Development of Math Concepts **Age** by **Age**

General Development	0–3 years Children may:	4 years Children may:	5 years Children may:	6–7 years Children may:
Forming Concepts	learn concepts in action	learn concepts in an example-by-example way	learn concepts through a particular example	more easily learn concepts that are thought of in terms of rules
Representing and Symbolizing	at age 2, begin to develop mental representations, including symbols			represent and mentally "undo" a process
NUMBERS				
Number Concepts	recognize very small numbers, nonverbally, and then with numerical labels, such as *two*; at about age 2, represent numbers exactly; begin to use the *stable-order rule,* and even the *abstraction rule,* in counting small collections	maintain the *one-to-one rule* in counting increasingly large collections; understand the *cardinal rule* (the last number word in counting tells how many are in the collection)	begin to count, not just discrete objects, but *classes*, such as how many different colors of blocks there are, and units, such as how many whole eggs, when some halves are together and some are not; begin to understand the implica-	tions of the *order-irrelevance rule*
Comparing Numbers	visually determine whether very small collections have the same amount, or which has more	use counting or matching to compare two collections of up to five objects, despite deceptive appearances	use counting to compare two collections, even if the objects they contain are a mixture of sizes and types	use counting to accurately compare two collections, even if the collection with the smaller number has objects that are larger in size
Adding and Subtracting	recognize how many objects should be present when one is added or taken away from a very small collection	solve word problems using objects, with sums of up to five	solve word problems using counting-based strategies; for example, when asked, "If you had four toys and got two more toys, how many would you have?" will count four fingers, then count up with two more	fingers
GEOMETRY AND MAPS				
Shapes	match simple shapes	recognize and name variations of the circle, square, triangle, and rectangle	recognize and name shapes in various orientations, sizes, and types; start to recognize the parts of shapes, such as sides and angles	sort shapes into classes based on their attributes, such as triangles' having three straight sides
Maps	understand and use ideas such as over, under, above, on, beside, next to, between	build a simple but meaningful map with landscape toys, such as houses, cars, and trees; learn a simple route from a map	place toy objects in the correct relative position to make a map of the classroom	make and follow maps of familiar areas, using some measurements
PATTERNS AND ALGEBRA				
Patterns and the Number Patterns Leading to Algebra	act out patterns, such as jumping to the left, right, left, right; observe repeating patterns, such as a block standing, then lying down, then standing	copy simple repeating patterns, such as ABBABBABB	separate the "core unit" in patterns, such as ABA in ABAABAABA; find patterns in math, i.e., adding one to a number results in the next "counting number"	create, recognize, and use early algebraic patterns; for example, subtracting a number from itself gives you zero, or $n - n = 0$