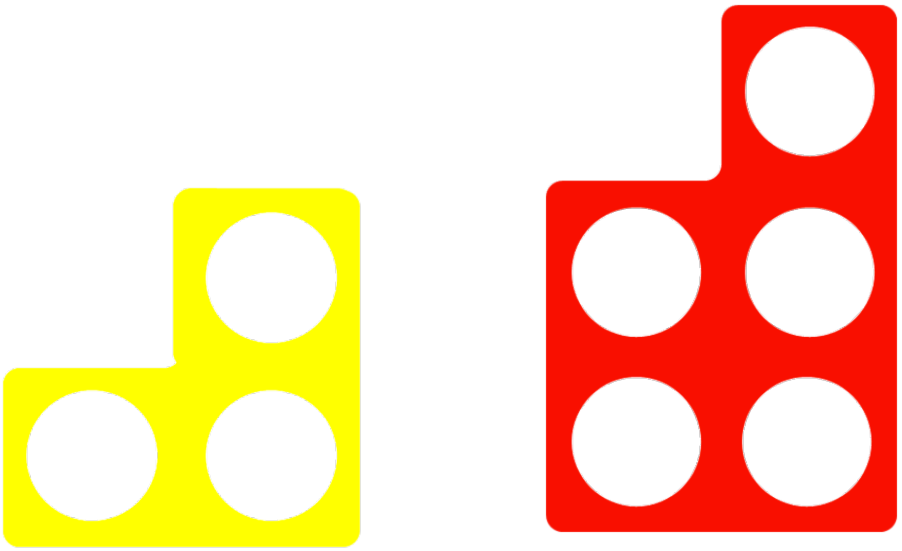
Same different



The numbers inside

Foundation Stage Maths for parents

Kim Mitchell

Lead Practitioner

Shadwell & Bramham Federation

Mastery Specialist & Teaching for Mastery Lead

Yorkshire Ridings Maths Hub

National Centre for Excellence in the Teaching of Mathematics

MathsHUBS Yorkshire Ridings

Aims of the workshop

- To have a greater understanding of the teaching of maths in The Foundation Stage.
- To have a greater understanding of the difficulties which maths presents for children.
- To have insight into how Numicon and other resources can help children overcome these difficulties.
- To feel confident about supporting your child at home.

Setting children on the right path

It is important to be positive about Maths

Everyone can be good at Maths

Being numerate is arguably more important than being literate

Your support and encouragement is vital to your child's success

Difficulties which mathematics presents for all pupils

Numbers are abstract – mathematics is a symbolic language

A more traditional approach to teaching arithmetic does not support understanding of number relationships

Counting:
experiencing what it means to learn to count

We have a new number system

i h g f e d c b a

Experiencing what it means to learn to count

Show me

i a b h

Experiencing what it means to learn to count

Calculate

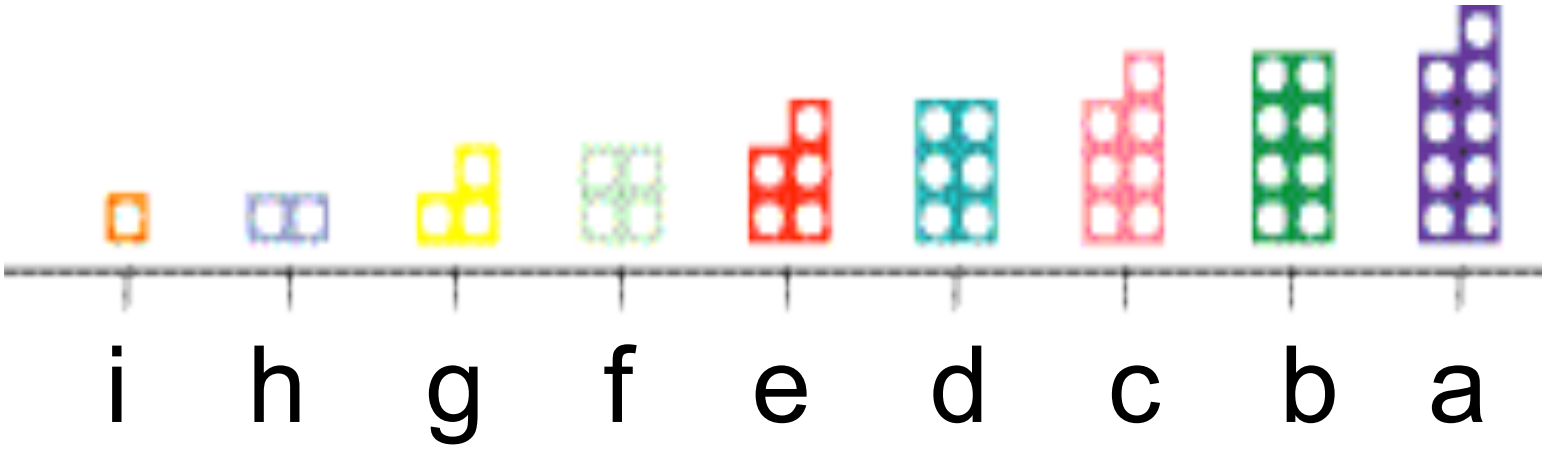
i added to **h**

Experiencing what it means to learn to count

Calculate

c subtract g

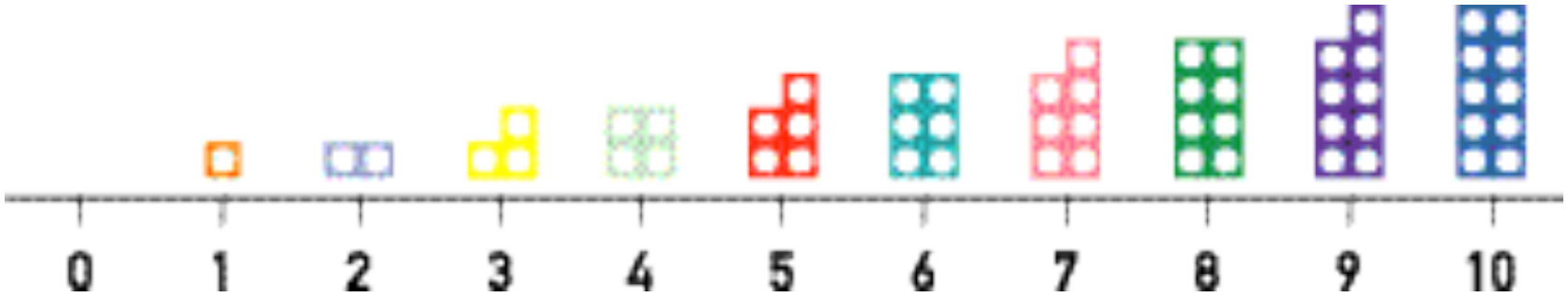
Experiencing what it means to learn to count



Counting: a deceptively simple skill

Many people consider counting to be a simple skill, but that leads us to be deceived; we often hear young children recite a string of words and assume they can count.

Using Numicon to support arithmetic understanding



- https://global.oup.com/education/content/primary/experts/tony-wing/?region=uk#

Numerals are abstract; arbitrary symbols

1 2 3 4 5 6 7 8 9 10

What is a number?

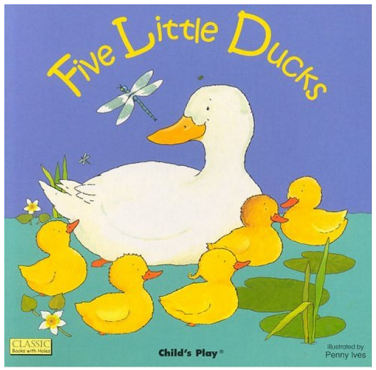
National Centre
for Excellence in the
Teaching of Mathematics

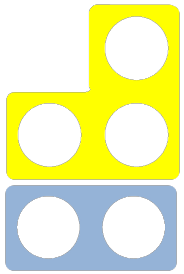
MathsHUBS

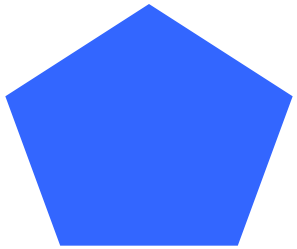
A Concept Image

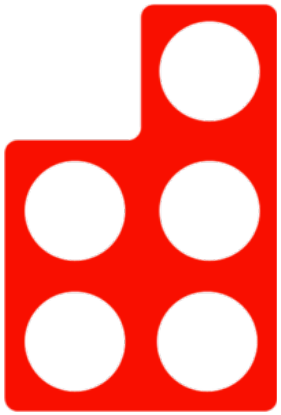
five

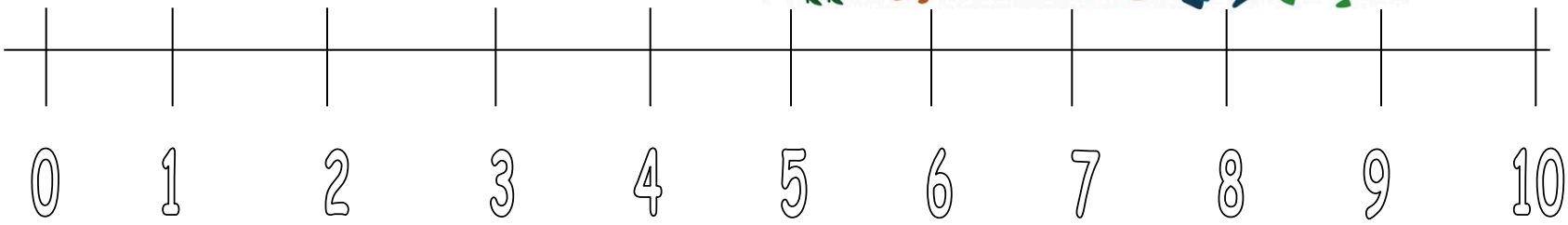
5











Jerome Bruner's forms of representation

Enactive – internalised *action* e.g. riding a bicycle, writing by hand

Iconic – sensory imagery e.g. the smell of bacon and eggs

Symbolic – *arbitrary symbols* e.g. words (spoken and written), numerals, which bear only an arbitrary relation to what they 'stand for'.

Numicon exploits children's key strengths

Learning from action: manipulation

Learning from seeing: observe and notice

Strong sense of pattern: explore patterns

Strands within the Numicon Teaching Approach

- Number rich environment
- Concept image; making connections
- Importance of counting (getting beyond this when calculating)
- Importance of pattern
- Making connections; applying arithmetic

Counting

Counting is usually children's first and memorable experience of numbers

Learning to count supports understanding of our number system.

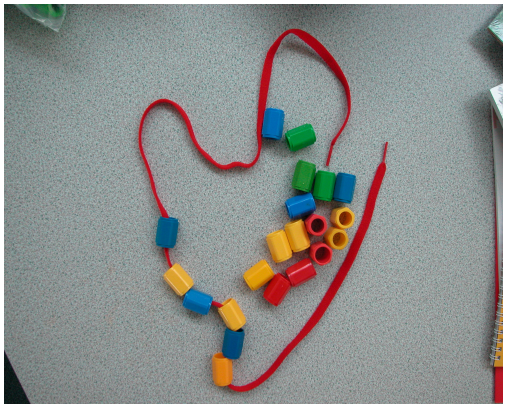
Children should have daily opportunities to count – but *not* to do arithmetic!

Counting is difficult for children with auditory memory problems

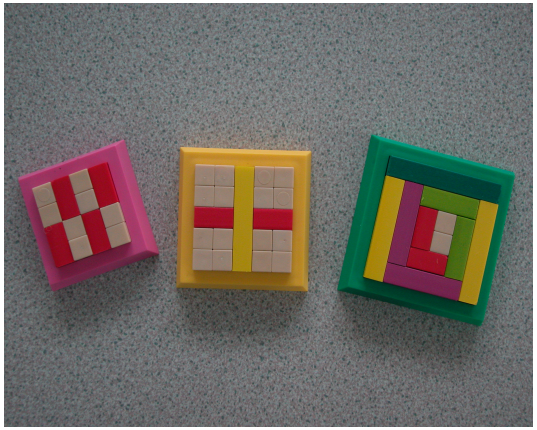
Counting and pattern activities run alongside arithmetic activities throughout teaching

Pattern

Most children have a strong of pattern and benefit from systematic teaching of pattern – this offers opportunities for sequencing, prediction and generalisation



Pattern work supports arithmetic understanding



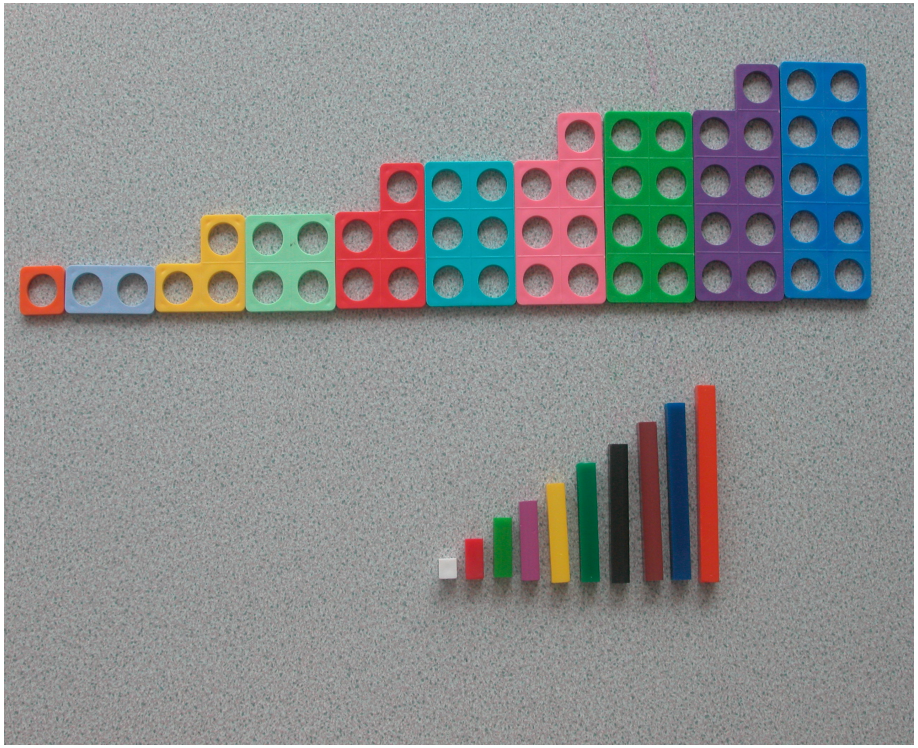
Counting and pattern activities run alongside arithmetic activities throughout teaching

Ordering

Visual structured imagery represents number and reveals number relationships

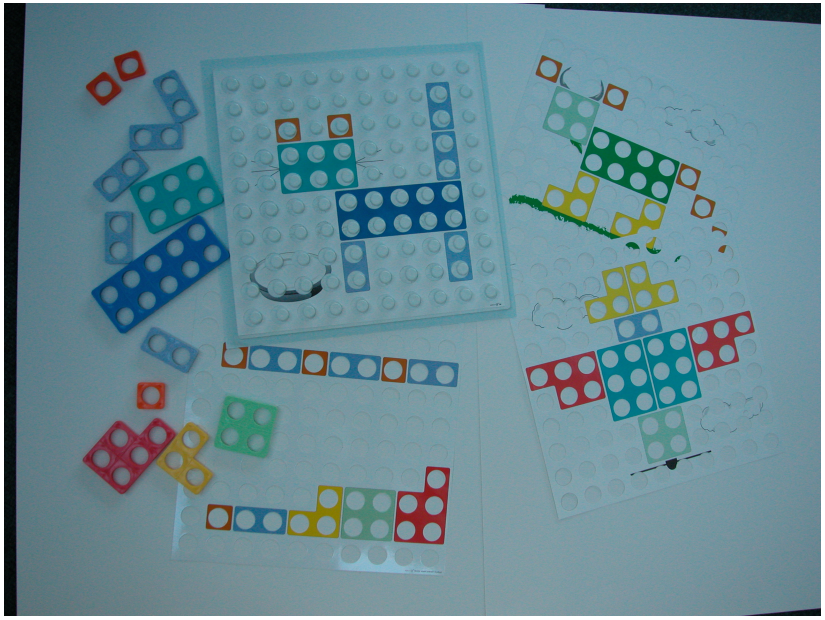
Enables numbers to be seen as ‘wholes’

Provides mathematical context for teaching mathematical language



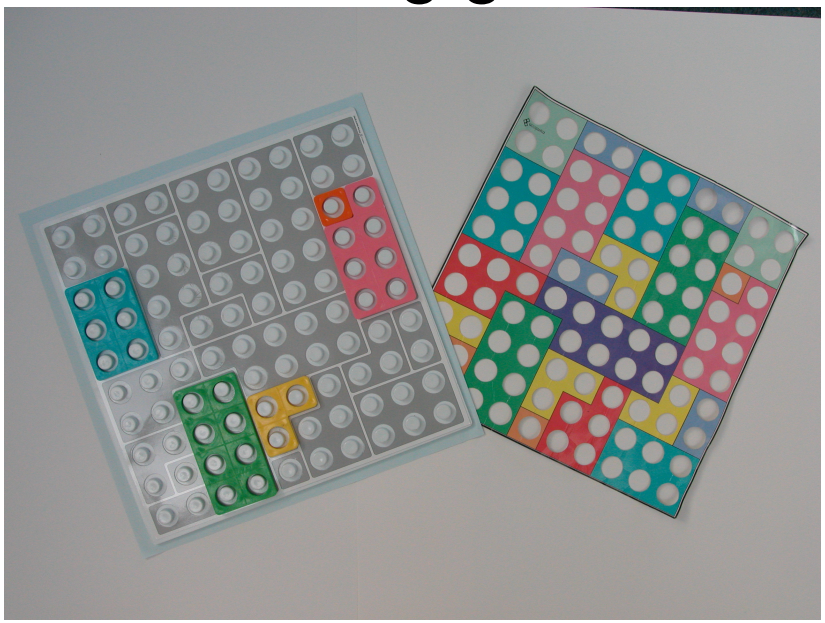
Foundation – Getting to know the Numicon patterns

Picture making



Matching pictures,

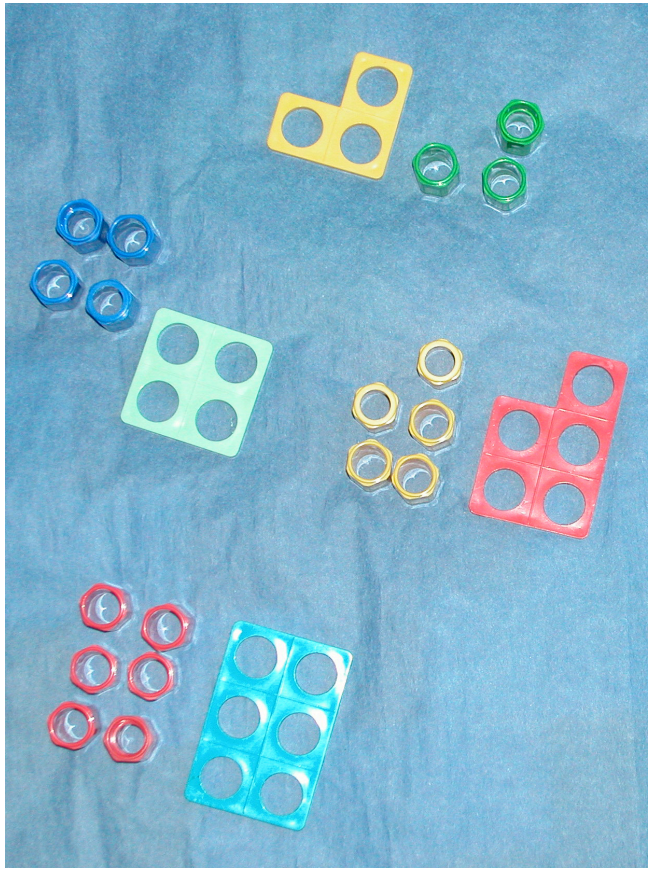
matching games



Using multi-sensory approaches

National Centre
for Excellence in the
Teaching of Mathematics

Learning the patterns

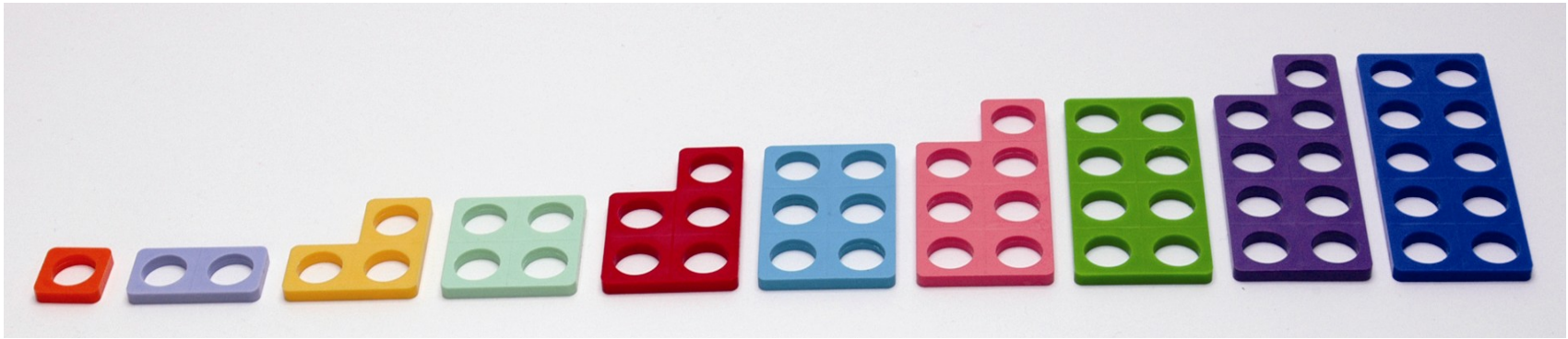


Moving on from matching to learn the Numicon patterns

Devising games using the feely bag

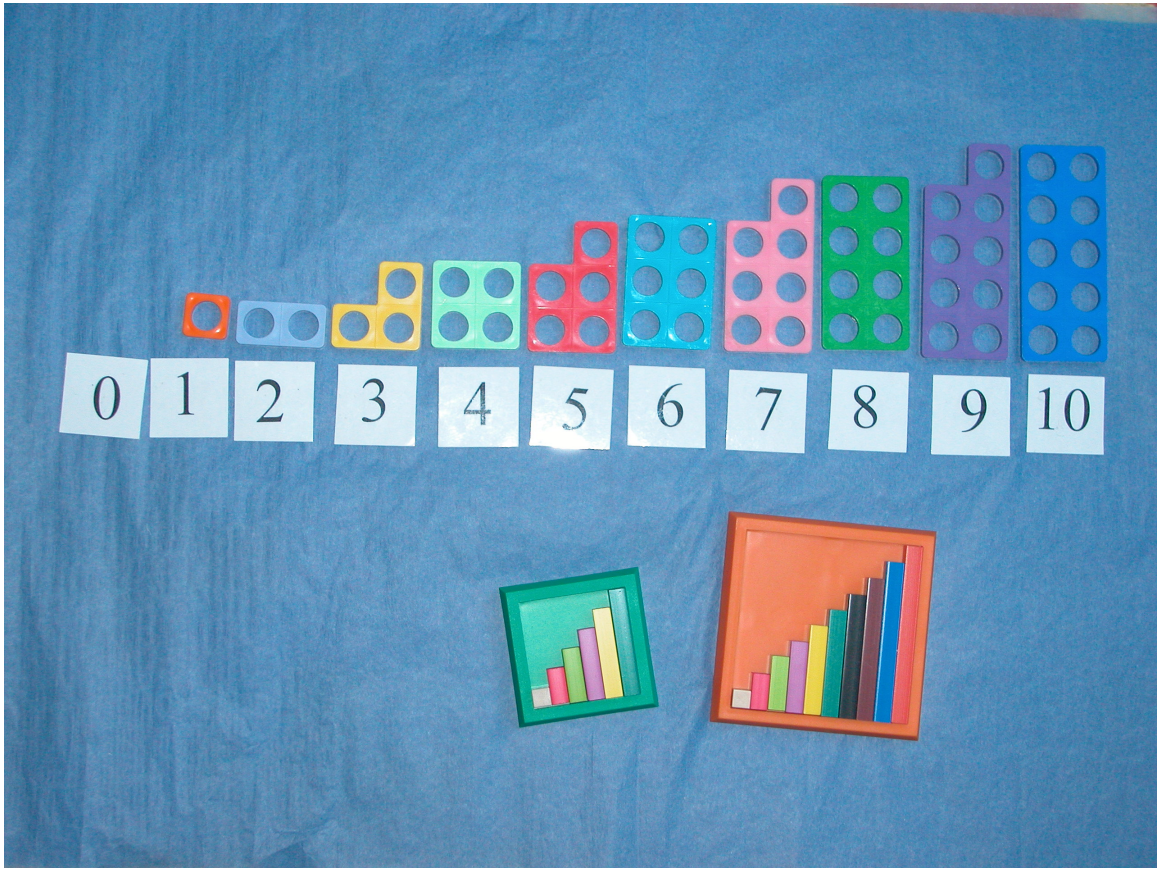
Devising games using the spinner

Ordering the shapes

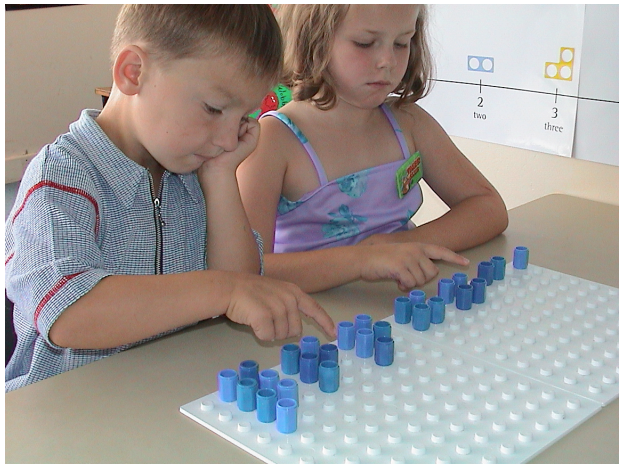


Initially 1 – 5 increasing to 1 - 10

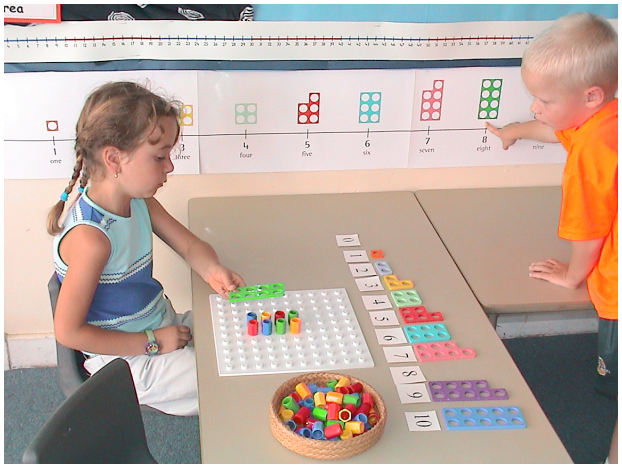
Ordering the shapes and attaching number names

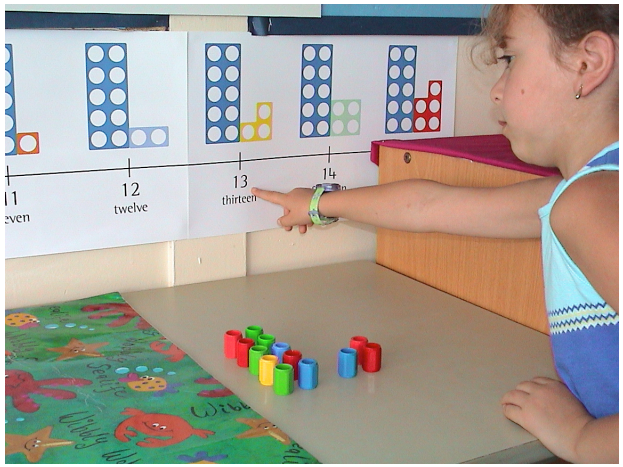


Using the patterns - preparation for addition and subtraction

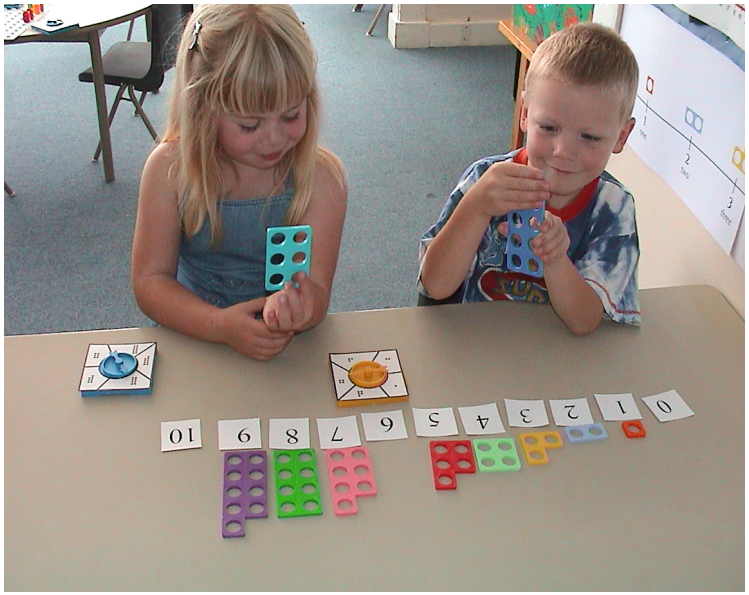


Using the patterns to see how many – without counting!



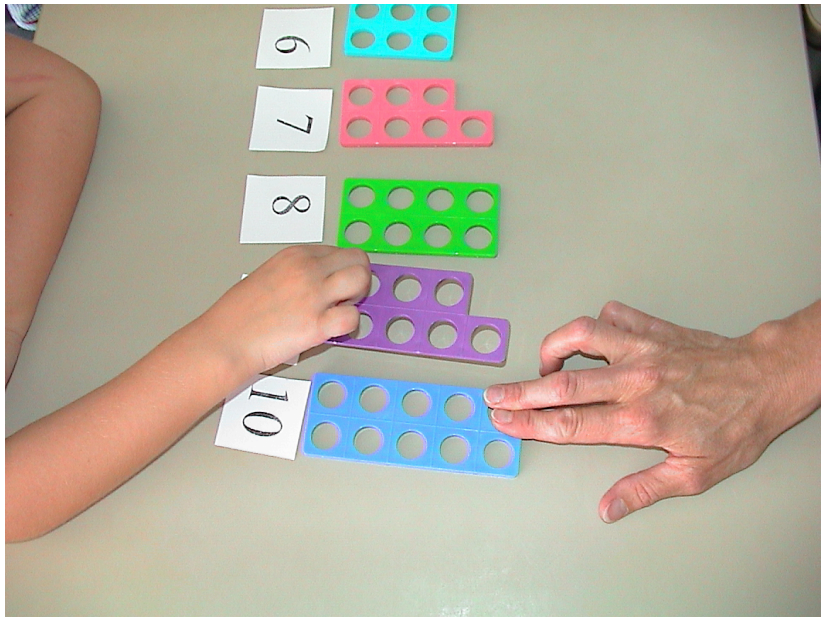


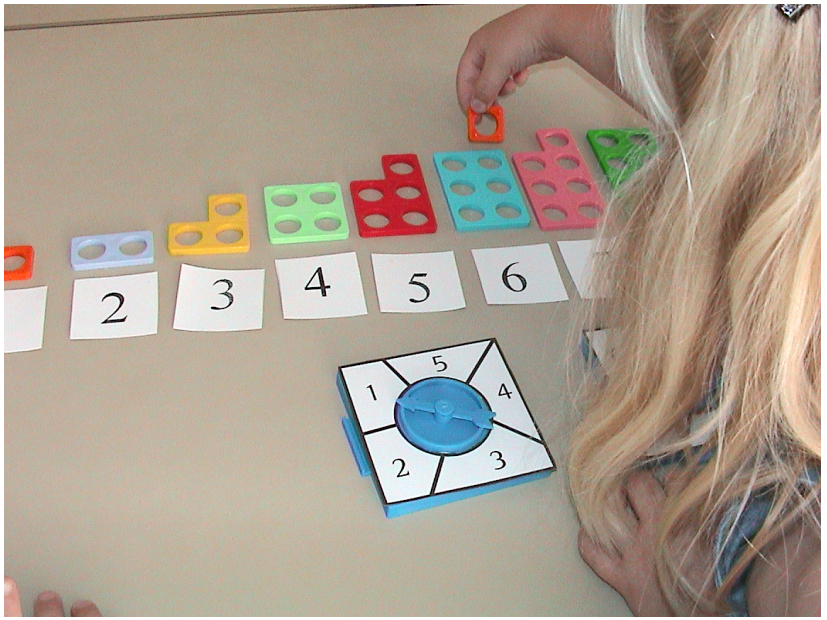
Beginning subtraction – taking away or ‘chopping off’



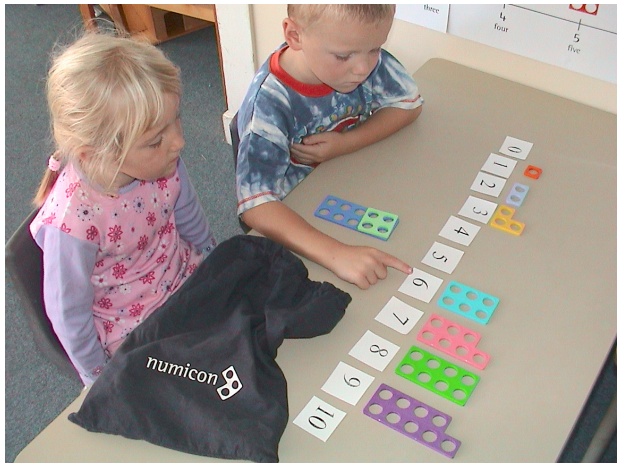
National Centre
for Excellence in the
Teaching of Mathematics

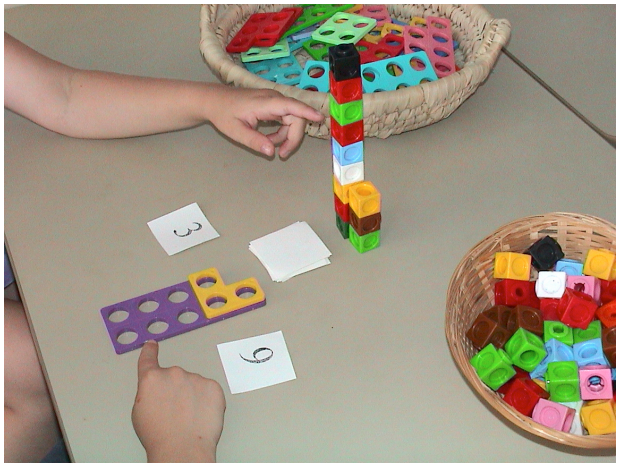
One more and one less, beginning to generalise



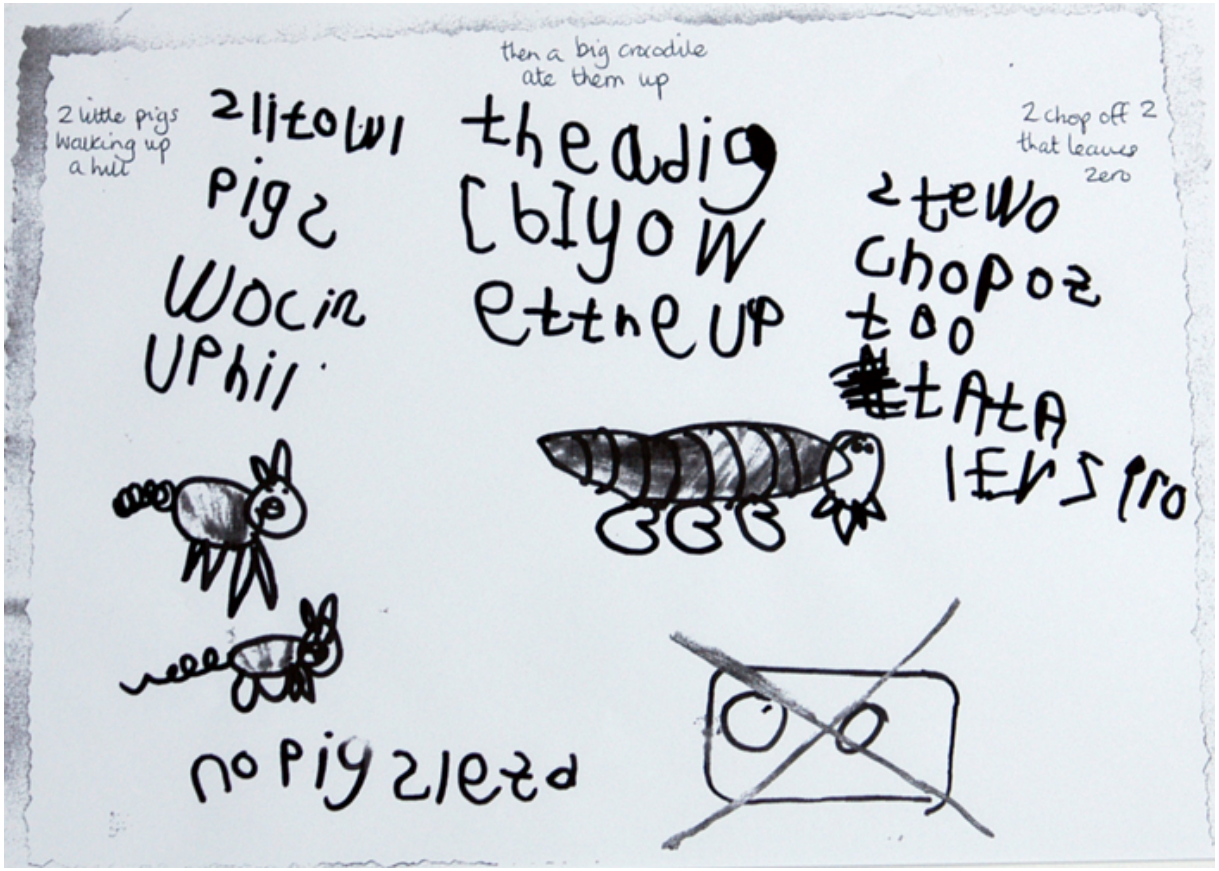


Comparison and difference structure of subtraction





Foundation Stage – recording
Composing own 'take away' stories



National Centre for Excellence in the Teaching of Mathematics

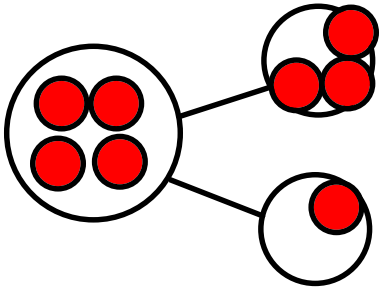
Concrete Pictorial Abstract

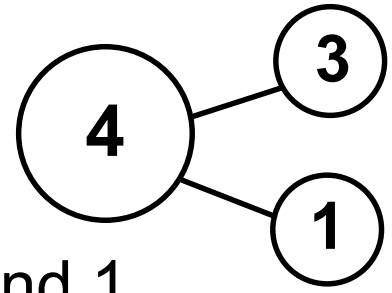
We can make number stories

There are 4 slices of cake

3 slices have cherries

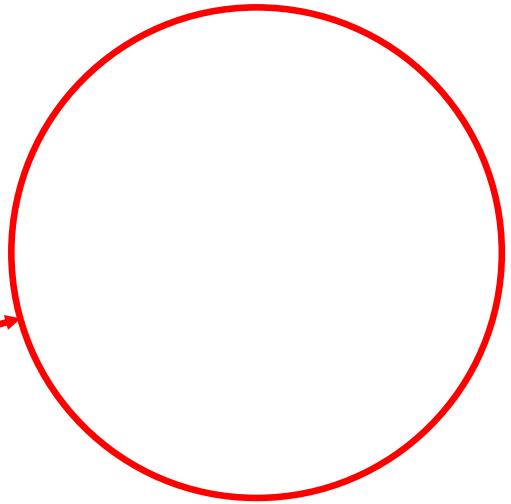
1 slice has no cherry

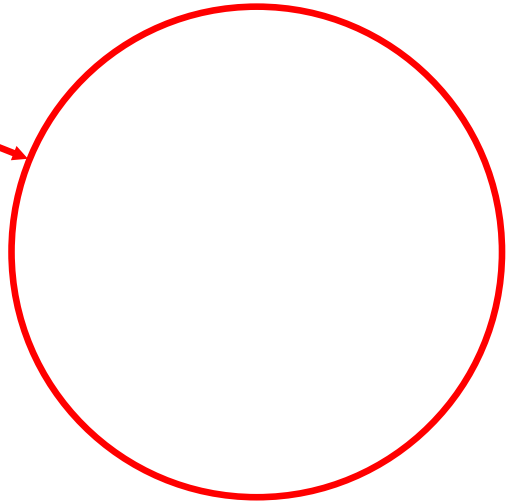




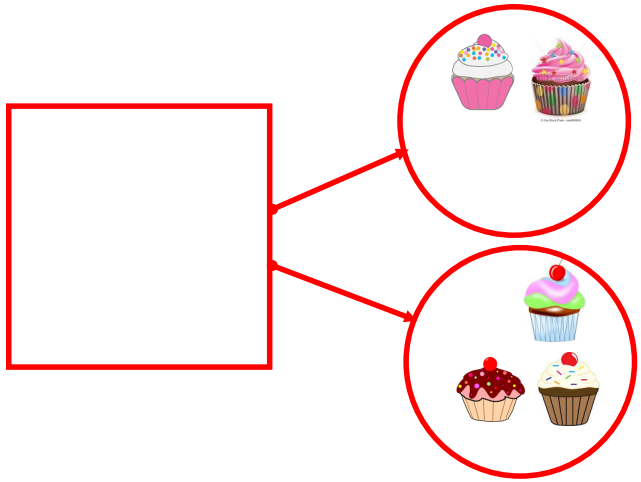
4 is 3 and 1

Part Part Whole



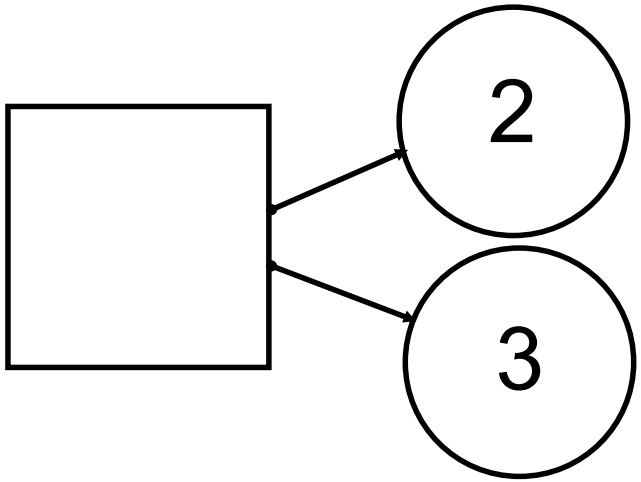


Part Part Whole



2 and 3

make 5



This is a number bond

At the Frog Pond

I am going to use the picture to tell a story.

There are two spiders on the ground.

There are three spiders on the tree.

There are five spiders altogether.

At the Frog Pond

I am going to use the picture to tell a story.

2 is a part

3 is a part

5 is the whole

At the Frog Pond

Can you use the picture to tell another story?

Making Numbers

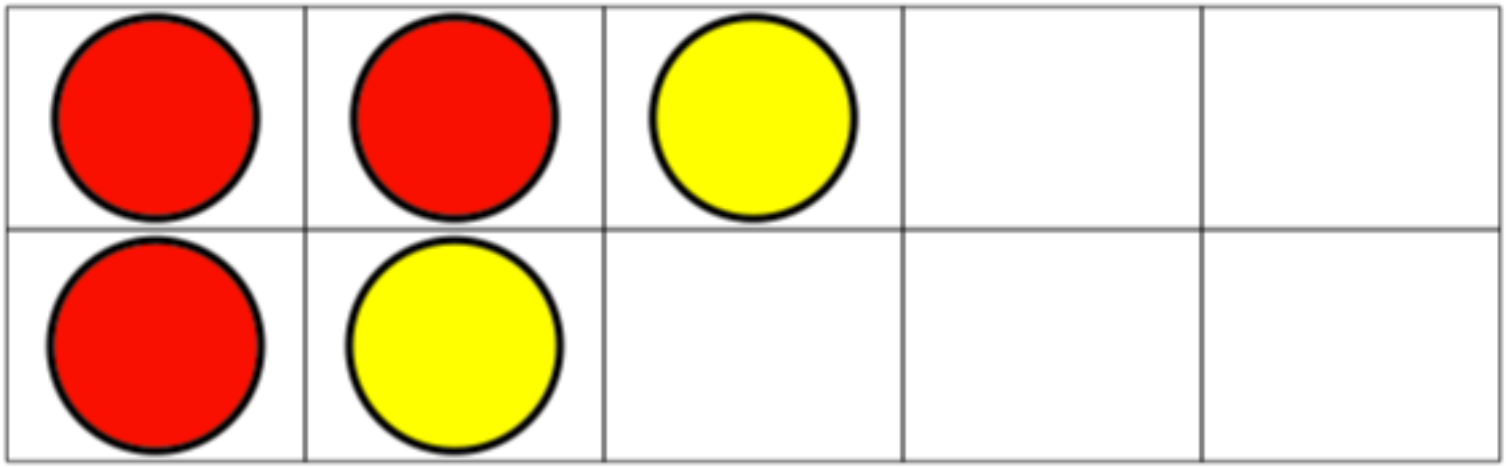
Dynamic stories

Five Friends Counting

A making numbers animation exploring counting to 5, and the combinations of numbers that make 5.

https://www.oxfordowl.co.uk/welcome-back/for-school-back/default/series-landing-pages/pd-books/making-numbers

Ten Frames



- Recognising amounts (subitising)
- Using counters to represent objects.

Mark Making Matters

Opportunities for mathematical mark making are

- Provided
- Encouraged
- Understood
- Valued

Things you can do at home

Lots of counting as part of everyday life- both rhymes and counting objects

Sorting objects and making patterns

Spotting numbers and using the language of number

Playing with construction toys (**girls** and boys)

Playing simple board games

Baking

Solve problems; work out how many altogether, how many more….

Watch Numberblocks on CBeebies

See http://www.familymathstoolkit.org.uk