

Cognition and Learning. Maths

What will you see? (Barriers)	What can help?
Maths - General	(Strategies and provision)
CYP may have difficulty with:	• Start with opportunities for success
• Remaining focused or motivated when learning in maths	• Understand the specific barriers and strengths of learners
• Learning new mathematical skills	• Chunking, colour-coding, highlighting, regular review of learning points
• Making progress in their maths learning	• Opportunities to consolidate learning through play
• Sharing their thinking around maths tasks with peers or adults	• Access to worked examples and read world examples
• Using or applying mathematical concepts	• Allow the CYP to talk through their learning and thinking
• Sense of number and estimation	• Reinforce understanding of maths using 'hands-on' diagrams and models
• Keeping up with the pace of learning	• Follow Concrete, Pictorial, Abstract sequence of learning to introduce new concepts
• High levels of anxiety within the maths classroom	
• Mental arithmetic skills	
• Basic understanding of quantity	
• Understanding Base-10	
• The four operations of addition, subtraction, multiplication and division	
• Recording operations using written methods	
• Difficulty understanding specific concepts such as fractions, ratio, percentages, time and money	
	Resources:
	• Dyscalculia toolkit resources Products – Dyscalculia Toolkit
	• Bradford Primary Maths Toolkit
Reading skills in maths	
CYP may have difficulty with:	
• Reading mathematical questions	• Provide key words and sentence frames to support discussion around maths
• Reading maths at a pace that is line with peers	• Peer reading support for language heavy questions
• Understanding and using new mathematical language	• Use of visuals and actions to support the introduction of new mathematical vocabulary and concepts. Allow extra time, chunk and colour code steps in a problem
• Remembering longer mathematical questions	• Use a large red decimal point and make it obvious
• Using decimal points and place value	• Print tables in a different colour or highlight them
• Reading or 'seeing' vertical tables	
Memory and speed of working in maths	
CYP may have difficulty with:	
• Remember verbal instructions, remembering information, keeping up with the pace of lessons	• Avoid copying from the board

<ul style="list-style-type: none"> Remembering sequences of numbers and therefore times tables 	<ul style="list-style-type: none"> Carefully choose language and length of verbal instruction. Encourage highlighting and chunking. Present information in a multisensory way
<ul style="list-style-type: none"> Remembering words for symbols and the procedure the symbol represents 	<ul style="list-style-type: none"> Teach times tables in a multi-sensory way with colour, rhyme, music finger tables
<ul style="list-style-type: none"> Remembering where to begin in a page and presenting work in an organised way 	<ul style="list-style-type: none"> Teach each symbol in a multi-sensory way with physical movement and memory cards and on active displays
<ul style="list-style-type: none"> Finishing work in the given time scale 	<ul style="list-style-type: none"> Discuss page size, model examples and use larger squared paper or mark where to start
<ul style="list-style-type: none"> Answering independent or confidently and they may need lots of checking from adults or peers 	<ul style="list-style-type: none"> Practice 'against the clock'/sand timer in fun ways. Allow more time, allow time for discussion before timed tasks
<ul style="list-style-type: none"> Managing stress when working in time pressures 	<ul style="list-style-type: none"> Develop estimation skills so that they can be more confident with their answer when comparing to an estimate
	<ul style="list-style-type: none"> Lots of opportunities to work in timed situations with limited pressures

Directional confusion in maths

CYP may have difficulty with:

<ul style="list-style-type: none"> Using left and right 	<ul style="list-style-type: none"> Use a marker to help pupil start in the right place, prompt and sit with peers
<ul style="list-style-type: none"> Mathematical language such as prepositions (above, below) horizontal, vertical, diagonal 	<ul style="list-style-type: none"> Use physical movement to demonstrate direction, signing or communication in print
<ul style="list-style-type: none"> Reading from and recording on tables, charts and graphs 	<ul style="list-style-type: none"> Colour code axes and column, row headings, use an L-shaped piece of card to read from tables/ use direction arrows on graphs and colour code co-ordinates
	Resources
	<ul style="list-style-type: none"> Access to concrete resources (an' enable table') whiteboards, number lines, range of concrete resources
	<ul style="list-style-type: none"> See Manipulatives (maths.org) for support using manipulatives
	<ul style="list-style-type: none"> See Videos of children using Cuisenaire rods: The Cuisenaire Company