



Strategies to remove potential barriers in the curriculum

Subject: Science

Potential barrier	Adaptive teaching to overcome barrier
Difficulty with recording information or literacy difficulties	<ul style="list-style-type: none"> • Use alternatives to written recording. Eg. Drawing, scribing, word processing, mind maps, digital images, videos, voice recordings • Provide topical work banks and picture cards that the learners can point or refer to when explaining scientific processes • Scaffold learning to make it accessible for all. Eg. If writing up the method for their experiment, a learner with barriers to writing could verbally explain it for an adult to scribe, note take to film explaining answers • Prepare tables for children to record information into • Allow the use of templates • Allow additional time to complete the work with fizzy breaks when needed • Provide lists of key concepts or vocabulary spelling • Sentence stems • Use of colourful semantics
Difficulty with retaining vocabulary	<ul style="list-style-type: none"> • Use visual prompts too direct children • Give one or two instructions at a time. Represent each one on a finger • Build a subject specific vocabulary guides • Pre-teach key vocabulary, then ensure consistently used and embedded and applied • Retrieval practice • Practical and hands on learning • Use voice recordings, photos, prepared grids etc as evidence of learning • Provide word banks that are accessible throughout the science topic. Encourage children to tick the words that they feel confident with to help target language that still needs support
Reading	<ul style="list-style-type: none"> • Reading with a peer who can read to them • Adapted text at their reading level so they can fluently read and retrieve information independently
Processing questions	<ul style="list-style-type: none"> • Given opportunity to discuss the answers to questions in pairs, before the teacher requests verbal answers • Prepare pupils to contribute to feedback sessions, visual prompts

<p>Working and long term memory</p>	<ul style="list-style-type: none"> • Reduce the amount of material to be remembered and repeat and display important information • Retrieval practice • Use of memory aids- posters, working wall, provocation areas, word banks • Mental processing and explanations of complex tasks and concepts are simplified • Activities are structured so that children can use available resources such as word banks • Using a digital camera to capture each stage of an investigation, or important findings can be used to build a visual record • Keep instructions short and use visual prompts eg. Lists, diagrams. Break tasks into manageable chunks and steps • Check in that the child/ren knows what to do • Now/ next/ sequencing boards to structure thinking for learning • Big focus on We do element of the session- over teaching • Avoid cognitive overload and not rushing through content • Simple visuals that avoid cognitive overload
<p>Attention and focusing</p>	<ul style="list-style-type: none"> • Create a working classroom environment that is calm and simple. Eg clear routines, organised workspace • Use preferential seating and proximity to engage all children- can you access target children? • Plan movement breaks and classroom jobs • Reduce the I do and more focus on the we do • Reduce cognitive overload and too much talk • Practical and engaging learning opportunities
<p>Maths</p>	<ul style="list-style-type: none"> • Provide templates to help with drawing tables and graphs • Ask children to talk through what graphs and tables are showing • Represent data in more concrete methods eg. Numicom, concrete graph with resources • Allow additional time to complete tasks 'with numbers' • Use concrete apparatus to help eg. Number lines • Check mathematical language is understood • Use adaptive scales and equipment which are clearer to process
<p>Change and transition eg to the science lab</p>	<ul style="list-style-type: none"> • Science doesn't always follow the same lesson format and structure, so prepare children in advance by explaining how the lesson will run • Use visual timetables to segment the lesson into manageable chunks that are achievable for the child

Additional strategies

<p>Visual prompts</p>	<p>Use visual prompts to support the pupil's learning eg.</p> <ul style="list-style-type: none"> • Pictorial task cards • Writing frames give the children a starting point to build on • Word mats to keep relevant vocabulary close to hand • Working walls • Task plans- provide instructions for a task visually using the headings <p><i>What do I need?</i> <i>What do I need to do?</i> <i>What happens after that?</i></p> <p>A visual framework used with the science report writing and investigation symbols and prompts</p> <p>Provocation area</p> <p>Retrieval practice images</p>
<p>working for independence</p>	<p>All pupils should be able to participate in classroom learning and activities. Plan for involvement by:</p> <ul style="list-style-type: none"> - Providing plenty of opportunity for pupil participation - Carefully scaffold questions to build confidence - Ensure that you and other adults hold back, give thinking time, time to process and talk - Make explicit links to previous learning - Ensure that pupils are familiar with a range of resources they need to use - Provide supportive handouts - Ensure individual is facing the board - Colourful semantics