



**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"> <li>• Use alternatives to written recording. Eg. Drawing, scribing, word processing, mind maps, digital images, videos, voice recordings</li> <li>• Provide topical word banks and picture cards that the learners can point or refer to when explaining scientific processes</li> <li>• 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</li> <li>• Prepare tables for children to record information into</li> <li>• Allow the use of templates</li> <li>• Allow additional time to complete the work with brain breaks when needed</li> <li>• Provide lists of key concepts or vocabulary spelling</li> <li>• Sentence stems</li> </ul>
Difficulty with retaining vocabulary	<ul style="list-style-type: none"> <li>• Use visual prompts too direct children</li> <li>• Give one or two instructions at a time.</li> <li>• Pre-teach key vocabulary, then ensure consistently used and embedded and applied</li> <li>• Retrieval practice</li> <li>• Practical and hands on learning</li> <li>• Use voice recordings, photos, prepared grids etc as evidence of learning</li> <li>• Provide word banks that are accessible throughout the science topic.</li> </ul>
Reading	<ul style="list-style-type: none"> <li>• Reading with a peer who can read to them</li> <li>• Adapted text at their reading level so they can fluently read and retrieve information independently</li> </ul>
Processing questions	<ul style="list-style-type: none"> <li>• Given opportunity to discuss the answers to questions in pairs, before the teacher requests verbal answers</li> <li>• Prepare pupils to contribute to feedback sessions, visual prompts</li> </ul>

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

## Additional Strategies

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