Design and Technology Policy
Holtsmere End Junior School

Summer 2021

To be reviewed: Summer 2023

1. Intent

DT will help children to develop skills, knowledge and understanding of materials and processes. It will help them to develop problem-solving skills and the ability to work methodically, evaluating their work and making necessary modifications.

Design and Technology contributes to the aims of the school and to the curriculum as a whole by preparing the children to participate in a rapidly changing technological world. It will help them to gain an understanding of products and systems and to consider the needs of the users of these products.

2. Implementation

It can provide an exciting and realistic context for the application of skills used and learnt in other curriculum areas, including computing. It provides opportunities for individual and collaborative work and can make important contributions to personal and social development, linking with the 5R's (Resourceful, Relationships, Reflective, Risk and Resilient). For some children it provides an area of activity in which their particular strengths come to the fore.

Through the curriculum, we aim to develop children's Design and Technology capability through a range of Challenge and Choice experiences which:

- Develop the knowledge, skills and understanding necessary to design, make and evaluate good quality products for a specific purpose.
- Develop practical skills to work with a wide range of tools and resources - Develop and understanding of controls systems, energy and structures
- Become increasingly dependent in their ideas, approach and selection of equipment and resources
- Acquire knowledge and understanding of quality, and of health and safety.
- Become aware of the impact of technology and its contribution to life and society.

As a school we will develop the Skills, Knowledge and Understanding as prescribed for Key Stage, ensuring Breadth of Study.

3. Organisation

The School will offer pupils a series of carefully planned Units of Work. These units of work are drawn mainly from the QCA Design and Technology scheme of work. These Units will develop and ensure the progression of skills and experiences as detailed in the Design and Technology Overview.

Each Year Group will study two/three Units of Work over the course of the year. *Years 3 and 4* will study the two/three units; to ensure that they cover the full curriculum, the DT curriculum is divided into a two year cycle. *Years 5 and 6* will study the two/three; to ensure that they cover the full curriculum, the DT curriculum is divided into a two year cycle. The children will use a range of materials including stiff and flexible sheet materials, mouldable materials, textiles, food, electrical and mechanical components.

Each Unit contains three essential types of activity. The school's Design and Technology planning sheets reflects these:

- **Investigating, disassembling and evaluating simple products (IDEAs)** - investigating and evaluating a range of familiar products, by considering how they function, how they relate to their intended purpose, how they have been used and the views of users.
- **Focused Practical Tasks (FPTs)** - in which children develop and practise particular skills and knowledge. In these activities there will be specifically focused direct teaching. Practical work will be less open-ended and outcomes more directed.
- **Design and Make Assignment** - these are projects which will form the bulk of each Unit. They involve informed choices and decision making and require children to make use of the skills, knowledge and understanding they have developed in an overall context. The criteria for the DMA will. be set by the teacher - it will be realistic but challenging and will reflect the previous experiences and existing capability of the children.

The Units of Work need to be seen as a whole scheme of work. Whilst each year group may vary or re-define the DMA and therefore the content of the Unit, the Unit must still make the same contribution to the overall scheme in terms of experiences and opportunities offered to the children.

Any planned alteration to the established Units of Work must be discussed with and approved by the Design and Technology co-ordinator.

4. Classroom Approaches, Management and Health and Safety

Teachers should support children in Design and Technology by:

- Asking appropriate questions
- Encouraging children to talk about and try out ideas.
- Encouraging children to reflect upon their work at various stages.
- Displaying aspects of the design process as well as finished products.
- Providing children with the opportunity to find out about designs in everyday contexts.

- Teaching appropriate skills and techniques as well as knowledge.
- Teaching how to peer and self-assess.
- Developing in children an understanding of quality.
- Include trips and/or visitors to enhance the quality of teaching and learning

In planning for their Units of Work, and for the individual sessions within them, teachers will need to take into account the creation of a safe and manageable working environment. This will include consideration of groupings of children and the location of various practical activities. In particular, teachers will consider activity which requires close supervision, access to electrical sockets, and access to clear spaces.

Teachers will anticipate resource requirements, especially if extra adult supervision is needed, for each session and have these readily available and accessible.

In planning practical work teachers will take into account the need to remain in control of the class as a whole- they may need to limit the amount and diversity of practical activity going on at anyone time.

Class teachers will establish clearly defined, safe working practices from the beginning and continually reinforce them throughout each Unit of Work.

Classroom routines will involve:

- Children stopping work immediately upon request
- Maintaining clear and tidy workspaces
- Safe handling, carrying and storage of tools and equipment
- Quiet, unhurried work
- Attention to thorough, safe clearing up and on-going

Teachers will involve children by giving them opportunities to recognise and discuss potential hazards and the risks they pose, and to consider and use simple rules that will help them stay safe. The teacher will always be prepared to stop the group to discuss aspects of safety.

When using adult help in the classroom teachers must ensure that helpers are briefed on the correct ways to use equipment and other resources, especially tools. This helps to ensure continuity and consistency and more importantly helps to reduce risk of injury.

Close Supervision, defined as an adult close to and aware of what children are doing, is required for the following equipment and resources:

- Knives - always to be used with cutting mat, and safety rule if appropriate
- Glue guns - to be used with a board which clearly indicates the working area, into which only one pair of hands should encroach. (Most glue gun accidents involve more than one person).
- Spray Cans - only to be used outside and with very close supervision.

Further guidance can be found in the H.E.S. Safety Guidelines which are available in the staff room.

End of Session Routine:

Plenty of time should be allocated to clearing away at the end of a session and in this there .should be a sense of shared responsibility. Time should also be found at the end of each session for reflection and discussion. Older pupils can very usefully be involved in short written reviews of progress.

5. Resources

Stock Cupboard - re-cycled materials, general stock resources. Teachers need to ensure that resources that are needed are ordered in time.

6. Impact

Assessment

Staff will keep sufficient records to be able to comment on progress and achievement in end of year reports. Children must keep either a folder of their written work and planning or more usefully an A4 plain exercise book may be used. This, along with observation notes, photographs, will provide the evidence base with which the teacher may make informed judgements about children. .

7. Special Needs and Equal Opportunities

Provision for these will be in line with relevant policies.

8. Monitoring and Review

The coordination and planning of the DT curriculum is the responsibility of the subject leader, who also supports colleagues in their teaching, by keeping informed about current developments in the subject and providing a strategic lead and direction for this subject. The Co-ordinator for Design and Technology is always available to offer advice on all aspects of planning and practical organisation. The school recognises the need for regular training in tool handling and safety, in order to develop and maintain a consistent approach across the school and will organise an annual session to address this. The Co-ordinator for Design and Technology is always available to offer advice on all aspects of planning and practical organisation.

Skills Ladder

	Lower Key Stage 2	Upper Key Stage 2
Design	- -Work confidently in a range of contexts, e.g. home, school, leisure, culture, industry and wider environment. - Describe the purpose of their products. - Indicate the design features of their product that will appeal to the intended users. - Gather information about the needs and wants of an individual group. - -Develop their own design criteria and use this to adapt and change their design. - Share and clarify ideas confidently, through discussions. - Model ideas using prototypes and pattern pieces. - Use annotated sketches, some cross-sectional drawings and computer-aided design packages, to develop and communicate ideas. - Generate realistic ideas, focussing on the needs of the user. - - Make design decisions that take account of the availability of resources.	- -Work confidently in a range of contexts, e.g. home, school, leisure, culture, industry and wider environment. - Describe the purpose of their products. - Indicate the design features of their product that will appeal to the intended users. - Gather information about the needs and wants of an individual group. - -Develop their own design criteria and use this to adapt and change their design. - Carry out research e.g. survey, interviews, questionnaires and web-based resources, to identify users' needs, wants and preferences. - Develop detailed design specifications to guide their thinking and planning. - Share and clarify ideas confidently, through discussions. - Model ideas using prototypes and pattern pieces. - Use annotated sketches, some cross-sectional drawings and computer-aided design packages, to develop and communicate - ideas. - Generate realistic ideas, - focussing on the needs of the - user. - - Make design decisions that take account of the availability of resources.

Making	- Confidently select tools and equipment suitable to the task. - Explain their choices, giving evidence. - Select materials and components suitable to the task. - Order the main stages of making logical steps. - Follow procedures for safety and hygiene. - Use an extensive range of materials and components e.g. textiles, mechanical construction kits, electrical and food ingredients. - Measures, marks out, cuts and shapes materials and components with accuracy. - Accurately assembles, joins and combines most materials. - Accurately apply several finishing techniques.	- Confidently select tools and equipment suitable to the task. - Explain their choices, giving evidence. - Select materials and components suitable to the task. - Produce appropriate lists of tools, equipment and materials that they will need. - Order the main stages of making logical steps. - Formulate step-by-step plans as guide making. - Follow procedures for safety and hygiene. - Use an extensive range of materials and components e.g. textiles, mechanical construction kits, electrical and food ingredients. - Measures, marks out, cuts and shapes materials and components with accuracy. - Accurately assembles, joins and combines most materials. - Accurately apply several finishing techniques. - Use techniques that involve a number of steps. - Use resourcefulness, resilience and innovation , when tackling practical problems - Explain next steps in learning, drawing from prior experience.

Evaluating	- Identify the strengths and areas for development in their ideas and products. - Consider the views of others, including intended users, to improve their work. - Refer to their design criteria to evaluate and improve their completed products. - Use their design criteria to evaluate and improve their completed products. - Investigate and analyse: how well products have been designed and made; why materials have been chosen; what methods of construction were used; how well the products worked; whether they achieved their purpose and the needs/wants of the users. - Investigate and analyse: who designed the products; where the products were designed and made; when products were designed and made; whether products can be recycled or reused. - Recognise several inventors, designers, chefs, manufacturers and engineers, who have been influential in the design and technological industries.	- Confidently identify the strengths and areas for development in their ideas and products. - Consider the views of others, including intended users, to improve their work. - Refer to their design criteria to evaluate and improve their completed products. - Use their design criteria to evaluate and improve their completed products. - Critically evaluate the quality of the design, manufacture and fitness for purpose of their products. - Evaluate their ideas and products against their original specification. - Investigate and analyse: how well products have been designed and made; why materials have been chosen; what methods of construction were used; how well the products worked; whether they achieved their purpose and the needs/wants of the users. - Investigate and analyse: who designed the products; where the products were designed and made; when products were designed and made; whether products can be recycled or reused. - Investigate and analyse: how much products cost to make; how innovative products are; how sustainable the material in products are; what

		what impact products have beyond their intended purpose. - Recognise several inventors, designers, chefs, manufacturers and engineers, who have been influential in the design and technological industries.

Technical Knowledge	- Pupils use learning from science, mathematics and other subjects to help design and make products that work. - They understand that materials have functional and aesthetic qualities. - Apply this thinking successfully to their own products. - Recognise that materials can be combined and mixed to create more useful characteristics. - Know that mechanical and electrical systems have an input, process and output. - Know how mechanical systems such as levers and linkages create movement. - Know that simple electrical circuits and components can be used to create functional products. - Program a computer to control their products. - Make strong, stiff shell structures for a purpose. - Know that a single fabric shape can be used to make a 3D textile product. - Recognise a range of fresh, precooked and processed foods.	- Recognise that materials can be combined and mixed to create more useful characteristics. - Know that mechanical and electrical systems have an input, process and output. - Know how mechanical systems such as levers and linkages create movement. - Know that simple electrical circuits and components can be used to create functional products. - Program computer systems and devices to control their products. - Make strong, stiff shell structures for a purpose. - Know that a single fabric shape can be used to make a 3D textile product. - Recognise a wide range of fresh, pre-cooked and processed foods. - Know that mechanical systems e.g. cams, pulleys or gears create movement. - Explore more complex electrical circuits and components. - Program computers and devices to monitor changes in the environment and control their products. - Reinforce and strengthen a 3D framework. - Know that 3D textile products can be made from a combination of fabric shapes. - Recreate and adapt existing and new recipes by adding or substituting a range of ingredients.

Cooking and Nutrition	- Know that food is farmed, reared, grown elsewhere (e.g. home, allotments), exported, imported or caught. This can be on a local, regional and international scale. - Know how to prepare and cook a variety of savoury and some sweet dishes safely and hygienically, including the use of a heat source. - Know how to use a wide range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. - Know that a healthy diet is made up of a variety and balance of different foods and drinks, as depicted on 'The Eatwell Plate.' - Know that to be active and healthy, food is needed to provide energy for the body.	- Know that food is farmed, reared, grown elsewhere (e.g. home, allotments), exported, imported or caught. This can be on a local, regional and international scale. - Begin to know that seasons and weather affect food availability. - Begin to know how food is processed into ingredients that can be eaten or used in cooking. - Know how to prepare and cook a variety of savoury and some sweet dishes safely and hygienically, including the use of a heat source. - Know how to use a wide range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. - Know that a healthy diet is made up of a variety and balance of different foods and drinks, as depicted on 'The Eatwell Plate.' - Know that to be active and healthy, food is needed to provide energy for the body. - Know that recipes can be adapted to change the taste, texture, aroma and appearance. - Know that different foods contain substances that are needed for health e.g. water, fibre, vitamins, minerals and nutrients. - Understand that healthy diets must incorporate the correct amounts of food types and substances. - Understand that exercise is also important for our wellbeing and fitness.