



Design & Technology Policy 2021-2024

Adopted by
Highfields Academy on

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Definition

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.

“Design Technology is all about making things that people want and that work well and are durable. Creating these things is hugely exciting: it is an inventive, fun activity”.

James Dyson, Chairman/Owner, Dyson Ltd.

Curriculum Intent

At Highfields Academy, we have designed our Design and Technology curriculum to be fun and practical. Through meaningful projects and contexts, children will learn to identify the needs and opportunities within a problem and solve these through investigating existing products, planning, developing ideas, making and evaluating their own outcomes. Design and technology projects will enable children to be creative, reflect and make informed choices and positive changes to their everyday lives as well as gain essential practical life skills such as food preparation. Design and technology will help children to become more mindful and develop personal, social and environmental values. It will prepare them for a future as consumers and citizens in our rapidly changing world as well as develop their problem solving, critical thinking, creative skills and resilience.

Aims

At Highfields Academy, Design and Technology allows children to experience first-hand the design process which involves designing, making and evaluating. In Design and Technology lessons, we aim to encourage children to:

- Investigate and evaluate existing designs and products.
- Research how people in the past and present have used design to meet needs.
- Draw and model ideas about how products work.
- Creatively solve real and relevant problems.
- Develop technical skills through focused practical tasks.

- Plan, design and make prototypes for their own product.
- Make reasoned choices about materials, tools and techniques in order to design and make quality products.
- Be reflective and able to adapt and refine their own products.
- Evaluate their own products and those of others constructively.
- Explore food and cooking techniques along with healthy eating, food production and food hygiene.

Curriculum Implementation

Planning

At Highfields Academy, our Design and Technology curriculum is based upon the 2014 Primary National Curriculum in England alongside the Design and Technology Association's 'Projects On A Page' documents. Our long term planning allocates three Design and Technology projects for each year group; one of which is food based in order to instil a love of cooking and develop this crucial life skill. Ideally, one Design and Technology project is completed each term although this is at the discretion of the class teacher and how Design and Technology fits into their cross-curricular planning and class's interests.

Teachers plan lessons for their class using our progression of knowledge and skills document which has clear, focused objectives and key vocabulary for each year group to ensure continuity and progress. This is supported by technical advice within the Design and Technology Association's 'Projects On A Page' documents and knowledge organisers.

In our Early Years Foundation Stage, Design and Technology is an integral part of topic work and continuous provision and the objectives are taken from the 2020 EYFS Development Matters statements and Early Learning Goals, particularly Physical Development and Expressive Arts and Design. Weekly designing and making activities or challenges are made available for child-initiated development and learning both inside the classroom and within the outdoor area. In addition, there are teacher led activities throughout each term to develop specific technical skills including baking.

Teaching and Learning

All teaching of Design and Technology at Highfields Academy follows the design, make and evaluate cycle. We endeavour to make the design process relevant and meaningful by providing a familiar context or problem for the children to solve. Children are given opportunities to first investigate and gain inspiration from existing products before practising and developing skills involved in the project and then generating ideas for their own designs. While making, children are given choice and a

range of tools to choose freely from in order to adapt or innovate products using their own ideas and imagination. When evaluating, children consider how their own products have performed against design criteria. During each of these steps, teachers model and reinforce technical knowledge and vocabulary from our Design and Technology progression document.

Work is recorded in our Design and Technology books which follow the children through the school in order to provide a record of their skill development and progression of skills throughout their time at Highfields.

Whole class, small group or individual work is used as appropriate to the age group and activity based on the teacher's judgement. We endeavour to allow all children to access our curriculum by differentiating and modifying learning tasks in order to overcome barriers to learning and also provide challenge for more able children by extending tasks, asking open-ended questions, using a wider range of resources and more involved research opportunities.

Curriculum enrichment and Cultural Capital

Alongside our curriculum provision for design and technology, we also endeavour to provide our children with the opportunity to participate in some DT based after-school clubs which include STEM activities or cookery.

Educational visits are another opportunity to extend the children's experiences in Design and Technology. At Highfields Academy, the children have used local secondary schools, bakeries and restaurants to experience food technology and years 5 and 6 have developed their knowledge of food hygiene and safety practices at the "Safety Hub". Whole school projects such as Enterprise Day or Healthy Eating Week as well as specialist visitors also develop the children's knowledge and skills and introduce them to the world of work.

School values developed in Design and Technology:

Through Design and Technology, we endeavour to help everyone to be:

- Respectful
- Responsible
- Resilient
- Rounded
- Rewarded

Curriculum Impact

The impact of our design and technology curriculum can be seen not only in our children's Design and Technology books but also through the end products, classroom displays and the children themselves. Strong relationships between the children and staff at Highfields Academy creates an atmosphere for learning where children feel valued and successful.

Foundation Stage

By the end of the Foundation Stage, the children should have had experiences which form the foundation for future learning in Design and Technology. They should begin to develop curiosity and interest in their world by exploring construction kits, paper craft, junk modelling, textiles and food. The children should begin to ask questions and explain how things work, use and manipulate a variety of construction kits, cut, fold, roll and attach paper, card, fabric and recyclable materials together as well as handle tools such as pencils, scissors and baking equipment safely with increasing control. They should begin to explore, observe, solve problems, talk about and share their discoveries as well as make healthy food choices.

Key Stage 1

By the end of Key Stage 1, the children should be able to investigate existing products and explore who and what the products are for, how they work and are used, what materials they are made from and what they like and dislike about them. When designing, they should be able to use simple design criteria to generate ideas for their own products using their own experiences and existing products by talking, drawing, making templates, mock-ups and, where appropriate using software. When making, the children should choose from a range of materials and explain why they are being used as well as select from and use a range of tools and equipment to cut, shape, join and finish products. When evaluating, they should be able to make simple judgements about their products and ideas against design criteria and suggest improvements to their own work. They should know about the simple working characteristics of materials and components, the movement of simple mechanisms such as levers, sliders, wheels and axles, how freestanding structures can be made stronger, stiffer and more stable and that a 3-D textile product can be assembled from two identical fabric shapes. The children should know that food is from plants or animals and that it is grown, farmed or caught. They should understand what a healthy and varied diet is, name and sort familiar

foods using the Eatwell Plate and select and assemble ingredients safely and hygienically with support.

Key Stage 2

By the end of Key Stage 2, the children should be able to identify some well-known inventors, designers, engineers and chefs. They should be able to investigate and evaluate a range of existing products, explaining why materials have been chosen, the methods of construction used, how well they work, and how innovative and sustainable they are. When designing, they should carry out their own research using surveys, questionnaires or web-based resources and develop simple design specifications. They should generate innovative ideas drawing on their own research using annotated sketches, prototypes, cross-sectional and exploded diagrams, pattern pieces and computer-aided design with increasing complexity. When making, they should be able to formulate a clear plan, including a step-by-step list of what needs to be done and a list of resources to be used. They should be able to competently select and use appropriate tools to measure, mark out, cut, shape and join and finish with accuracy and give detailed reasons for their choices. When evaluating, the children should critically evaluate their products against the design specification, identify strengths and areas for development, carry out appropriate tests and consider the views of others to make improvements. The children should know how mechanical systems such as cams create movement, how more complex electrical circuits and components can be used to create functional products, how to reinforce and strengthen a 3D structure and how to join a combination of fabrics using appropriate stitching. The children should understand that food is grown, reared and caught in the UK, Europe and the wider world, that seasons may affect the food available and how food is processed into ingredients. They should also know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source and that different food and drink contain nutrients, water and fibre that are needed for health.

Assessment

At Highfields Academy, as in all other areas of the curriculum, assessment is an integral part of the teaching and learning process. Formative assessment in Design and Technology is supported by:

- Observations of the children at work whether it be individually, in pairs, in a group or during whole class teaching as they develop both their practical skills and knowledge.
- The use of open-ended questions that require children to explain and develop their understanding and approaches to their projects.
- The provision of effective feedback through interactive marking to develop the children's thinking

further and consolidate their thought process.

- Monitoring of the quality of end products and photographic evidence kept as a reminder of their work.

Summative assessment is recorded by the class teacher on the school's assessment tracker as the children undertake or complete projects. The children's progress in Design and Technology is also reported to parents through annual reports and termly consultation meetings.

Monitoring the impact of the Design and Technology Curriculum

At Highfields, the Design and Technology leader will monitor the impact of the curriculum through:

- Lesson observations
- Learning walks, including display and environment
- The quality of the children's products
- Scrutiny of planning and books
- Discussions with pupils / pupil voice surveys
- Analysis of progress and attainment data

and is held to account for this through:

- Production of a termly report to the Local Advisory Board
- Attendance at the LAB teaching and learning committee meetings as requested.
- Appraisal and Performance management.

Safety

It is important that children are taught safety rules when undertaking practical tasks. Materials and equipment need to be handled sensibly in Design and Technology lessons and we try to ensure that children do this by modelling correct procedures and practices. It is the teacher's responsibility to make sure that all helpers (TAs, parents etc.) are aware of safety implications connected with any Design and Technology activity they are undertaking. Glue guns will only be used by Key stage 2 children under direct supervision and when there is no other appropriate joining technique. Children are taught how to follow proper food safety and hygiene rules.

Resources

The Design and Technology resources are ordered and organised by the subject leader. Although most of the required resources are consumables and are directly passed to the class teacher before

the start of each project, specialist equipment and cooking implements are stored in a central area. Resources are regularly audited and replaced when obsolete.