



Including pupils with SEND in Design & Technology

Sound and light issues

- Avoid demonstrations or discussion when machines are running.
- The noise in design and technology lessons can be very uncomfortable for pupils with a hearing impairment. While a pupil is working on a practical activity allow them to switch off their aids if it is very noisy (remind them to switch them on again afterwards).
- Interactive whiteboards are non-reflective to reduce glare.

Seating

- Consider the accessibility of demonstrations.
- Plan the demonstration area so that it is clearly laid out, uncluttered and gives all pupils a clear view.
- Height-adjustable tables, sinks and hobs make activities more accessible.
- 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. For example, notes on interactive whiteboards can be printed off for all pupils.

Resources

- Use systems such as racks so that items such as tools can be found and put away easily.
- To make tasks accessible, pupils use, where appropriate:
 - " specialist aids – eg talking weighing scales, jigs to aid cutting, templates, patterns, ready-made parts, kettle-tipping devices, sprung or electric scissors, and
 - " generic aids – eg jumbo pencils if hand control is weak, non-slip mats (dycem) to hold papers, books and equipment in place, BluTac to hold small items or as a temporary fixing (eg for rulers when drawing).

Health and safety

- Consider the safety of demonstrations.
- Make sure pupils do not come into contact with materials they are allergic to.

Multi-sensory approaches

- Prepare visual prompts, using images, photos or symbols, showing the order to carry out a sequence of activities for a particular process. Checklists allow pupils to see what they have completed, what to do next and where to finish.
- Some pupils will need to use non-visual means to evaluate different products, to use this information to generate ideas and to become familiar with tools and other equipment. This will require extra time.

ICT

- In design and technology lessons, ICT can:
 - help pupils model ideas and design products – eg using graphics, computer-aided design (CAD) software or spreadsheets
 - support making activities using computer-aided manufacturing (CAM) equipment such as embroidery machines, plotter/ cutters etc, and
 - be used to develop symbol-supported recipes or instructions.

Planning support

- Support could include:
 - carrying out activities by following the pupil's instructions
 - specific support so that pupils can engage in certain practical activities, eg translating design ideas into a drawing.
- Pupils working at national curriculum level 1 will use tools and equipment 'with help where needed', and without this support will not be able to achieve. For these pupils, supervision and help from an adult and/or buddy in the making stages is invaluable for them to learn and practise skills safely.
- Additional adults should promote pupils' independence by giving guidance and asking questions that enable pupils to:
 - think for themselves – pupils should not always be following a designing and making process step by step, with the teacher/ additional adult doing most of the thinking, and
 - perform tasks for themselves – there is a fine line between intervention and taking over a pupil's project.
- Additional adults should be clear about:
 - the order and importance of processes in a task
 - the skills and knowledge they must promote, and
 - the health and safety rules, eg basic food hygiene.

Managing group work and discussion

- Design and make assignments give pupils opportunities to work as individuals or in a team, learning from the work of others. For some pupils, eg those on the autistic

spectrum, developing ideas with others can be challenging. Pairings and groupings need to be sensitive to this.

Teachers' communication

- Clarify technical terms that have different meanings in other contexts, for example 'knead'/'need', 'grain', 'glaze', 'form', 'saw', 'seam', etc.
- Labels placed around the room, lists of key words, posters, etc can help pupils to recognise and spell the names of important pieces of equipment. Flow diagrams of key processes, time plans or design prompts with graphics may also be helpful.
- Ask pupils open-ended questions at first, for example to elicit original ideas and get a feel for their level of experience – eg "Has anybody got any ideas of other foods we could add to this bread to make it different?" If ideas are not forthcoming or are limited, have real examples ready.

Pupils' communication

- Pupils could contribute to product evaluation, where appropriate, using simple choice cards with words and/or symbols, eg for like/dislike, simple ranking or recording sheets.

Pupil-teacher interaction

- Many pupils find talking about what they have done easier than talking about what they plan to do.

Understanding the aims of the lesson

- For example, for the objective:
To know that we need to eat five portions of fruit and vegetables a day, show pupils real or pictorial examples of '5 a day'.

Pupils know where they are in relation to learning aims

- Break down the designing and making stages into small manageable steps, and incorporate designing into 'mini making' tasks with specific targets. Use a tick list or wallchart so that pupils are clear about what they are working towards and how far they have got in relation to completing the project.

Understanding assessment criteria

- Encourage pupils to become aware of their own and others' work through:
 - investigating, taking apart and evaluating products, and

- evaluating other designers' work against clear criteria.
- Encourage pupils to use these skills to evaluate and improve their own work.
- Pupils may find it easier to:
 - look at a limited range of products at one time
 - have a mixture of familiar and less familiar products to look at
 - use prepared forms to record their responses, and
 - discuss, examine and taste products as a group rather than relying on written descriptions.
- Make sure that pupils, particularly those with BESD (behavioural, emotional and social difficulties), judge their own work against the design specification rather than against the work of other pupils.

Reviewing progress and helping pupils to improve

- When pupils destroy work or struggle when they make mistakes, highlight the developing ideas and mistakes of professional designers and others. Show how mistakes can be corrected, to remove pupils' fear of making mistakes.

Understanding the structure of the lesson

- Warn pupils when they will need to be flexible, and anticipate and plan to cope with the distress this may cause some pupils. For instance, a food product may take between 10 and 15 minutes to cook, and some pupils may become distressed if it is not ready exactly on time.

Relevant and motivating tasks

- Avoid abstract contexts. Provide a range of concrete starting points, materials and techniques.
- Provide opportunities for pupils to design for real purposes and to make real decisions.
- Choose projects where pupils can produce high-quality products, so they can be proud of what they have designed and made. This will raise their confidence and self-esteem and encourage them to be more ambitious in designing and making in future projects.
- Consider the length and complexity of tasks. Some pupils may be daunted by long or seemingly difficult tasks, and lack the confidence to get started. Pupils often find it easier to work on shorter, more focused assignments, which provide small elements of success to reward and motivate them. Break projects into smaller steps – eg instead of broad stages such as 'research', list sub-stages such as:
 - write five questions for your survey
 - ask your target audience to answer your survey
 - record your results, and
 - present your results.
 - Short, focused practical tasks (FPTs) are closely structured and led by the teacher. They allow pupils to practise and succeed in one or more design and technology processes. They build pupils' confidence and can give them ideas for their design –

eg doing a series of biscuit-making activities before pupils consider how to design and make a new biscuit. These 'mini making' activities are highly motivating for pupils as they can see the results of their progress and efforts immediately.

- Design and make assignments give pupils the chance to put their knowledge and skills to the test in meeting challenges that address real needs and wants, and to apply design ideas and concepts in real and practical ways.
- If pupils only produce few or stereotypic ideas because they do not want to risk failure, provide plenty of stimuli, ideas and alternatives, including design solutions. These stimuli might include:
 - visits as a stimulus for design contexts
 - experts working alongside pupils (make sure they are well briefed), and
 - tasks related to pupils' hobbies, interests and strengths.
- Some pupils could join a project part-way through, eg after the research is complete, so they can get into modelling and making more quickly.
- Where pupils' experience is limited, ask them to adapt, make improvements or add a new feature to the design of an existing product rather than 'invent' a whole new product.
- Devise activities for some pupils based on their strengths and successes. For example, this may mean centring activities around 'making', and letting other important processes be incorporated through and around making – for example, using three-dimensional 'mock-ups' rather than drawings. When a pupil only wants to 'make', choose a task that will only work if some designing is done.

Reducing reliance on memory

- Using digital cameras to record each stage of designing and making, then sequencing the photos, can be a useful tool to aid pupils' memory of the stages of completing the work.
- Display step-by-step reminders of key processes.
- Regularly repeat and reinforce previously learnt skills and processes.