



Design and Technology Policy

February 2014

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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 Literacy, Numeracy, Science, Art and ICT.

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

The policy reflects the views of all the staff of the school. It has been drawn up following consultation with all staff and children, and has full agreement of the Governing Body.

All staff are fully aware of their role in its implementation. Staff have access to the Policy via the *Staff Room* on *Fronter* and on 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 organization – NC 2014

Purpose of study

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, computing 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

Cooking and nutrition

As part of their work with food, pupils should be 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 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

- Where possible, and where relevant, links should be made to other curriculum areas. Links should only be made, when the links will enrich the Design Technology Curriculum.
- Design and Technology will be taught either in blocked weekly sessions or in a condensed two or three day time frame where appropriate; for example the topic of bread may be better suited to a condensed time frame where as making pop up books would be better taught over a period of weeks. Individual class teachers will decide whether or not their topics will be taught over a period of weeks or whether to teach it in a condensed period.
- Each term children will experience an evaluation task, preferably of an existing product or process, a series of focused practical tasks which will develop the skills necessary for the children to carry out the D&M task (Designing and Making).
- When evaluating their own work, children should refer to the design criteria established in the design brief as their basis for deciding on how good their product is.
- They 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. There will be more teacher direction in year 3 but this support will decrease as children move through key stage 2.
- During their experience of Design and Technology the children are introduced to a variety of contexts including, home, recreation, industrial and community.
- Opportunity is provided for each child to experience construction, graphic media each year. Children will have opportunities to experience textile and food technology at least once during each key stage.
- The work undertaken should be practical, enjoyable and relevant for all children.
- Children will be taught in their normal class group.
- All children with special educational needs will be given the opportunity to undertake design and technology activities.

- Children will be encouraged to use data handling, word processing, graphics and C.A.D. programs and spreadsheets to facilitate and enhance their design and technology.
- All design and technology activities will ensure an equal interest and participation level for both boys and girls.
- While resources are stored in a central storage area, where possible children should be presented with a choice of tools and resources 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 D&T sharing work assemblies, Design and Technology pages on Fronter etc.

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. 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, Attainment and Progress

Teachers own plans should indicate the focus for each unit of work and assessment opportunities will be identified. The teacher will assess the child's work on a continual basis in order to match their ability to the level of descriptions in the National Curriculum. These provide enough information to inform the next teacher of progress made, and to be of use in preparing the annual report to parents.

- **Before each unit, teachers establish the pupils' level of knowledge, understanding and skills.** These assessments are used to refine planning to make it suitably challenging.
- **Teachers analyse pupils' progress at the end of each unit of work.** Children are given verbal feedback.
- **Sketchbooks are evaluated.** Comments are written on teacher plans which apply to the learning objective.
- **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 by each year group.** These are used for future plans and to aid the pupils understanding.
- **Reports are written annually to parents.**

Assessment, Recording and Reporting

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. The medium term curriculum plans will form in D&T an aspect of the record of D&T taught. Where weekly planning is annotated this will inform future planning.

Coherence of assessment across the school is supported by discussion and consultation between staff.

Gathering evidence of pupil attainment is an integral part of assessment, which is built into the schemes of work.

Teachers can obtain evidence by direct observation of children at work, questioning pupils or listening to their conversations, and by photographing and recording their finished products.

The class 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 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 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

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.

Power Drills:

Not for classroom use.

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

Safety Glasses

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

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.

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 six, where they may be used by the child under close supervision of an adult.

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.

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.

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.

Nails and Pins

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

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.