

Mathematical Concepts



"Three year olds can have an understanding of height and weight through climbing, looking up and carrying, long before they are ready to grasp abstract measurement of these ideas".

(Jenny Lindon) 6

Counting On You

You just can't count enough! We count everything we do over and over again and go up into the twenties and thirties. We have different types of counting for different activities. When we glue things we get the children to count "1 – hippopotamus, 2- hippopotamus..." etc... up to 10 to make sure it has stuck. When we are dancing we count to the music: 1 and 2 and 3 and 4... etc... When we're tidying up everybody has to 'fast count 10' as they pick up 10 bits off the floor.

Ups and Downs

We had 5 boys on the climbing frame getting a bit too enthusiastic, so Jodie turned it into a game based on the Grand Old Duke or York. She got the boys to be either on the top or bottom of the climbing frame each time she stopped playing a drum. They counted the number of 'up' or 'down' each time. Whilst they were doing this, the children developed their understanding of ways of making 5. They called the game 'Musical Dukes!'

Friendship Bracelet

We made some friendship bracelets using dried pasta. Children could choose 4 pieces of pasta from a selection of 4 types: tubes, spirals, wheels and baby stars. When threaded we asked the children if they could find another band the same as their own. This was fantastic for matching and sequencing but also for looking at frequency and combinations for problem solving. If children paint the pasta, perhaps limiting the choice of colour to two, then the combinations increase.

Vive la Difference!

We were aware of the different abilities that children had in dealing with number and their experiences in handling number. So we tried to build in a variety of ways children could explore their understandings through maths play. Sometimes we would model an activity and play alongside. At other times equipment would be presented for children to rehearse and refine their actions. For example - playing a skittle game outside using a ball to aim and knock down numbered/coloured bottles. Use of different sized bottles and balls, tally of score with counters or offering paper, pencil and clipboard, using 1-5 or 1-10 numerals on bottles, different distance between the skittles and child throwing the ball are suggestions to vary the difficulty within an activity depending on the main learning intention.

"Number and other mathematical ideas start to make sense to children because they apply the ideas in a practical context".

(Jenny Lindon) 6



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Role Play Ideas:

- Any type of shop (think: size, shape, quantity)
- 1-2-3-4-5 (Once I caught a fish alive) fishing boat
- Bus
- Camping
- Barbecue
- · Builders' yard
- Bakery
- Cobblers' shop, Elves and the Shoe Maker
- · Giant's castle/Jack's house
- Laundry
- Mechanics'
- Noah's Ark
- Party den
- Picnic
- Ticket office
- The old woman who lived in a shoe

Resource links:

The Leicestershire Numeracy team have a wealth of inspiring ideas, especially for counting and using maths outdoors. Link to this from the Foundation Stage team web site www.leics.gov.uk/lgfl, click on 'numeracy', then 'teachers' and finally 'foundation'. For example: Hide plastic insects in the sand. Let each child scoop up some sand in a cup and count the number of insects they have caught. Who has the most / least?

Multicultural, RE & Curriculum Resource Centre, Quorn Hall, Tel/fax: 01509-621579 Email: BLofthouse@leics.gov.uk

"Mathematical activities for the foundation stage".

DfES, May 2002, ref: DfES0033/2002 (tel: Prologistics: 0845 60 22260, email: dfes@prolog.uk.com)

Basic Skills Agency (supports early literacy and numeracy, lots of ideas including working with parents) www.basic-skills.co.uk tel: 020 7405 4017

"One meaning that numbers have for children is age....Attentive adults who listen tocomments can gain a fascinating insight into young children's thinking and the ways in which numbers... begin to make sense to them."

(Jenny Lindon) 6

Number Bags

Instead of story sacks try number rhyme bags. Good ideas include '5 little ducks', 'Baa baa black sheep', 'Polly put the kettle on', 'Hickory dickory dock' and 'Sing a song of sixpence'.

Carpet Fitters

We use some carpet tiles cut into various shapes, for the children to tile an area. This gives lots of opportunities to explore shapes, edges, corners, tessellation, numbers and patterns.

Number Hunt

It's great to go on a walk and just find numbers – either numeric symbols or sets of things. Sometimes we record what we've seen with a camera or make models and pictures back at the setting. This has even turned into a number map and model of our local area.

Nimble Number Line

We wanted a number line that children would own and therefore use. We decided that the concept of 'one-more' needed some help. So we photographed the children, in a line. We started with Sophie in the first photo (1). The next photo had Sophie and Jack (2) and so on. We added numeric, name and sentence labels and made a duplicate set of photos. One stays on the wall as a frieze, the other is laminated as separate cards which can be used as a number line, ordering activity, matching game etc...

Pull Together!

A longish piece of Lycra-type fabric tied together to make a loop is great for a group to pull into all sorts of shapes, regular and irregular. Great for team work too!

Did He Fall or was he Pushed?

To help children understand about 3D shapes, especially what sides and edges can do, we built a wall for Humpty Dumpty. Old cereal boxes and such like were the bricks that could fit together. However Humpty was a papier maché balloon that kept falling off – just as in the nursery rhyme! The children not only got a lot of understanding of shape, but also size, number and positional language.

The Shape of the Building

Look around your building for basic shapes. We realised that we had a wood block floor and fascia brick walls. These are great for rectangles and we could do rubbings, take prints, make trails on the floor and trace our fingers along the mortar of the brick walls.

Car Park Attendant

Using remote control vehicles is great to help children judge distance and size, as well as develop positional language. We got children to park remote, child sized and pocket sized cars whilst in role as car park attendants. They loved giving out tickets!



"Observation has revealed that children can be confused if adults do not connect abstract ideas clearly to a familiar context".

(Penny Munn) 6



Maths treasure box

A treasure or skills box is a collection of artefacts that stimulate discussion, enquiry, understanding, skills and knowledge for a particular area of learning, cluster or theme. Presentation is really important, as in a story sack, so children truly see the contents as treasures.

A treasure box for maths could contain: rulers/set squares etc..., shape stencils, Rubik's cube, wind up analogue clock, sand timer, bell timer, tape measures, digital stopwatch, click counter, calculator, collection of plastic bottle tops (varieties of colour and translucence), discovery blocks (Holtz toys) and dice.

Problems Problems!

To introduce more problem-solving into our sessions we started with the problems that organising 24 children poses us. So for example at the snack bar children could choose 2 pieces of fruit and a biscuit from a choice of two types of fruit and two types of biscuit. We asked the children if they thought everyone would want the same. We worked with the children to draw what they chose and they collated these. This gave us a range of the possibilities for the children to see all at once. Discussing this helped children to see what the favourite/least favourite choice was and also how it could be displayed.