



CHURCHFIELDS
JUNIOR SCHOOL

Design and Technology Policy

January 2021

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Introduction – what is Design and Technology?

Design and Technology is a 'hands on' subject in which pupils have the experience of evaluating, designing and making products of a high standard. Design and Technology encourages children to examine their environment, question the world and to think about how and why things work the way they do.

Design and Technology is concerned with the ability to operate effectively and creatively in a rapidly changing technological world. It is an exciting practical subject which allows children to make sense of appliances and processes in their environment.

Design and Technology lessons can extend and enhance children's natural curiosity of how and why things work, by providing pupils with the opportunity to apply and develop their skills.

Design and Technology presents children with a series of real life scenarios, where children become autonomous creative problem solvers. The children will combine practical exercises with the more abstract notions of aesthetics, functional design and making skills. As they do this they will develop their ability to evaluate past and present designs, the uses they have and the impact they have on the real world. Through their Design and Technology, children become more focused on what makes a successful product and more imaginative in how a product could be made or improved.

Design and Technology should draw on the child's knowledge and experience from other subject areas particularly English, Maths, Science and Art.

Design and Technology should always be a relevant, enjoyable and creative activity for all children.

Staff have access to the Policy via the school's server via the Teacher's Drive. Parents requesting to see a copy of the policy can do so via the school website.

Aims and objectives

For Design and Technology we aim to:

- Develop in children an understanding of the designing and making process, the need to evaluate existing ideas and products and an ability to work through the D&T process confidently.
- Ensure that by the end of key stage 2 children are able to work more independently, and with confidence on design and technology.
- Ensure that children are able to identify opportunities for design and technology activities by observing more closely the objects around them.
- Make children more aware of the ways in which everyday objects have been designed and made.
- To enable children to become more confident and skilled in using the range of tools and materials available in the school.

Curriculum organisation

Intent

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. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and

the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology 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
- 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

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be 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-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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
- understand how key events and individuals in design and technology have helped shape the world

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, gears, pulleys, 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

Food Technology

As part of their work with food, pupils should be taught how to prepare food and apply the principles of nutrition and healthy eating. Instilling a love of cookery 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 should be taught to:

- 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.

Teaching and Learning

We advocate teaching that follows the following principles of instruction. We encourage all teachers to adapt their knowledge of these practices towards design and technology lessons. Teaching design and technology at Churchfields Junior School should be guided by these principles as set out in the Teaching & Learning Policy.

Barak Rosenshine's Principles of Instruction

1. Begin a lesson with a short review of previous learning (Reactivation)
2. Present new material in small steps with pupil practice after each step
3. Ask a LARGE number of questions and check the responses of ALL pupils
4. Provide models
5. Guide pupil practice
6. Check for pupil understanding
7. Obtain a high success rate
8. Provide scaffolds
9. Require and monitor independent practice
10. Engage pupils in weekly and monthly review

Design and Technology will be taught weekly in alternate half-terms with art. In every year, pupils will complete projects that focus on the 5 key elements of the Design and Technology curriculum requirements including Design, Make, Evaluate, Technical Knowledge and Food Technology.

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
Year 3	Art	D&T Bookmark Hueguenot Weavers	Art	D&T Salad Michel Roux Jr	Art	D&T Chair William Morris
Year 4	D&T Yanomami Tile Arthur Liberty	Art	D&T Sandwich John Montagu	Art	D&T Bridges Isambard Brunel	Art
Year 5	D&T Nightlight Thomas Edison	Art	D&T Marble Maze Ole Kirk Christiansen	Art	D&T Muffins Christina Tosi	Art
Year 6	Art	D&T Parking sensor Marie Van Brittan Brown	Art	D&T CAD Design Thomas Burberry	Art	D&T Fairground James Dyson

For every unit, pupils will be taught to design, make and evaluate, whilst receiving instructions on relevant technical knowledge. Each unit will have a specific focus for learning, that ensures all of the key elements are covered throughout pupil's time at CJS. When evaluating their own work, children should refer to the design criteria established in the design brief. A designer, engineer or chef has been assigned to each project to enable the children to understand how key events and individuals in design and technology have helped shape the world. These individuals have been chosen for their relevance to the project in particular.

Pupils will also be given opportunities to handle and use a wide range of materials, developing their knowledge and understanding of these through practical design and make activities. The knowledge taught will become progress in challenge from Year 3 to Year 6 to develop greater knowledge and understanding.

Subject-specific terminology will be taught as part of every unit.

During their experience of Design and Technology the children are introduced to a variety of contexts including, home, recreation, industrial and community.

Children will be taught in their normal class group and all children with special educational needs will be given the opportunity to undertake design and technology activities.

While resources are stored in a central storage area, where possible children should be presented with a choice of tools and resources and encouraged to make appropriate selections as they become more competent so that they are best able to meet their designs effectively. (For appropriate use of resources please refer to the Health and Safety section of the policy.)

Opportunities will be made each year to celebrate achievement in Design and Technology either through newsletters, the school's social media channels and displays.

Equal Opportunities and Inclusion

All staff will be expected to give every pupil the chance to experience success in their learning regardless of ability, gender, race or cultural background. Teachers ensure that the curriculum is appropriate for the needs of the children.

The majority of learning in design and technology takes place through practical work with a result that pupils for whom English is an additional language will not be disadvantaged. The different beliefs and practices which the children have, will be taken into account when working with food, materials and design. Meat will not be used when preparing food. Pupils with physical difficulties will be supported with certain practical tasks and have extra opportunities for practice.

Children have equal opportunities to develop their understanding and enjoyment of art regardless of race, gender and ability. Every effort will be made to ensure that activities are equally interesting to both boys and girls.

Assessment

Planning will indicate the focus for each unit of work and assessment opportunities will be identified. The Pupil's work will be assessed on continual basis in order to give appropriate feedback. This will also aid the teacher in preparing the annual report to parents.

- **Teachers analyse pupils' progress at the end of each unit of work.** Children are given verbal feedback.
- **Planning is evaluated.** Teachers then adjust plans to reinforce knowledge and understanding or further extend pupils knowledge.

- **Photographic evidence or pieces of work are kept for each unit of work.** These are used for future plans and to aid the pupils understanding.
- **Reports are written annually to parents.**

While recording is kept to a minimum it is sufficient to note an individual pupil's progress and to provide guidance for future teaching and learning. Teachers can obtain evidence of attainment by direct observation of children at work, questioning pupils or listening to their conversations, and by photographing and recording their finished products.

The teacher monitors progress in D&T by:

- informal discussions with children;
- assessing work and progress;
- observing children.

Resources – Health and Safety

While individual class teachers must judge for themselves whether or not their class is able to use a particular resource the following guidance must be adhered to:

The class teacher and specialist teacher will be responsible for the health and safety of themselves, LSAs, pupils and visitors within the class.

Pupils should be made aware of hazards, risks and risk control in every lesson and encouraged to:

- collect, use and return tools and equipment safely
- follow clear instructions
- only move around the classroom when necessary
- wear safety equipment whenever necessary
- understand the reasons and importance of health and safety guidance

Clamps: Pliers/Vices/Punches

Children may use these pieces of equipment when their strength of grip enables them to operate the tool. N.B. eyelet punches require a considerable amount of strength to control so should be used only by teachers or older children.

Cookers

Once instruction has been given, children may be allowed to operate the cooker under **close** supervision.

Drills

Hand drills: These may be used by children after training under supervision. When the teacher is satisfied that the child has become competent in the use of this tool they may use the drill in the classroom under supervision.

Dyes

Not for pupil use if toxic.

Power Drills

Not for pupil use.

Where possible drills should be in a stand and the material should be clamped to a surface.

Food Allergies

Recipes should be chosen to minimize the risks of allergic reactions. No nuts should be used. The class

teacher and specialist teacher should be aware as early as possible of any known allergies of pupils in class and allergens not used in that classroom. Pupils will also be taught about the food allergies as part of their food technology curriculum.

Food Hygiene

Children should be made aware as early as possible of the need for hygienic food preparation. Teachers should train the children to prepare food hygienically and supervise preparation.

Safety Glasses

These should be worn when there is a risk of damage to the eyes.

Glues

Pritt-Sticks: These may be used by children as soon as they are competent not to get any in their eyes, mouth etc...

PVA/Hobby glues: As above in addition to some training and then general supervision.

Wood Adhesive: This should only be used by the teacher or under direct supervision.

Wallpaper paste: This glue may be used after training and then under general supervision.

Solvent Glues: It is the recommendation of this policy that children use only water based glues.

Glue Guns: Only low temperature glue guns should be used. They should be used by the teacher only until years 5 and 6, where they may be used by the child under close supervision of an adult.

Hammers

Children may use a hammer as soon as their motor skills allow them to hit the nail accurately and as soon as they are disciplined enough to stay on task.

Smaller weight hammers are sufficient for most jobs in the classroom.

Claw hammers and Club Hammers are not for use in the classroom.

Knives

While use of scissors is preferable, children may be required to use knives for their Design and Technology work. They should only be used by older children and can be used once they have learnt the rules, techniques and skills for cutting. They should be closely supervised while working with a knife.

Nails and Pins

These may be used under general supervision once the children have been trained in their use.

Needles

These may be used under general supervision once the children have been trained in their use.

Paints

Children should use water based paints only. These may be used under general supervision. Emulsions (house paints) should be used by adults only or with older pupils under supervision.

Plastics

Plastic sheeting should be cut using scissors and may be used at any age where the pupils are competent with scissors. Years 5 and 6 may sand plastics but only after training and under supervision. Hot wire cutters should only be used by a competent teacher.

Sanding/Filing

Sandpaper/Emery paper/Files: Sanding and filing may be carried out using these tools under general supervision as soon as the children's motor skills are sufficient.

Orbital sanders: These should be used by teachers only. They are not for classroom use.

Edgegrinders: Not for use in school.

Saws – Hand

Hacksaws and Junior Hacksaws: These are suitable for most jobs and may be used by the children providing they have undergone some training and have the appropriate motor skills.

Tenon Saws: As they are slightly larger, these saws are better suited to older children with finer motor control. The children using these should undergo some training in the use of a tenon saw.

Larger saws: For example coping saws and bow saws should not be used in class.

Saws – Power

Power saws should not be used in school.

Scissors

Blunt ended scissors: These may be used as soon as the children can actually handle them under general supervision.

Sharp ended scissors: These may be used under general supervision once the children can be relied upon to use the correct techniques.

Safety snips: These may be used under general supervision once the children can be relied upon to use the correct techniques.

Tin Snips: These should be used by adults only.

Left handed scissors/snips: While most children are right handed left handed scissors and snips should be made available for left handed children.

Paper Trimmers

These may be used by children after instruction under general supervision. It is the recommendation of this policy that only children in years 5 and 6 and possibly some mature year 4 children, at the discretion of the teacher be allowed to use a paper trimmer without close supervision.

Sprays – Paints/Fixatives

These should only be used by adults in well ventilated areas. They should not be used in the presence of children.

Staplers

Mini staplers may be used by children under general supervision. Heavy duty staplers may be used under close supervision until the children are competent. Electric staplers are never to be used in the classroom. Staple guns are to be used only by trained adults.

Review

This policy is monitored through:

- Regular scrutiny of children's work
- Regular monitoring and evaluation of planning
- Evaluation and analysis of assessment evidence
- Lesson observations to monitor the quality of teaching and implementation of planning
- Pupil interviews and questionnaires

This policy is reviewed by staff and governors every three years. Parents are most welcome to request copies of this document and comments are invited from anyone involved in the life of the school.