St. Cuthbert's R.C.V.A. Primary School.

Design and Technology Policy January 2016

Equality

At St. Cuthbert's we have due regard for our duties under the Equality Act 2010. We will ensure that we: eliminate discrimination, advance equality of opportunity and foster good relations.

Rationale

At St. Cuthbert's Primary School we believe Design and Technology is essential to prepare pupils to participate in tomorrow's rapidly changing technologies. Teachers encourage children to develop their investigating, designing, making and evaluating skills by thinking and intervening creatively.

Since September 2014, a New National Curriculum has been in place. The staff at St. Cuthbert's have reviewed and adapted the Design Technology curriculum in light of these changes.

The main changes to Design Technology include:
- The focus of mouldable materials is now a major part of the curriculum in both key stages
- There is now far more emphasis on computing in the DT curriculum
- Textiles also plays a major part across the school
- In DT a greater time is given to developing ideas and prototypes.
- The design cycle has become more explicit and more emphasis is now placed on regular evaluations.
- Production of food for consumption

Guidelines

All children are entitled to access to the National Curriculum (NC) for Design and Technology. Design and Technology is a foundation subject in the NC. Planning is in line with NC requirements for KS1 and KS2 and the Early Years Foundation Stage curriculum. The Units of Work are set out in the new NC. The Wider Curriculum team will monitor and review coverage in line with content specified in the new NC to ensure consistency and progression of skills.
Until such review, all units of work for Design and Technology should be taught in the term of the year specified by each year group's long term overview.
Design and Technology lessons may be blocked and not taught on a continuous weekly basis, if the teacher deems that this provides more effective opportunities for teaching and learning. Teachers are aware that the summer term "International week" provides opportunities for some of the Design and Technology coverage.

Aims and Objectives

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.

Regardless of gender, ethnic origin or ability, we specifically aim 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.

Content

In design and technology, children acquire and apply knowledge and understanding of: • materials and components;
• mechanisms and control systems;
• structures;

• food and horticulture; • existing products;
• quality;
• health and safety.

Children will:
• develop designing skills, including generating and developing ideas, clarifying a task, creating design proposals, communicating ideas, planning and evaluating;
• acquire and refine the practical skills associated with making, including working with materials and components, tools and processes, eg planning, measuring and marking out, cutting and shaping, joining and combining, finishing, and evaluating;
• apply scientific skills, eg predicting and fair testing;
• apply mathematical skills, eg measuring to an appropriate number of decimal places, drawing and interpreting tables, graphs and bar charts;
• apply computing skills, eg making things happen by the use of control, handling information through the use of a database or spreadsheet;
• apply art skills, eg investigating texture and colour or recording visual information.

Children will have opportunities in Design Technology to:
• work both independently and with others, listening to others' ideas and treating these with respect;
• can be creative, flexible and show perseverance;
• critically evaluate existing products, their own work and that of others;
• develop a respect for the environment and for their own health and safety and that of others;
• recognise the strengths and limitations of a range of technologies and appreciate which are appropriate for particular situations;
• develop their cultural awareness and understanding and appreciate the value of differences and similarities;
• develop an understanding that all people are equal regardless of age, race, gender or ability and that there needs to be alternative solutions to meet the needs of individuals and groups of people;
• find enjoyment, satisfaction and purpose through designing and making;
• apply value judgements of an aesthetic, economic, environmental, moral, scientific and technical nature.

Key Stage 1

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 and school, gardens and playgrounds, the local community, industry and the wider environment].

At the end of Key Stage 1 most pupils will be able 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, levers, sliders, wheels and axles], in their products.

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]. By the end of key stage 2, most children will be able 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, crosssectional 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.

Planning

Long Term Planning
Using the National Curriculum Programme of study, Design and Technology Scheme of work for Key Stage 1 and 2 and the curriculum guidance for the Foundation Stage as the basis of their long term planning document teachers refer to their year group planning which relates to the national curriculum level descriptors.

Medium Term Planning
Using the objectives from the National Curriculum, teachers identify the learning objectives for each unit of work, matching possible teaching activities with learning outcomes and ensuring essential key objectives are covered at least once throughout the year. UNCRC, Mission Statement and Basic Skills and cross-curricular links to be made in planning where applicable.

Short Term Planning
This is done on a weekly basis referring to medium term plans.
When planning, the following should be kept in mind:
• IDEAs, investigating, disassembly and evaluation activities (how familiar products work and what they are supposed to do).

• FPTs, Focused Practical Tasks (developing a range of techniques, skills, process and knowledge).
• DMAs, Design and Make Assignments using a range of materials.
KS1 - Including food textiles and items that can be put together.

KS2 - Including electrical and mechanical components, food, mouldable materials, textiles and stiff and flexible sheet material.

Assessment

The learning outcomes in each unit show how children might demonstrate what they have learnt. Pupils should be involving in actively evaluating their work and thinking about possible improvements. The actual work children produce will serve as a record of the achievement, therefore it is not necessary to make detailed records of each child in relation to the outcomes. However, teachers may wish to make notes about individual children's development.

Monitoring and Reviewing

The Design and Technology co-ordinator is responsible for monitoring the standards of children's work and the quality and breadth of teaching. The coordinator supports colleagues in the teaching of Design and Technology by informing them of current developments in the subject and by providing a strategic lead and direction for the subject in school.

The co-ordinator is also responsible for evaluating strengths and weaknesses in the subject and identifying areas for improvement and development. Subject Leader release time will enable the

coordinator to fulfil the role, reviewing medium term plans, monitoring children's work and observing teaching in the subject

Resources

A resource audit and purchase is carried out annually. Before new stock is ordered, teachers fill out request lists based on specific needs for their future art lessons. There are both central resources in the Art and D.T. cupboard and also some supplies are kept in individual classrooms.

Children are encouraged at all times to respect and care for their working environment, selecting, using, storing and returning their own materials and equipment tidily, safely and with regard to economy of use.

Health and Safety

The general teaching requirement for health and safety applies in this subject. Teachers will carry out a risk assessment before each activity, considering their tools, materials and equipment being used. Before undertaking practical tasks, children should be taught to use tools correctly in order to ensure safety.
• Parents are an invaluable source of skills and information, and may be invited to demonstrate and teach their skills, or may indirectly share their skills through assisting with Design Technology lessons.

Home School Links

Opportunities should be available for children at home to investigate and practise skills, research information and use computing where possible.

Health and Sefety
Teachers should ensure that all learning takes place within a safe environment with special reference to the use of equipment. All staff should model safe handling and storage of equipment Respect for resources should be part of the teaching. Visits to off-school sites should be arranged in line with the School Visits Policy.

Equal Opportunities

Please refer to the appropriate policy.

Special Education Needs (Inclusion)

At St. Cuthbert's we plan to provide for all pupils to achieve, including boys and girls, higher achieving pupils, gifted and talented pupils, those with SEN, pupils with disabilities, pupils from all social and cultural backgrounds, children who are in care and those subject to safeguarding, pupils from different ethnic groups and those from diverse linguistic backgrounds.

Reviewed and amended by Mrs T Eadsforth