

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

	Hearing Impairment	Visual Impairment	Dyspraxia (fine/ gross motor)	Memory/ processing	ASD	ADHD	Cognition	SEMH
Barriers identified by SENCo/Class teacher	<ul style="list-style-type: none"> • Difficulty in hearing instructions • Vocab • Managing practical investigations/ interactions 	<ul style="list-style-type: none"> • Reading • Navigating classroom • Managing resources and equipment 	<ul style="list-style-type: none"> • Managing physical resources particularly “fiddly bits” such as crocodile clips in circuits • Difficulty recording 	<ul style="list-style-type: none"> • Recall of instructions • Remembering key facts and vocab • Retaining focus 	<ul style="list-style-type: none"> • Noise and movement-over stimulation • sharing equipment • amount of vocab 	<ul style="list-style-type: none"> • Waiting and frustration especially when experiments don’t work as planned • turn taking • maintaining attention • recording 	<ul style="list-style-type: none"> • understanding of process, language • retention/ application of language knowledge to task • remembering vocabulary 	<ul style="list-style-type: none"> • Motivation • Participation • Team/partner work • Sharing materials and “air-time”
Solutions Identified by subject lead, SENCO, Class teacher	<ul style="list-style-type: none"> • Positioning in classroom • Visuals such as photos diagrams and practical examples 	<ul style="list-style-type: none"> • positioning • colour coding • adapted resources • pre-experience/pre-teach • Ensure position in the class where the child can easily see the board or the demo. 	<ul style="list-style-type: none"> • adapted equipment • alternative ways of recording e.g photos of the investigation • paired work • Dictated writing with teacher as scribe 	<ul style="list-style-type: none"> • visual representation and recording • video and pictorial instructions • pre-post teach • well prepared resources • Recap prior learning • Reference to glossary page in science book 	<ul style="list-style-type: none"> • Own set of equipment where possible • Sufficient quiet space • Well planned transitions – ie between carpet and desk • Visual instruction • Worked examples • Noise defenders • Knowing prior to group work who they will be working with • Vocabulary list / word bank • Discussion of definitions and ambiguous vocabulary 	<ul style="list-style-type: none"> • Sufficient quiet space • Well planned transitions – ie between carpet and desk • Visual instructions • Worked examples • Writing frames • Photo recording • Pre write the LI 	<ul style="list-style-type: none"> • Concrete resources where possible • Glossary in books • Use of a vocabulary or word bank • Support with recording such as teacher scribe • Practical tasks wherever possible • Discussion of what they are learning • Photo recording • Vary methods of recording (labels, captions, true/false,sequencing etc • Break tasks into small steps 	<ul style="list-style-type: none"> • Clear end points • Clear expectations • Modelling and explanations clarity • Careful pairings • Own resources/ working alone where appropriate • Opportunities to write questions privately to give to teacher especially when covering difficult subjects such as human reproduction

- Clarity of instruction, explanations and modelling are crucial
- Ensure that the most important aspect of learning is made clear – cognitive load theory is relevant for all pupils with SEND both in terms of what pupils see and hear and are expected to learn
- For many pupils with SEND, it is often the recording of the content rather than the content itself which provides the greatest level of challenge in lessons, and this should be addressed in the planning and preparation for lessons.
- Motivation is vital to bring about engagement – if it feels too hard or too easy it will not be motivating