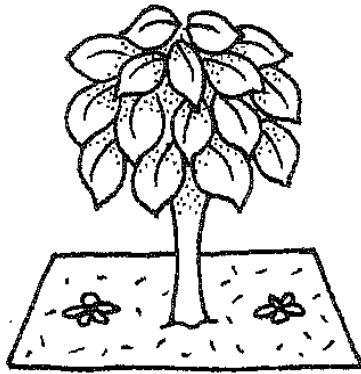
Looking at houses

- How many doors?
- How many windows?
- Is there a square window?
- Is there a round window?
- What other shapes can you see?

At the shops

- Do we want a big box of cereal or a small box?
- Is it a big shop or a small shop?
- Are they on the top shelf?
- Middle shelf?
- Bottom shelf?
- Shall we go to the wide checkout or the narrow one?
- Can you put the bread on top of the cheese?





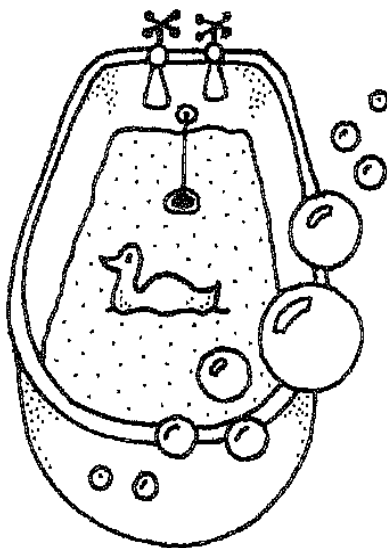
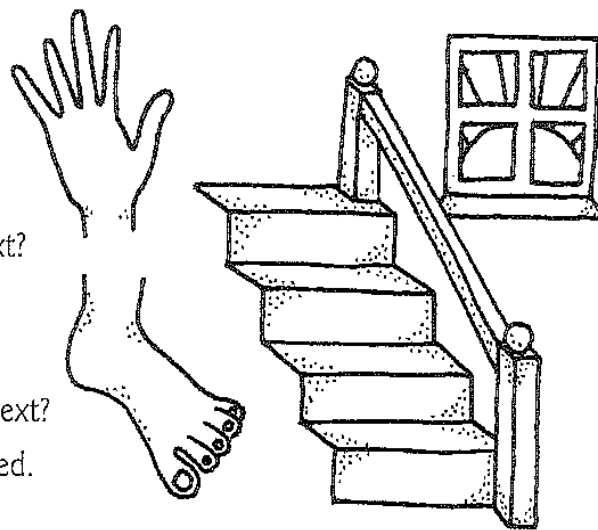
In the park

- Let's run five steps and walk five steps.
- Let's walk ten steps and hop two.
- Are the plants arranged in rows?
- What shapes are the flower beds?
- How many swings are full?
- Which is the tallest tree

Daily Routines

Breakfast time and bed time

- Is it light?
- Is it time to get up?
- What clothes do I put on first? Next?
- How many socks can you count?
- What colour are they?
- Which clothes do I take off first? Next?
- Let's count the stairs as we go to bed.
- Let's count our fingers. Toes.
- How do we put our pyjamas on? First one leg and then the other.
- What do I do before I go to bed?



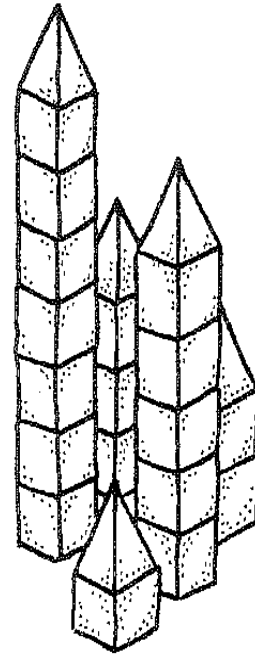
Bathtime

- Let's play sinking and floating.
- Can you make a little splash? A big one?
- How far does the water go?
- Let's brush our teeth – up and down.
- This towel is too small.
- This towel is big enough.
- Will this float?
- Can you blow big bubbles?
- How full is the bottle?

Toys and Play

Construction toys – building bricks

- Which tower is the tallest? Shortest?
- How many bricks make the tower?
- Which shapes fit together?
- Who can build a tower the fastest with five bricks?
- What colour are the bricks?
- Can you find a red brick?
- Is the red brick on top of the blue brick?
- Can you make a tower with more bricks? Fewer?
- Have I made a wide tower or a narrow one?



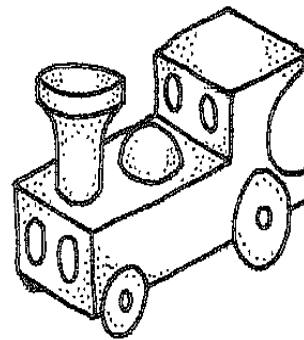
Dolls and teddies



- Which clothes do they need this morning?
- Which clothes do they need to go outside?
- Will this coat fit teddy?
- How many buttons on this coat?
- Are all the buttons on this coat?
- Can you put the big teddy next to the small teddy?

Toy vehicles

- Is the train fast or slow?
- How many wheels does the train have?
- Will the train go round the bend safely?
- Is the track curved or straight?
- Can you make a long train? A short one?
- Can teddy ride on your toy car?



Further Reading

Books obtainable from bookshops.

My First Look At Series, Dorling Kindersley

Ready For Maths, *A Hippo Parent Book*, Scholastic Publications

Further copies of this booklet are available from

The Mathematical Association, 259 London Road, Leicester, LE2 3BE

Telephone: 0116 221 0013 Fax: 0116 212 2835 Email: office@m-a.org.uk