



OVERVIEW OF EARLY MATHEMATICAL DEVELOPMENT: CONCEPTS, LANGUAGE, AND SKILLS

Learning to have fun with math starts early. Even in their first year, babies are already building important math concepts, learning about number, shape, size, and spatial relations as they explore objects. When adults use common math words that are part of everyday speech (one, two, big, little, more, less, round, tall), it provides an important foundation for learning math in school and using it in life. Using math words as part of daily activities and games—counting steps, sorting groceries—and when they talk, sing, play, and read, is another way to have fun together.

	6 – 24 months	2 to 3 years	3 to 4 years	4 to 5 years
NUMBER CONCEPTS AND SKILLS <i>“One, two...”</i> <i>“How many?”</i>	<p>Follows along as parent counts <i>one, two...</i></p> <p>Begins to point at objects</p> <p>May imitate number words without understanding</p>	<p>Recites numbers, not always in sequence: <i>1,4,3</i> or <i>1,2,4,6</i></p> <p>Pretend counts while touching or pointing and saying number words: May count two objects accurately.</p> <p>May use the word <i>two</i> to accurately label pairs of objects</p> <p>May recognize on sight the number of items in a small group (2-3), without counting. (subitizing)</p>	<p>Recites numbers in sequence up to 5 or 10. Counts 4-5 objects accurately.</p> <p>Begins to understand that numerals represent specific quantities Begins to use terms <i>more, less, and same</i> for amounts up to 4-5.</p> <p>Develops understanding that the last number in a sequence represents the total number in the group. (cardinality)</p>	<p>Recites numbers in sequence up to 10 or 20. Counts 6-10 objects accurately</p> <p>Recognizes and names several written numerals</p> <p>Solves simple adding and subtracting problems presented in words with numbers up to about 6.</p>
MEASUREMENT <i>“Tall or short, high or low”</i>	<p>Explores size, weight and capacity in play</p> <p>Begins to respond and use comparison words to <i>big, little, hot, and fast</i></p>	<p>Uses information about length and distance to solve problems (gets chair to reach toy on shelf)</p> <p>Follows patterns in familiar routines such as meal time, bedtime, leaving for daycare</p>	<p>Compares height, length, size by looking</p> <p>Uses comparison words (<i>taller, tallest, heavier, heaviest</i>)</p>	<p>Uses comparison strategies such as putting one in each hand, to learn which is heavier</p> <p>Begins to measure with informal units (<i>hands, blocks</i>)</p>
PATTERNS AND PREDICTION <i>“What happens next?”</i>	<p>Responds to patterns in daily routines; anticipates what will happen next</p> <p>Repeats action sequences over again in play (<i>put it in, dump it out</i>)</p>	<p>Begins to copy simple patterns, repeating sounds, words, and actions</p>	<p>Increasingly, remembers, repeats, and recognizes omissions in simple patterns in stories</p>	<p>Predicts patterns of events in unfamiliar stories</p>
ANTICIPATORY GUIDANCE <i>What parents can do throughout the day with their child while at home, reading, playing, shopping, or waiting together!</i>	<p>Sing songs, read books, and play games involving numbers and repeating words or actions</p> <p>Use simple shape and spatial words (<i>in, on, round, straight, under, up</i>) <i>Help your child sort toys by shape.</i></p> <p>Emphasize words that describe size and other characteristics (<i>big/little, fast/slow, high/low</i>)</p>	<p>Use number words and words that compare (<i>more, less, same number</i>)</p> <p>Model counting objects by touching each object as you say the number Name the shape of objects: “the ball is round”</p> <p>Read books, play games, and sing songs that have repeating patterns; encourage your child to join in</p>	<p>Count with your child (steps to the mailbox, objects, animals, people); ask <i>how many?</i></p> <p>Use ordinal numbers (1st, 2nd, 3rd)</p> <p>Compare quantities (<i>more/less, same number</i>); talk about differences (<i>one more, one less</i>)</p> <p>Point out positions of objects, direction, and order</p>	<p>Pose number questions or simple problems (<i>How many plates should we put on the table?</i>)</p> <p>Encourage counting to solve number problems Help child describe and compare patterns they see or patterns they create Play with puzzles or board, card, and dice games that involve counting, matching, or comparing</p>