



Modifying the curriculum to support pupils' needs in Science

Planning for pupils with SEND is part of the planning that we do for all pupils at Mandale Mill Primary School. Removing barriers for pupils with SEND ensures that all children can learn and progress in ways that are personalised to them. Any personal targets a pupil has can inform this planning. At times, it may be appropriate to plan smaller steps to achieve the learning goal or provide additional resources.

We feel that is more than just giving pupils 'access to the curriculum'. The curriculum is not immovable, like some building, to which pupils with SEND have to gain access. It is there to be changed, to make reasonable adjustments, where necessary, to include all pupils. We do this by setting suitable learning challenges, responding to pupils' diverse learning needs, and overcoming potential barriers to learning and assessment for particular individuals, and groups of pupils.

Maintaining an inclusive learning environment when teaching Science at Mandale Mill Primary School

Sound and Light

Teacher's face can be seen – avoid standing in front of light sources, e.g. windows

Pupils use hearing and low vision aids, where necessary, and video presentations have subtitles for deaf or hearing-impaired pupils and those with communication difficulties, where required.

Seating

Seating should allow all pupils in the class to communicate, respond and interact with each other and the teacher in discussions.

Avoid the need for copying lots of information from the board. For example, notes on interactive whiteboards can be printed off for all pupils.

Children who have difficulties with hearing and sight should be sat appropriately in regards to the board and teacher position.

Resources

Resources are:

Accessible, e.g. within reach, and labelled clearly to encourage independent use, e.g. using images, colour coding, large print, symbols, Braille, as appropriate.

Multi-sensory approaches

Build on pupils' preferred learning styles when explaining concepts, by using different media – e.g. diagrams, stories, acting out processes, computer simulations, concept mapping, etc.

Use mind maps to help pupils see patterns and relationships.

Simple audio recorders can be used to revisit instructions

Use voice recording/ video for presentation

when teaching – e.g. visual, tactile, auditory and kinaesthetic approaches are used, such as supporting teacher talk with visual aids; using subtitled or audiodescribed film/video

For recording – alternatives to written recording are offered, e.g. drawing, scribing, word processing, mind maps, digital images, video, voice recording

ICT

ICT can be used to make science lessons more accessible for all pupils. For example, it can be used to:

Capture images and processes and replay them at different speeds and magnifications, and with particular image characteristics – e.g. to help pupils study events and causality, to identify underlying patterns or to look at detail .

Monitor activities and experiments that require mobility and dexterity that some pupils do not have, and to explore difficult or dangerous environments.

Present work in a variety of formats, e.g. filming on iPad/text to speak/photography

Planning Support

The pre-teaching of important scientific vocabulary and key concepts and/or processes, where appropriate.

How to 'scaffold' pupils' use of equipment, especially for complex tasks and for tasks requiring accuracy or skill.

Whether pupils need support in using science equipment, especially for tasks that require a high level of skill or accuracy.

Use of knowledge organisers that help reinforce vocabulary and key word.

Organisation of groups before experiments so that children are in mixed ability and can learn from each other and help each other.

Pupils are assigned specific roles e.g. chair, writer, reporter, observer) which gives all pupils something to do and keeps them focused.

Transitions

Transition from whole-class to group or independent work, and back, is clearly signalled. This is particularly helpful for pupils on the autistic spectrum

Teachers' and Pupils communication

Recognise that the language of science may be challenging for many pupils – for example:

The specific scientific use of everyday words such as 'weight', or " terms specific to science, such as 'electrical circuit'.

Plan to teach new language explicitly.

Build on investigations, using careful discussions that help pupils understand and use scientific vocabulary and help them to analyse and understand what they have observed.

Relevant and Motivating Tasks

Identify pupils' existing science knowledge and prior experience – e.g. using posters, concept maps or mind-mapping software.

Use real objects as a starting point for developing the concepts and the language needed to describe, discuss and explain what pupils have observed or experienced.

Supporting reliance on memory

Use a digital camera to capture each stage of an investigation, or important findings on a field trip, for future reference.

Images can also be used to build a visual record.

Use mnemonics to help pupils remember things like the order of the colours in a rainbow or the relative distance of the planets from Earth.

The use of memory aids is encouraged. These can include wallcharts and posters, useful spellings, personalised dictionaries, cubes, counters, abacus, unifix blocks, number lines, multiplication grids, calculators, memory cards, audio recorders and computer software.

Activities are structured so that pupils can use available resources, such as word banks

Pupil Teacher interaction

Asking questions and expecting an immediate response often results in silence.

Think-pair-share can be a useful technique for promoting speech in science lessons:

Think – give pupils initial time to think and jot down some thoughts

Pair – they share their thoughts with a partner

Share – they share their ideas with the class.

This need only take a few minutes