JC Preparatory School

Design and Technology

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Date:	July 2016
To be reviewed:	Annually

Design and Technology involves applying knowledge and skills when designing and making products. The activities undertaken will enable our children to consider the needs of individuals and society within a caring community. Undertaking design and technology activities in school will give our children opportunities to use a range of materials and processes, and to work independently or as part of a team. We would hope that the activities undertaken here at JC Prep School will also reflect the children's local environment and support them in the wider world.

Our work reflects the National Curriculum requirements for Design and Technology:

The Jersey Curriculum states the importance of design and technology:-

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.

Approach to D&T (planning and organisation)

Design and technology is taught in KS1 and KS2 as an integral part of topic work, where appropriate. Focused practical tasks are also planned by the class teacher to develop and practise particular skills and acquire knowledge.

Meaningful assignments set within familiar contexts are used by class teachers. Where appropriate they are also linked to other subjects e.g. History and Science.
As teachers we consider:

1. Design and technology opportunities arising within the curriculum and how they can link with other subject areas and bodies of knowledge;

2. How we present the teaching of new skills to the children, i.e. group based, class taught or at an individual level;

3. The role of design and technology in the teaching and learning process throughout the curriculum;

4. How to encourage children to produce work of quality;

5. How to encourage the safe, economic and appropriate use of materials, tools and equipment;

It is important that the tasks presented to pupils help them make progress in D & T. The sequence of tasks and assignments should be planned so that there is progression in what is taught, as identified in the D&T programme of study (PoS).

The school, through discussion and prior experience, has arranged D&T skills, concepts and techniques into a scheme of work based on the Design & Technology Association 'Projects on a Page' scheme. These skills, concepts and techniques will form an integral part of the planning and be incorporated into the lessons enabling progression to take place over both key stages. (Appendix One) The skills and knowledge covered are taken from the Jersey Curriculum (Appendix Two)

In the Foundation Stage 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. (Appendix Three)

Aims

- To provide a range of structured and differentiated activities which develop breadth and progression. Where possible these will relate to the interest and everyday experiences of our children
- To develop knowledge and teach skills in order to design and make products successfully.
- To help children become aware of and investigate simple products by disassembly and evaluation.
- To provide adequate time, access to information, skills and resources to make a good quality product.
- To motivate pupils by providing interesting and stimulating experiences.
- To provide equal opportunities and develop the qualities of individual pupils.
- To enable children to use design and technology to solve a range of problems.

Objectives

Pupils should have opportunities to:

1.1 develop realistic outcomes to assignments.

1.2 take increasing responsibility for their own work.

1.3 critically evaluate their work and the work of others and suggest improvements.

1.4 work individually and in teams, groups, partners or pairs.

1.5 work with a range of materials and to use them appropriately.

1.6 use a variety of tools safely and correctly.

1.7 communicate ideas in a variety of ways.

1.8 develop skills and apply knowledge and experience when working on an assignment.

1.9 develop the ability to solve problems.

1.10 research and record relevant information where appropriate.

1.11 examine and evaluate design features in simple products including their historical development.

3.0 Whole School Policy

The D & T curriculum has been developed to ensure it is an integral part of the "whole school" approach to children's learning.

4.0 Equal Opportunities

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

5.0 Assessment

Teacher assessment is used to inform future planning and to review children's capability. Design and Technology assignments are used throughout the key stages to assist with formative and summative assessment. Children are encouraged to make an oral or written evaluation of their work in technology throughout the key stages. Where appropriate children will use design sheets or booklets to plan, record, assess and evaluate their work. (Appendix Four)

6.0 Recording (PoS)

Coverage of the programmes of study is mapped by individual teachers against their D&T activities over the year, and monitored by the co-ordinator. Evidence of this is retained in the main planning file.

7.0 Resources

The school has a range of resources and each class teacher is responsible for these. We have material in school and a range of teacher and children's reference books (the technology series by Heather Monaghan and QCA resources). In addition there are shared resources on the 'teacher shared' area on the school system. The school's kitchen is available for small groups and in addition to the resources at our primary school, we have the expertise, knowledge and facilities at JCG to use (when appropriate).

8.0 Special Needs

Any children who are identified as having "special needs" are given the help they require. Where children have a degree of physical, sensory or behavioural difficulties in the making of products they should be encouraged to participate in such activities with help from others.

Please refer to the schools policy on Special Educational needs for further information.

9.0 Differentiation

A range of approaches will be used and incorporated into our D&T activities, through individual class teacher's planning. This will allow all children to develop their potential according to age and ability.

10.0 Role of the Co-ordinator

The co-ordinator works with the whole staff to develop a cohesive design and technology experience throughout the school. The co-ordinator will also:

- support colleagues in their development and understanding of detailed work plans and implementation of schemes of work and in assessment and record keeping.
- take responsibility for the purchase and organisation of resources for D&T
- keep up to date with developments in D&T.
- monitor delivery throughout the school.

11.0 Planning

It is our aim that children work through activities that are based on our programme of themes delivered through the 'Projects on a Page' scheme, as described in our long term plan. This plan will ensure all aspects of the D&T POS are covered during KS1 and KS2. Refer to associated schemes of work for further details.

12.0 Health and Safety

A set of safety guidelines for design and technology are available in the appendices (Appendix Five). There is also copies of the 'Make it Safe Guidance' that are to be found in the Learning Resource Room. In addition to these, a copy of safety with food is also displayed in the kitchen. For further information please refer to the schools policy statement for Health and Safety.

This policy statement will be reviewed and modified annually.

APPENDIX 1:

Year	Autumn	Spring	Summer
Year 1	Food Preparing fruit & vegetables	Mechanisms Sliders & levers	Structures Freestanding structures
Year 2	Mechanisms Wheels & axles	Food Preparing fruit & vegetables	Textiles Templates & joining techniques
Year 3	Textiles 2D shape to 3D product	Food Healthy & Varied diet	Structures Shell structures (inc CAD)
Year 4	Electrical Systems Simple circuits & switches (inc programming & control)	Mechanical Systems Levers & linkages	Food Healthy & varied diet
Year 5	Structures Frame structures	Textiles Combining different fabric shapes	Food Celebrating culture and seasonality
Year 6	Food Celebrating culture and seasonality	Electrical Systems More complex switches & circuits (inc programming, monitoring & control)	Mechanical systems Pulleys or gears

Appendix Two: Key Stage One and Two Progression of skills from National Curriculum and objectives.

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].

When designing and making, pupils should be 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, 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].

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

Appendix Three: Foundation Stage Objectives (see stepping stones and foundation stage curriculum).

Curriculum Area	Aspect	Early Learning Goal
Physical Development (PD)	Moving and Handling	Children show good control and co-ordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing.
Understanding the World (UtW)	The World	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.
	Technology	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.
Expressive Arts and Design (EA&D)	Exploring and Using Media and Materials	Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
	Being Imaginative	Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Appendix Four: Assessment (Example of a booklet used in Year 4)

Bread Roll Challenge Year 4

Name:

Investigating different types of bread

Photo of different breads

My favourite bread was……

because

Description of other bread that I looked at and tasted…

My design ideas for different bread

My Chosen Design

Shape & any decoration

View inside(when sliced)

Evaluation of my bread

Photo of finished bread

How did it taste?

What did my friends/family think?

What worked well?

What I will do differently next time:

Appendix Five: Relevant health and safety information for our school and risk assessments

Design Technology Generic Risk Assessment

Assessed by: Shelley du Feu
Location: JC Prep
Staff

In addition to this risk assessment, please read attached safety guidelines for use of tools.

Hazard	Persons in Danger	Is the risk adequately controlled?	Severity	Likelihood	What further action is needed to control the risk?
Use of dangerous tools • Hammer • Nails • Drill • Junior Hacksaw Cuts and grazes to major injury	Children and staff	• Supporting adults briefed before activity • Appropriate adult-child ratio (1:2) • Appropriate welfare facilities in place (first aid kit in kit bag, routine for summoning help for serious incidents) • Equipment counted out and back in line with policy. • Equipment to stay in designated area.	Harmful Harmful	Likely Likely	First Aider in group and will contact office if in need. Ratios maintained First Aid kit to be easily accessible. Designated area for tools to be used. Children to be taught how to use tools safely

Hazard	Persons in Danger	Is the risk adequately controlled?	Severity	Likelihood	What further action is needed to control the risk?
<u>Use of glue gun</u> burns	Children and staff	• Instruction on safe usage of equipment procedures by Activity Leader • Supporting adults briefed before activity • Appropriate adult-child ratio (1:2) • Appropriate welfare facilities in place (first aid kit in kit bag, routine for summoning help for serious incidents) • Equipment counted out and back in line with policy.	Harmful	Likely	Ratios maintained First Aid kit to be readily available. In the case of burns: run under cold running water for 10mins. Children to be taught how to use tools safely. Children not to glue small items.