



# Mathematical Development Branch Map

Routes targets	Number	Shape, space and measure
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Branch 1	Branch 2	Branch 3	Branch 4	Branch 5	Branch 6	Branch 7	Branch 8	Branch 9	Branch 10
Notices Stimuli	Anticipates repetitively presented stimulus	Contingency awareness	Shows an interest in number rhymes and songs.	Understand the concept of 'one'	Recites some number names in sequence	Uses some number names and number language spontaneously in context	Finds the total number of items in two groups by counting all of them	Counts to 10 accurately, matching numerals and beginning to count beyond 10	Estimates how many objects they can see and checks by counting them for up to 10 objects
- Taste - Smell - Touch - Visual - Auditory - Vestibular		- Switch toys or computer program - Responsive toys, mobiles or instruments		- During play situations - During structured activities	- During play situations - During structured activities				
Responds to very obvious stimulus	Aided exploration of the environment	Intentional exploration of the environment	Shared attention	Attempts, sometimes successfully, to fit shapes into spaces	Selects from a group when asked: "please give me one", "please give me lots"	Recites numbers in order to 10	Matches numeral and quantity correctly up to 5	Counts out up to six objects from a larger group	Can count to at least 20, forwards and backwards
- Taste - Smell - Touch - Visual - Auditory - Vestibular			- During social games - During structured activities - During play situations	- Shape sorters - Inset puzzles - Objects into containers					
Demonstrates brief memory for previously presented stimulus	Random activities cause effect	Repeats action when first attempt unsuccessful	Object permanence	Beginning to understand the concepts of 'now' and 'next'	Knows that numbers identify how many objects are in a set	Realises not only objects, but anything can be counted, including steps, claps or jumps	Begins to represent numbers using fingers, marks on paper or pictures	Counts an irregular arrangement of up to ten objects	Can identify, read and write numbers up to 20
		- Switches/ ICT toys - Problem solving with real objects (opening lids etc.)							
Responds to range of stimuli	Redirects attention to second object	Attracts attention	Does two different actions in sequence to get a reward	Matches objects to a 2 dimensional representation	Shows an understanding of one to one correspondence by distributing up to 6 items accurately	Recognise some numerals of personal significance	Knows that two groups of 3 or less objects are the same or different	Can add two groups by counting on from first group total	Knows the number that is one more or one less than a given number up to 20
- Taste - Smell - Touch - Visual - Auditory - Vestibular	- Smell - Touch - Visual - Auditory - Vestibular		- Switches/ ICT toys - Problem solving with real objects (opening lids etc.)						- With visual support - Without visual support
Responds consistently to one stimulus	Looks briefly after disappearing object	Modifies action when repeating action does not work	Explores filling and emptying containers	Selects tools for purpose in play situations	Sorts objects by colour	Counts up to five objects accurately by saying one number name for each item	Recognises numerals 1 - 5	Can share up to ten items in practical situations	Understands the concepts of 'add', 'take away' and 'equals' up to 10
		- Switches/ ICT toys - Problem solving with real objects (opening lids etc.)	- Sand - Water - Objects - Materials - Posting activities	- Mark making - Functional tools	- Same shade - Different shades (e.g. light & dark green)	- During play situations - During structured activities	- Printed - Digital - In environmental print		
Responds differently to different stimuli	Action on reactive environment	Selects from two or more items	Matches identical objects		Follows a visual timetable to anticipate familiar activities	Understands concept of 'more', e.g. knows that more cups are required so that all children have one	Uses positional language (e.g. in, out, on, off, over, under)	Uses the language of 'more' and 'less' to compare two sets of objects	Counts in twos up to 20
		- Familiar items - Unfamiliar items			- 2 symbols (now & next) - More than 2 symbols		- During play situations - During structured activities		
Briefly follows moving stimulus	Contingency responding	Early problem solving – tries new strategy when old one fails	Makes lines and towers with blocks in play situations		Begins to show an understanding of the concepts big and small	Copies simple patterns and makes arrangements with shapes	Sustained interest in construction activities and talks about shapes or arrangements (short or tall)	Can count and order numbers, starting from a number other than 1	Shows an understanding of ordinal numbers (first, second, third)
- Audio - Visual	- Switch toys or computer program - Responsive toys, mobiles or instruments	- Switches/ ICT toys - Problem solving with real objects (opening lids etc.)							- During everyday activities - During structured activities
	Purposeful action on everyday environment	Initiates actions to achieve desired result (exerting autonomy in variety of contexts)	Combine two construction items		Uses construction materials to create their own simple structures and arrangements	Begins to sort objects according to properties such as shape, size or type for identical objects	Organise and categorise non-identical objects, e.g. putting all the teddy bears together or teddies and cars in separate piles	Knows that number of objects remains the same when they are rearranged with nothing taken away	Can double and half up to 10 items in practical situations
		- During social games - During structured activities - During play situations - ICT activities			- Junk modelling - Lego etc. - Playdough /clay				
	Looks backwards and forwards between two objects (knows two objects are present)	Passes toys from one hand to another				Selects a particular named 2D shape	Can name a particular 2D shape	Can describe their relative position such as 'behind' 'in front of' or 'next to'	Orders three items by weight or capacity
							- After 2 or more choices - Spontaneously (no choices given)		
	Reaches out for, touches and begins to hold objects					Can identify biggest and smallest items/objects	Recognises and uses the language 'full' and 'empty'	Orders three or more items by length or height	Recognise and know the value of coins to 10p
	- Light toys - Sound toys - Instruments - Tactile objects					- From 2 items - From 3 or more items	- Liquids - Sand/grains - Objects (in containers)		
	Explores objects with mouth, often picking up an object and holding it to the mouth							Uses familiar objects and common shapes to create, recreate and continue patterns and build objects	Solve simple problems relating to: addition and subtraction, doubling, halving, sharing, money (all to 10), and measurement using direct comparison
	Holds an object in each hand and brings them together in the middle, e.g. Holds two blocks and bangs them together							Recognises and uses the language of 'heavy' and 'light'	Beginning to use mathematical names for 'solid' 3D shapes
								- During structured activities - During everyday activities	
								Can compare two volumes or weights	Tell the time to the nearest hour
								Begins to use every day language related to money – 'pay', 'change', 'cost', 'money' 'pennies'	Recognise 'half' as one of two equal parts of an object
								- During structured activities - During everyday activities	
								Uses everyday language related to time (e.g. 'before', 'later', 'after', 'soon')	

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