

Supporting Early Numeracy Experiences in the Early Years

Definitions

Emergent Numeracy includes understanding simple ideas such as splitting things in equal parts, there is continuity between such understanding and an understanding of fractions which comes later. Core content of mathematics curriculum for young children should include concepts about: Number, counting, recognising patterns and shapes, understanding relationships, space, measure, and processes such as problem-solving and mark-making. Young children learn the above concepts through play.

Early Literacy and Numeracy Matters – Enriching Literacy and Numeracy Experiences in Early Childhood, Geraldine French (2012), Barnardos.

Provision of Early Numeracy Experiences in Childcare

The role of early childhood settings is to develop children's enthusiastic dispositions towards seeing mathematics in the world around them, having mathematical knowledge on which to draw from and develop a mathematical language.

Children need to use numbers in a context that makes sense to them.

An emphasis on worksheets and colouring in activities fails to tap into the mathematical understanding and knowledge that most young children have.

Children's experiences of numeracy should be based in first hand experiences and familiar contexts. For example children's exposure to the concrete experience of dividing and naming things in halves and quarters (sharing fruit or play dough 'half for you...') supports the understanding of fractions later on in school.

Educators need to have knowledge of the mathematics within experiences provided e.g. play with materials like blocks, clay, sand and water develops skills in logic. Adventure play helps children to develop problem-solving skills and understand spatial qualities (under, over, through, between).

Children are natural mathematicians from birth.

Early Literacy and Numeracy Matters – Enriching Literacy and Numeracy Experiences in Early Childhood, Geraldine French (2012), Barnardos.

Myth about Counting

Children need to know how to count to 50 before going to primary school.

The Truth: Similar to learning the ABCs/alphabet, counting to 10, 50, or 100 is a rote memorization skill. Again, while it helps children understand that there is an order to numbers, far more important is understanding the idea of 1-to-1 correspondence (that each number you count has a corresponding object, person, year, etc. to go with it) and understanding quantity (i.e., that “three” means “three objects”).

Bright Horizons® Education & Training

Skills in counting should underpin numeracy.

However, in order to count, children need to learn the following principles.

One to one correspondence: match counting words to an item in one to one correspondence.

Stable order: ability to repeat counting words in the correct order every time ‘objects’ are counted.

Cardinality: understanding that the final number in a count represents how many are in the set i.e. the total number.

Abstraction: understand that three objects count to the same number if placed in a different location. Understand that they do not need to count sets.

Order irrelevance: children can count from any point in a set – learn to understand that the order of counting does not affect the cardinal number.

Gelman and Gallistel (1986) cited in Anning and Edwards, (2006) in

Early Literacy and Numeracy Matters – Enriching Literacy and Numeracy Experiences in Early Childhood, Geraldine French (2012), Barnardos.

Setting up a Mathematics Area

A maths area should include:

- Materials for counting, measuring and comparing quantities such as beads, blocks, toy vehicles, toy animals, buttons, rocks, shells, leaves.
- Materials with numerals such as typewriter, giant calculators, playing cards, play money, number stamps).
- Boards games and a dice, dominoes.
- Construction materials
- Coins
- 2 D and 3 D shapes – children can name and identify.
- Devices for measuring such as ruler, measuring tapes, balancing scales, weighing scales, lengths of string, clocks, calendars, watches, height charts, games and puzzles.
- Materials for exploring time such as egg timers, sand timers.
- Wind up clocks, musical instruments, objects with wheels and objects that move in different ways.
- Materials for making series and patterns such as nesting blocks, stacking rings, measuring cups and spoons, pegs and pegboards.
- Materials for exploring space such as filling and emptying, shaping and arranging.
- Materials to pour such as sand, water, salt.
- Materials for identifying and comparing to make collections, matching and sorting.
- Materials for making ordered sets.

In such an area the focus should be on supporting child-led play experiences which immerse children in mathematical concepts by playing and doing rather than using the areas for educator-directed tasks.

Early Literacy and Numeracy Matters – Enriching Literacy and Numeracy Experiences in Early Childhood, Geraldine French (2012), Barnardos.

Further Ideas for Supporting Early Numeracy Experiences

- Parking bays numbered for toy cars, bikes and trikes.
- Washing line with pegs and numbers hanging from it.
- Number lines: Cards with numbers on them laid out in sequential order and then as an activity with the children count concrete objects to match with the numbers on the cards.
- Visual numbers displayed in service – what it looks like up as far as 100 and 1000 – discuss with children how big that is.
- Collections with real items; spoons – different types, shape and colour.
- Collections of socks; ask children to find a pair of socks, what is the same? Talk about size, stripes, what is different about them?
- Collections of boxes, gloves, locks, keys, balls, purses, necklaces, buttons, bags, men's ties.
- Collections of items children are interested in.
- Make collections of items that look different e.g. frog and discuss whose is tallest? What's the same? What's different?
- Use washing tablet net or pringle's container with number on it and have corresponding number of items in the net or container for children to count.
- Ask children to bring in examples of where they see numbers e.g. birthday cards/magazines/adds – then create a display.
- Support children's mathematical language. Talk to the children about another word for 'enormous', collect them on a board and create a word cloud. There can be an over focus on number names but children need mathematical language also. (See www.wordle- for creating a word cloud).
- Try to avoid asking children questions when they know you know the answer, use more open questions.
- Go on a number hunt.
- Number items of equipment e.g. dust pan 1 dust pan 2.
- Provide tongs and bags for filling and counting objects..
- Display equipment using the shape outline to assist children when tidying up, to know where an item is stored.
- Display children's drawings – put '4' beside 4 dinosaurs.
- Display numbers on the toilet doors.
- Importance of nursery rhymes – pick ones all children like, start collections, do it every day - core rhymes – number rhymes, tell parents, illustrate the rhymes and use props.
- Use hand prints to support counting, two hand prints laminated matched with a number.
- Plan outdoor and indoor hot spots for maths talking.

Judith Stevens Workshop (2012)

References

Early Literacy and Numeracy Matters – Enriching Literacy and Numeracy Experiences in Early Childhood, French (2012), Barnardos.

Promoting Children's Learning from Birth to Five: Developing the New Early Years Professionals. Anning and Edwards (2006), Open University Press.

Ready for School, Bright Horizons:

<http://ziptivity.wordpress.com/2011/02/16/school-readiness-myths-from-bright-horizons/>