Great Sankey Primary School

Design & Technology Policy

'Together We Learn and Grow'

Design and Technology Policy

"Design is a funny word; some people think design means how it looks, but of course if you look deeper, it's really how it works."
-Steve Jobs

"Technology makes possibilities. Design makes solutions."
-John Maeda

Curriculum Intent

Design Technology is a remarkably diverse subject. It should simultaneously prepare pupils to use traditional skills and tools to craft products. It should also allow pupils to be innovative and creative problem solvers, understand and apply technology to challenges.

Design technology is an inspiring, rigorous and practical subject with the opportunity to impact greatly on the future. We want our pupils to understand the benefits of imagination, risk taking and collaboration. The Golden Thread of 'Decision Making' is a key driver within DT, enabling children to have ownership over their own learning, as well being conscious of 'sustainability' within their design process and exploring and considering future careers for themselves. In line with our school intent, we want to provide our pupils with first-hand experiences: DT aims to do this with a range of hands-on projects, collaboration and opportunities to meet and speak with persons of interest within particular fields of Design Technology.

Our aim is for all children to leave as confident, skilled and resilient designers; who understand that Design and Technology is a fundamental part of everyday life and how important both areas of Design and Technology have become in recent years. At Great Sankey Primary, we want children to be able to recall technical knowledge fluently in order to tackle problems across a range of disciplines. Promoting the use of accurate and rich vocabulary alongside high level questioning is included within the DT curriculum. In learning these new skills we want children to see links in the way our technical knowledge and skills can be applied across STEM subjects within our curriculum.

Aims and Purposes

The national curriculum for Design and Technology (DT) aims to ensure that all pupils:

- ❖ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- ❖ think and talk about how things work, and to draw and model their ideas.
- ❖ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- ❖ critique, evaluate and test their ideas and products and the work of others.
- ❖ understand and apply the principles of nutrition and learn how to cook.

Expectations

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. (The 2014 Primary National Curriculum in England, Design and Technology, page 180)

Organisation and Planning

At Great Sankey Primary, DT is delivered termly and links closely to the Design and Technology Association's scheme, 'Projects on a Page'. DT planning is carefully planned over a two-year cycle to engage and excite all our learners and, where possible, link to wider areas of our curriculum. Long term plans map out the elements taught, the range of media/materials and the processes to be developed during each year group. It also ensures an appropriate balance and distribution of work across each term, year group and key stage to ensure coverage of the curriculum.

Our curriculum is designed to provide pupils with the building blocks of skills and knowledge they need to have success and make progress in Design Technology. When taught well, this ensures that all children can achieve the key concepts that underpin learning in each year group/ key stage. The progression of skills and milestone documents support staff and details the progression of knowledge and skills in Design Technology throughout their primary journey. This is all in-line with the National Curriculum. All staff have access to suitable resources for their topics, a variety of subscribed websites and support and help from the subject leader.

Projects on a page documents are to be used to support the planning and implementation of each unit as well as providing instant CPD if necessary. One high-quality product will be created termly and, where links can be made, will fit with other subjects. DT will not be blocked to ensure that knowledge is revisited and reused continuously. Where possible, support is sought out from TCAT (The Challenge Academy Trust) and links made with the 'Fab Lab' STEM centre to support in the delivery of projects.

All projects will be designed for a purpose with a specific audience in mind.

Children in the Early Years Foundation Stage are given the opportunity to explore and use media and materials and to be imaginative through basic and enhanced provision.

The Design Process

The initial stage of each unit is to explore, evaluate and analyse similar products when being introduced to the new unit. This stage will allow children to identify strengths and potential areas for improvement when innovating. The introduction can be done through a 'hook'; a book, visitor, real life problem etc. Other parts of this process may include:

- Disassembling the product and looking at the mechanisms and/or the material/s used to make it.

- Looking at the different features of the product.

- Establishing how the product is constructed.

- Identify the key components of the product (e.g if a fruit kebab, for example, which fruits could be used etc)

- Producing a list of key vocabulary linked to the product. From that, children will be given a general design brief from which they must carry out research of current, existing products in order to understand the current market. Children will identify the 'Why? What? Who? Where?' for the product.

Research

Research around creating a new product for market will be wide ranging, including:

- Primary research: collecting, editing and recording information to enable the designer to produce a range of design ideas for an engaging and supportive product.

- Secondary research: exploring research completed by someone else that is already out there, will also support the construction of the design specification. Visiting museums, galleries, reading books and magazines and visiting shops, websites and online research are examples of secondary research.

Designing

The children will have carried out thorough research in order to be able to create their own design. Using their evaluations of existing products, ideas for innovation and research, children should now be at a stage whereby they know what they want to create with a design specification in mind. At KS2, children may consider the following areas: Function, Looks, User, Materials, Pros and Cons .

An effective range of design ideas includes;

● Freehand sketching: enables the children to quickly produce ideas to show an audience (designers, architects, engineers) their thoughts.

● Prototype designs – an early sample, model or release of a product built to test a concept or process. This design may not be perfect in its fit or finish and can be made from a range of resources such as card, paper, clay or Lego. In KS2 these can be isometric drawings (3D) or may use a computer.

● Range of design ideas - the children may draw/sketch their design and annotate this with information about the design such as, what features they have included in their design. During this lesson the children also answer questions such as: what materials will I need? What tools will I need? What technical skills do I need to practise before making this product? (Some of these may have been previously taught skills that need refreshing or completely new skills)

Once children have produced their final products through the 'make stage' of the process. There is an expectation that they evaluate their work in a way that is appropriate. This may be done verbally with class feedback collected, it may take the form of an individual written evaluation or it may take the form of a 'sensory analysis' style evaluation if the project had a food based focus.

Impact

At Great Sankey Primary, we want the teaching and learning of Design Technology to leave a lasting impression on the children. We want the children to be able to recall new knowledge in spaced retrieval tasks throughout the year, during current topics, across the unit and in other year groups as the children progress through school. In the absence of formal assessment, evidence for impact will be from:

● Design and Technology work in books and through class photographs over time as children gain skills and knowledge. These may be shared on the subject or class 'X' accounts.

● Observations in lessons

● Discussions about what they know and evidence longer term through the unit. Progress will be shown through outcomes and through the important record of the process leading to them. It is important to acknowledge this evidence will look different in each year group / kay stage depending upon the needs and age of the children.

Assessment, Recording and Reporting

Each child's performance in Design Technology will be assessed by the teacher against the learning objectives for the lessons. Children are also encouraged to reflect on their work and suggest ways in which it can be improved. These assessments will then be used to judge pupils progress against end of year expectations for their year group. Pupil progress will be reported to parents in writing through termly parent evenings and end of year reports.
Evidence of children's work will be collected by the subject leader to help demonstrate the level of achievement within each year group across the school.
We promote resilient, problem solving learners who are very articulate and can talk through problems. These skills are at the heart of our design curriculum and children use them to really explore and become passionate, curious and experimental in design.

Inclusion

In every class within school there are children of differing abilities. In order to provide all pupils with relevant and appropriate work at each stage:

- We set suitable learning challenges
- Respond to pupils' diverse needs
- Endeavour to overcome potential barriers to learning

The Role of the Subject Leader

- To advise colleagues, where necessary, on the development of planning and delivering the curriculum.
- To keep up to date with developments in Design and Technology education passing this on to other members of staff.
- To monitor and evaluate progress in Design and Technology to liaise with senior leaders on any action necessary.
- To liaise with appropriate bodies e.g. other TCAT schools, governors, the LEA etc. concerning matters relating to Design and Technology.
- To monitor the quality of teaching and learning in Design and Technology by working alongside colleagues and by viewing children's achievements.
- To keep a portfolio of evidence of children's achievements as well as evidence of pupil voice from across the school using the Subject Leader Sway Handbook.

Teachers Responsibilities

Class teachers are responsible for ensuring that all tasks above are carried out and that DT makes a significant and meaningful contribution to the Great Sankey Primary Curriculum. Teachers must ensure that they are collecting high quality evidence and requesting adequate training if they identify a need for improvement. Teacher's must ensure products are real and purposeful.

Resources

The location and storage of many consumable items can be found in a central DT store, however in EYFS and in Key stage 1 there are many materials within classrooms also. The coordinator liases with staff and replaces and orders stock requirements as needed.
Some tools (e.g. hammers, clamps, junior hack saws) and non-consumable items can be found in the DT cupboard where they are stored safely.

Food preparation and cooking equipment is to be found in the DT along the Key Stage 2 corridor.

Health and safety

When working with tools, equipment and materials, in practical activities and in different environments, including those that are unfamiliar, pupils should be taught:

- About hazards, risks and risk control
- To recognise hazards, assess consequent risks and take steps to control the risks to themselves and others
- To use the information to assess the immediate and cumulative risks
- To manage the environment to ensure the health and safety of themselves and others
- To explain the steps, they take to control risks.
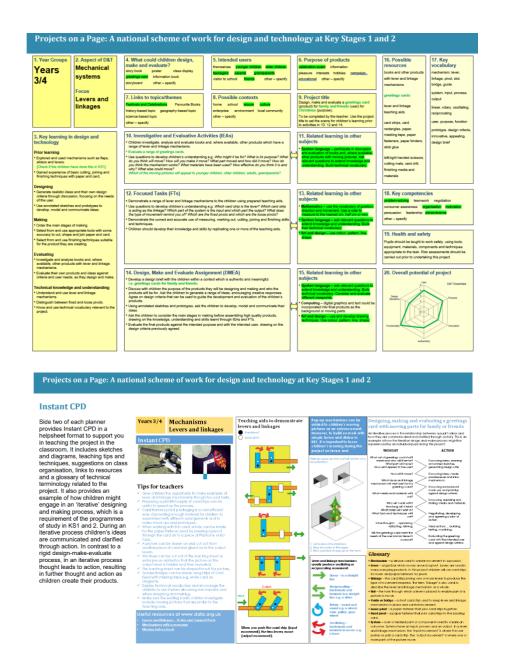- How to follow proper procedures for food safety and hygiene.

Specific health and safety tips and recommendations are provided on the project planners for each project to be completed that term. It is the individual member of staff's responsibility to ensure that they have read, understood and act on any health and safety procedures , including any risk assessments that have been produced by the school's curriculum lead in the GSP Staff Share. These should be read, adapted amended by class teachers to suit individual lessons.

Appendix:

CURRICULUM & PLANNING – GSP Shared Drive Link

Projects on a Page Scheme of work - D&T Association (designtechnology.org.uk)

Design-Technology-Scheme-Guide.pdf (gillespie.islington.sch.uk)

Examples taken from the 'Projects on a Page' scheme of learning.