

Design and Technology Policy Document

'Tell me and I forget-Show me and I may remember-Let me do it and I learn.'

(Chinese proverb)

Rationale

Design and technology prepares children to take part in the development of tomorrow's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of design and technology they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impacts. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Design and technology helps all children to become discriminating and informed consumers and potential innovators.

DT is not taught in isolation, although it often requires its own creative approaches, skill set and techniques throughout the design process. Wherever possible the design objective is linked to other areas of the curriculum and gives children the opportunities to apply learning from across the curriculum to give their work practical context and apply skills to "real world" problem solving. Within this "real world" approach opportunities are available to promote children's spiritual, moral, social and cultural development in Design and Technology.

Aims

At Appleton Primary School we aim:

- *To engage the interests of all children and help sustain their motivation and enjoyment of learning.*
- *Develop creative, technical and imaginative thinking in children and to develop confidence to participate successfully in an increasingly technological world.*
- *Enable children to talk about how things work and to develop their technical knowledge.*
- *Apply a growing body of knowledge, understanding and skills in order to design and make prototypes and products for a wide range of users.*
- *Encourage children to select appropriate tools and techniques when making a product, whilst following safe procedures.*
- *To develop the ability to identify safety hazards and risks and take appropriate action.*
- *Develop an understanding of technological processes and products, their manufacture and their contribution to our society.*
- *Foster enjoyment, satisfaction and purpose in designing and making things.*
- *To stimulate curiosity, imagination and creativity.*
- *Critique, evaluate and test their ideas and products, and the work of others.*
- *To understand and apply the principles of a healthy diet.*
- *To understand where food comes from and the issues of seasonality.*
- *Understand and apply the principles of nutrition and to learn how to cook.*
- *Understand how key events and individuals in design and technology have helped shape the world.*
- *To help develop the social skills necessary to work as a member of a team, as well as the ability to work independently when the situation demands.*

- To promote the ability to communicate ideas and information through a variety of media.

Methods of organising Learning and Teaching

At Appleton we follow a broad and balanced curriculum that builds on previous learning and provides both support and challenge for learners. We use the Kapow Scheme of work which ensures progression of skills and covers all aspects of the Design and Technology curriculum. Each Design and Technology project is taught in a block of 4 lessons over a week. Design and Technology lessons involve a combination of whole class, group and individual teaching.

The Design and Technology curriculum is structured into five **key concepts**:

- **Designing**
- **Making**
- **Evaluating**
- **Technical Knowledge**
- **Cooking and nutrition**

These key concepts are explored through each unit of D&T and build progressively as pupils move through the school.

Each unit of work will be based on the following teaching sequence, adapted to suit the topic

- Place the D&T unit in the context of similar past learning in the subject.
- Review the learning covered in previous lessons.
- Deliver a design brief, posing a relevant problem to be solved.
- Children research existing products and possible construction materials/ingredients/tools.
- Children create their own designs in response to the brief and their own research.
- Children make the product (including making and evaluating a technical aspect first or producing and refining a prototype if appropriate).
- Children evaluate their product with reference to the original design brief.

The school uses a variety of teaching and learning styles in design and technology lessons. The principal aim is to develop children's knowledge, skills and understanding in design and technology. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products and then evaluating them. We do this through a mixture of whole-class teaching and individual/group activities. Within lessons, we give children the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work and that of others. They have the opportunity to use a wide range of materials and resources, including ICT.

In all classes there are children of differing ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies:

- setting common tasks that are open-ended and can have a variety of results;
- setting tasks of increasing difficulty where not all children complete all tasks;
- grouping children by ability and setting different tasks for each group;
- providing a range of challenges through the provision of different resources;
- using additional adults to support the work of individual children or small groups.

Curriculum Planning and Content

Design and technology is a foundation subject in the National Curriculum. At Appleton we follow a broad and balanced curriculum that builds on previous learning and provides both support and challenge for learners. We use the Kapow Scheme of work which ensures progression of skills and covers all aspects of the Design and Technology curriculum. Each Design and Technology project is taught in a block of 4 lessons over a week. Design and Technology lessons involve a combination of whole class, group and individual teaching.

We carry out the curriculum planning in design and technology in three phases: long-term, medium-term and short-term. The long-term plan maps out the units covered in each term during the key stage. The

medium term plans give details of each unit of work for each term. They identify learning objectives and outcomes for each unit and ensure an appropriate balance and distribution of work across each term. Class teachers plan for individual design and technology sessions using the lessons from Kapow. Their flip charts list the specific learning objectives for each lesson and detail how the lessons are to be taught. Teachers follow a clear progression of skills which ensures all pupils are challenged in line with their year group expectations and are given the opportunity to build on their prior knowledge. The progression document ensures the curriculum is covered and the skills/knowledge taught is progressive from year group to year group.

Content

The Foundation Stage

4.1 We encourage the development of skills, knowledge and understanding that help reception children make sense of their world as an integral part of the school's work. As the reception class is part of the Foundation Stage of the National Curriculum, we relate the development of the children's knowledge and understanding of the world to the objectives set out in the Early Learning Goals. These underpin the curriculum planning for children aged three to five. This learning forms the foundations for later work in design and technology. These early experiences include asking questions about how things work, investigating and using a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control. We provide a range of experiences that encourage exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, attract the children's interest and curiosity.

Key Stage 1

Through a variety of creative and practical activities, pupils are taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.

When designing and making, pupils are taught to:

Design

Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Make

Select from and use a range of tools and equipment to perform practical tasks (for example cutting, shaping, joining and finishing).

Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

Evaluate

Explore and evaluate a range of existing products.

Evaluate their ideas and products against design criteria.

Technical knowledge

Build structures, exploring how they can be made stronger, stiffer and more stable.

Explore and use mechanisms (for example, wheels and axels) in their products.

Explore different ways to join fabrics.

Know how to thread a needle, sew running stitch and pin and cut fabric.

Key stage 2

Through a variety of creative and practical activities, pupils are taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.

When designing and making, pupils are taught to:

Design

Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.

Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-diagrams, prototypes and pattern pieces.

Make

Select from and use a wider range of tools and equipment to perform practical tasks accurately (for example, cutting, shaping, joining and finishing).

Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

Evaluate

Investigate and analyse a range of existing products.

Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Technical knowledge

Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Understand and use mechanical systems in their products (for example, cams, levers and linkages).

Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors).

Apply their understanding of computing to program, monitor and control their products.

Use cross stitch and a strong and secure blanket stitch to join fabric.

Cooking and Nutrition

As part of their work with food, pupils are taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils are taught to:

Key stage 1

Use the basic principles of a healthy and varied diet to prepare dishes.

Understand where food comes from.

Key stage 2

Understand and apply the principles of a healthy and varied diet.

Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.

Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Use a range of ingredients to prepare a healthy dish, explaining why the ingredients were chosen and the effects on the body.

Contribution of design and technology to teaching in other curriculum areas

English

Design and technology contributes to the teaching of English in our school by providing valuable opportunities to reinforce what the children have been doing during their English lessons. The evaluation of products requires children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion children learn to justify their own views and clarify their design ideas.

Computing

We use computing to support design and technology teaching when appropriate. Children may use the internet to research products or present their designs.

Personal, social and health education (PSHE) and citizenship

Design and technology contributes to the teaching of personal, social and health education and citizenship. We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about health and healthy diets. Their work encourages them to be responsible and to set targets to meet deadlines, and they also learn through their understanding of personal hygiene, how to prevent disease from spreading when working with food.

Spiritual, moral, social and cultural development

The teaching of design and technology offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Our groupings allow children to work together and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and co-operative work across a range of activities and experiences in design and technology, the children develop respect for the abilities of other children and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness and understanding, and they learn to appreciate the value of differences and similarities. A variety of experiences teaches them to appreciate that all people are equally important, and that the needs of individuals are not the same as the needs of groups.

SEN

At our school we teach design and technology to all children, whatever their ability. Design and technology forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our design and technology teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors - classroom organisation, teaching materials, teaching style, and differentiation - so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

Equal Opportunities

The full range of activities in technology will be made available to all children, irrespective of race, gender or physical disabilities.

Assessment

Teachers assess children's work in Design and Technology via an ongoing monitoring of children's understanding, knowledge and skills throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children. Furthermore each unit has a unit quiz and knowledge catcher which can be used at the start and/or the end of the unit. Design Technology is also monitored by the subject leader throughout the year in the form of book monitoring, looking at outcomes and pupil interviews to discuss their learning and understanding and establish the impact of the teaching taking place. The large majority of children will achieve age related expectations in Design Technology.

Resources

The school has a range of resources and each class teacher is responsible for these. The resources are stored in the Design and Technology Co-ordinator's room and all staff have a responsibility to ensure it is maintained in good order. If any resources become broken during use, the Design and Technology leader needs to be informed as soon as possible.

Health and safety

Health and safety is important, particularly when working with tools, equipment and resources. Children should be given suitable instruction on the operation of all equipment before being allowed to work with it. Children need to be taught how to:

- use tools and equipment correctly;
- respect the equipment they are using and to keep it stored safely while not in use;
- recognise and consider hazards and risks and to take action to control these risks, having followed simple instructions;
- children should be strictly supervised in their use of equipment at all times.

Food Hygiene

- Pupils and staff will take care to undertake appropriate hand washing and other hygiene related activities prior to preparing food.
- Pupils and staff working with food must wear aprons designated for cooking.
- All jewellery should be removed and hair tied back.

Glue Guns

- Low temperature glue guns should only be used by an adult in Key Stage One and The Foundation Stage unless there is one-to-one supervision for a pupil.
- Key Stage two children should use low temperature glue guns under supervision in a designated work area, wearing safety goggles.

Craft Knives

- Craft knives, quick cutters and rotary cutters should only be used by an adult/teacher in Key Stage One and the Foundation Stage.
- Key Stage Two children may use cutting equipment under supervision, using a cutting mat and wearing safety goggles.

Sawing

- Bench hooks and clamps must be used when sawing any material.
- Safety goggles must be worn and any loose items of clothing/hair must be tucked in.

Roles & Responsibilities

The Headteacher will:

- actively support and encourage staff, praising good practice and supporting staff development, in-service training (particularly for the Design and Technology Leader) and resources.

The Design and Technology Leader will:

- advise and support staff in planning teaching and learning of design and technology;
- monitor teachers' planning as part of on-going subject monitoring and evaluation of practice;
- use feedback from monitoring to develop an action plan for Design and Technology with realistic and developmental targets;
- audit, identify, purchase and organise all design and technology resources, ensuring they are readily available and well maintained;
- document and review the agreed ways of working through a written policy document and scheme of work;

- compile a portfolio of children's Design and Technology work to evidence progression and examples of good practice for staff to refer to;
- keep up to date on new developments in the use of Design and Technology in the curriculum and inform staff;
- promote Design and Technology throughout the school.

The Class Teacher will:

- be responsible for the planning and teaching of Design and Technology as set out in this policy.

B Clark
(Design and Technology co-ordinator)
January 2023