Science

Barriers to and solutions for Engagement, Progress and Achievement in Science

- Safety and risk assessments should be in place for practical lessons with children's behaviour/sensory needs in mind
- Ensure adults have an overview for safety or do experiments in small groups
- Use of word banks support understanding of **new vocabulary** for **all children**

	Hearing Impairment	Visual Impairment	Dyspraxia (fine/ gross motor)	Memory/ processing	ASC/ADHD	Speech and language	Cognition and Learning	SEMH
Barriers identified by SENCo/Class teacher	• Difficulty in hearing instructions • Vocab • Managing practical investigations/ interactions • Filtering noise to hear what is important • Difficulty with vocabulary. • Awareness of safety • Group work	• Reading • Navigating classroom • Managing resources and equipment • May struggle with contrasting colours on the board	• Managing physical resources particularly "fiddly bits" such as crocodile clips in circuits • Difficulty recording • Difficulty following the organisation of charts or reading of data from a graph	• Recall of instructions • Remembering key facts and vocab • Retaining focus	• Specific interests • Attention span • Fine motor skills • Managing physical resources particularly "fiddly bits" such as crocodile clips in circuits • Difficulty recording • Concentration span • Safety regarding impulsive behaviour • Difficulties sharing	• Understanding instructions • Memory of subject specific words	• Understanding concepts • Recording • Retaining information • Memory of subject specific words and definitions	• Making links to prior learning • Resilience/fear of failure. • Could be lack of science capital

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Solutions Identified by subject co-ordinator, SENCO, Class teacher	• Positioning in classroom • Visuals Pictorial representations • Vocab lists and explanations/dictionaries so words can be revised • Position with role model for safety • Task planners	• Positioning • Colour coding for more hazardous equipment/possible allergens • Pre-experience/pre-teach • Enlarged texts • Extra support during practical experiments • Technology for recording (voice to text) • Speak directly to child • Peer support (vary the peer) • Use adult/peer to support if outside	• Adapted equipment eg digital thermometer • Alternative ways of recording • Support with measuring and ensure pupil can use equipment • Adult support with cutting out etc. • Support with organisation of resources • Writing and speaking frames • Support for written tasks or reduced recording • Adult used to draw charts etc and child completes	• Task planner • Visual representation / what to do in pictures • Visual clips • Well prepared resources/ mind map etc • Peer support • Writing and speaking frames • Use of mnemomics • Allow time to answer – at least 10 seconds	• Ear defenders if needed • Additional equipment if they need to work alone • Drawing and labelling to show understanding • Sentence starters • Support turn taking • Step by step instructions • Movement breaks • Assess risks – eg certain smells or noise sensitivity • Oral discussion and questions used for assessment if written work incomplete • Writing and speaking frames	• Step by step instructions with visual clues • Key vocabulary pre-taught and recapped regularly with visual prompts • Key works on display • Definitions for subject words in books- pupils encouraged to look them up. • Ensure understanding • Drawing and labelling to show understanding • Writing and speaking frames • Allow time to answer	• Revisit prior learning • Pre-teach and post teach • Ways of recording – cloze label diagrams, record, pictures • Knowledge organisers • Sentence starters • Writing and speaking frames • Hovering of adults to ensure support is given as soon as needed • Oral discussion and questions used for assessment if written work incomplete • Closed recording • Scaffolded support	• Revisit prior learning • Ways of recording – cloze label diagrams, record, pictures • Knowledge organisers • Praise • Careful grouping if shared work/ practices- supportive peer. • Visual timetable so child knows when science takes place and pre-warn of group work • Specific roles in group work • Pre-empt conversations with parents eg when talking about inheritance, adopted children