20 ideas for supporting SEND learners

1. **Know your students.** Speak to your SENDCO and find out who is on the special needs register and who has an EHCP. Students who are will usually have an education plan or pen portrait which identifies their special needs and strategies that might be useful when teaching them.

2. **Aim high.** Many teachers underestimate what students with special needs are capable of. Students can often understand the scientific concepts but struggle to express themselves in writing or to apply their knowledge to new situations.

3. **Structure and routines.** Students with SEND, especially those who are autistic need routines and structure in lessons. Seating plans, well organised storage of apparatus and routines for practical lessons are examples of this. Be consistent in your approach and in your teaching.

4. **Keep it real.** Science teachers have the advantage that science teaching is about explaining how the world (and the Universe) around them works. Help students by linking lessons to everyday life so they can see how the content relates to their life, which in turn helps them to understand and remember.

5. **Environment.** The environment makes a huge difference to learning, especially those students who are autistic. Avoid busy and cluttered displays, keep visual stimulation to a minimum and keep surfaces bare and clutter free.

6. **Break tasks down.** Chunking or breaking tasks and instructions down into smaller, achievable steps helps those with SEND as well as those with low self-confidence. This prevents overloading the working memory.

7. **Miss things out.** Don't feel that you need to cover every single piece of the curriculum for learners with SEND. It is better to cover 75% of the curriculum in depth than 100% superficially with no understanding or depth of knowledge. Make sure students understand this and know the implications for exams.

8. **Scaffolding.** Provide structure to help your students complete their work. This could be a writing frame, a structure strip or an approach to extended writing questions. Scaffolding also helps students focus on the science content rather than worrying about how to organise their work.

9. **Executive function skills.** Many students with special needs have poor executive function skills so are poor at managing time and organising themselves. Help students by giving step-by-step instructions, checklists, and timers to help them develop these useful skills.

10. **Visual supports.** Visual instructions are a way you can give students with weak literacy skills (or poor executive function skills) instructions for practical work or tasks. Students with autism benefit from instructions written on a whiteboard in format of now, next and finally.



Vocabulary. Give students a keyword list for each topic and practice breaking words into syllables, using in context in a sentence. You can't remove the terminology from science, so you must help students to learn it (and don't forget to make sure students know the GCSE command words).



Reading age. Be aware of the reading age of texts that you give to students. The vocabulary and sentence length determine the reading age so try to stick to short sentences and words with fewer syllables. Some students find certain fonts harder to read so choose the fonts for your own resources carefully.



Revisit content. Ebbinghaus collected data which has been followed up with modern studies looking at retrieval practice and recall. The upshot is that the more times you cover content, the more likely students are to remember it. Build in low stakes testing and retrieval practice at the ends of lessons.



Reducing the numeracy and literacy demands. Many students with SEND can grasp the scientific principles but struggle to get their ideas down in their books. Give them other ways to demonstrate their knowledge such as matching answers, missing words or step-by-step methods for a calculation.



Visual aids. Short video clips, animations, and demonstrations help students to learn and remember. Don't take life experiences for granted - students with SEND may have a low cultural capital so factor this into your planning.



Practical work. Students with special needs can find the abstract ideas in science difficult, so practical work can help them understand difficult concepts through experience. Practical work can also help students develop other skills like teamwork and data handling that can otherwise be overlooked.



Modelling. Give students the opportunity to work with physical models (as well as the traditional models we associate with science teaching). You can make model cells, model osmosis with sweets, make model lungs, model the flow of electricity and the movement of energy.



Games. Some games can be used as part of the teaching sequence (for example games where you have to research) and some can help with recall and retention after teaching (such as loop cards, and snakes and ladders).



Technology. Digital microscopes can help students who struggle to use an optical microscope (as well as helping students work cooperatively). Other types of technology such as voice transcription software (built into Office) can help students with weaker literacy skills.



Excel. Results typed into a spreadsheet (for example from a required GCSE practical) can be averaged, rounded and plotted onto a graph so that science concepts are not lost due to weaker numeracy skills. Conditional formatting can be used to colour code the larger of two numbers so that students can easily see trends in their results.