Design and Technology Policy

Vision Statement

To ensure that every child receives the highest quality education that is engaging, enriching and inclusive, in an environment that works hard to develop, support and care for all its members, with people that foster mutual respect and encouragement in accordance with Christian values.

Introduction

Design and Technology lessons will provide opportunities for children to develop Design and Technological skills, knowledge and understanding to meet the requirements of the National Curriculum. Pupils will be involved in designing, developing and making their own good quality products. They will evaluate their own work and will also evaluate familiar products. 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 presents children with a series of real life situations, where they 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 will become more focused on what makes a product successful. They will also need to analyse products and decide how it can be 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.

Inclusion

'Schools have a responsibility to provide a broad and balanced curriculum for all pupils. The National Curriculum is the starting point for planning a school curriculum that meets the specific needs of individuals and groups of people.'

National Curriculum Inclusion Statement

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Aims

For design and technology we aim to:

- To stimulate and maintain pupil interest, enjoyment, curiosity and concern about technological aspects of their environment, both local and otherwise.

- To enable pupils to be familiar with a relevant body of knowledge, skills, principles and vocabulary. Pupils should become competent and confident in:

    i.   conceiving, designing and producing a range of products

    ii.   evaluating and improving their own products and those designed by others

- To enable pupils to perceive Design and Technology as:

    i.   a major cultural feature

    ii.   part of a wider body of knowledge and skills, to be able to work both independently and co-operatively.

- To employ teaching methods and resources that allow all pupils to have equal access to Design and Technology and to experience success and enjoyment in their work.

- To develop in pupils an awareness of the implications of Design and Technology for individuals and the local, national and international communities.

- To enable students to develop a range of desirable personal qualities such as safety awareness, politeness, perseverance, independence and using their initiative.

Objectives

Teachers should provide a wide variety of experiences and activities during KS1 and KS2. These should be closely related to elements from the National Curriculum subject content 2014.

- To enhance pupil abilities to generate ideas for designs in response to a wide range of realistic technological problems.

- To develop skills that allow pupils to clarify and communicate ideas by a variety of constructional and graphic means, with and without the aid of computers.

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- To give pupils an understanding of the characteristics and properties of a wide variety of materials and components.

- To identify appropriate tools techniques and processes that can be used to achieve a desired outcome.

- To encourage pupils to follow both verbal and written instructions

- To seek out and draw upon a range of information sources in order to help generate and develop designs.

- To understand that products can be controlled and processes sequenced using computers.

- To understand the different criteria by which products can be criticised and evaluated in terms of their design and functionality.

- To encourage pupils to recall and apply their knowledge and skills in familiar and unfamiliar situations.

- To appreciate the health and safety issues associated with working with certain materials, tools, equipment and processes.

- To encourage pupils to apply risk assessment when working.

- To develop a technological vocabulary that pupils readily apply in their work

- To develop and identify links with other NC subjects where appropriate, e.g. link to Science when referring to the physical or chemical properties of materials.

- To allow opportunities for group discussions when pupils can listen to the critical views of others.

- To understand the nature and range of products embraced by the term 'technological', including artefacts, structures (fabricated, textural or edible) environments, and control systems (electrical, electronic, mechanical or pneumatic)

Teaching strategies

In order to fulfil our aims we intend to engage pupils in three essential types of activity:

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1. Design and Making Assignments

This is where children draw together their designing and making skills with their knowledge and understanding. They make a product that meets a real need and apply their skills in a meaningful way. The content should be relevant and tasks need to be structured. The designing process employed is illustrated below.

IDENTIFYING NEEDS

TESTING & EVALUATION   RESEARCH

MAKING   DESIGNING
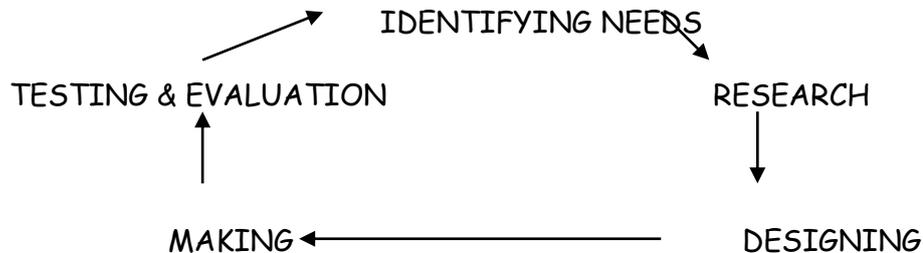
Work may begin at any point in this 'design wheel'

2. Focused Practical Tasks (Skills Building)

Pupils are given the opportunity to learn and practice particular skills. These can be designing skills such as sketching, researching and brainstorming or manufacturing skills such as marking out, cutting and assembling. There will also be ICT skills used in graphic presentation, Computer Aided Design (CAD) and Control Technology.

3. Investigations, product analysis (disassembly) and evaluating simple products.

Children will be given the opportunity to explore existing products, disassemble them, rebuild them and consider their good and bad points. They will also consider and suggest how things were made.

Planning

The design and technology subject leader and headteacher monitor the medium term planning.

The design and technology subject leader has given each teacher a copy of design and technology standard process to help with planning. See Appendix B.

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Units to be taught linked to class theme:

EYFS		
Food technology	Range of materials to make/ evaluate/ adjust	Textiles
Year 1		
Food technology	Structures	Mouldable materials
Year 2		
Food Technology	Mechanisms	Textiles
Year 3		
Stiff and flexible materials	Mechanical – cams	Food Technology
Year 4		
Food Technology	Textiles	Electrical/ mechanical
Year 5		
Textiles	Electrical and mechanical components	Food Technology
Year 6		
Food Technology	Textiles	Mouldable materials

Planned activities to be included and coverage checked as year progresses.

Special Educational Needs

Teachers will aim to include all children in D&T lessons. All children will benefit from aspects of the lesson, such as discussion and the sharing and pooling of ideas. Some pupils will need to be supported by a classroom assistant in association with appropriately differentiated tasks given by the teacher. In some cases a child will have an IEP monitored by the class teacher.

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Spiritual development

Pupil's spiritual development will be developed through:

- Helping pupils recognise their own creativity.

- Being able to recognise the creativity of others.

- Finding solutions to problems.

- Recognising the tensions between material and non material needs.

- Recognising how technology affects the environment..

- Discussing dilemmas posed by the introduction of new technologies.

- Exploring ideas about past technologies.

- Exploring the contribution of products to the quality of life.

Equal opportunities

Children with particular needs will be challenged and motivated by differentiated work given by the teacher appropriate to his or her needs. Teachers will also use questions which allow all children to maintain their involvement in lessons and demonstrate their knowledge and ability. Care will be taken to ensure that activities are not gender biased.

Health and safety

In their planning of activities, teachers will apply risk assessment strategies which anticipate likely safety issues. They will also explain the reasons for safety measures and discuss any implications with the children. Children will always be encouraged to consider safety for themselves, others and the environment and resources they use, when undertaking Design and Technology activities.

Resources

A well stocked and labelled Design and Technology storeroom contains both materials, equipment, components and tools purchased to ensure that all children have the necessary resources to access the subject and to make reasoned and informed choices. The D&T budget covers the cost of materials and replacement tools, and we do not ask parents to make contributions, so as to allow all children to have the same opportunities. See Appendix A.

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Assessment

Assessment can take place at three connected levels:

- Short term or formative (marking and discussion with the child on progress being made during an activity)

- Medium term or summative (end of activity or the assessment of a key skill)

- Long term (end of year reports)

The design and technology subject leader keeps evidence of the children's work in a portfolio. This demonstrates what the expected level of achievement is in design and technology in each year of the school.

Evaluation

All planning is monitored by the subject leader to ensure coverage of the National Curriculum requirements and the applied scheme of work. This enables informed evaluation of the success of the teaching in progress. At the end of each unit of work the class teacher will complete an evaluation sheet which will be placed in the Design and Technology planning folder. Those areas that have been ineffective will be modified.

Monitoring

Monitoring of the standards of children's work is the responsibility of the D&T subject leader. A range of pupil work is made available to subject leader during staff meetings so that coverage, continuity, progression and standards can be monitored.

Management of Design and Technology

The work of the Design and Technology subject leader involves:

- Developing a working policy.

- Developing an agreed scheme of work.

- Auditing and ordering resources.

- Supporting colleagues in the teaching of Design and Technology

- Reviewing teacher planning and evaluations

- Keeping abreast of new developments in resources and teaching methods

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- Monitoring pupil's work

This policy is cross referenced to our Gender Equality Policy, Teaching and Learning Policy, Safeguarding Policy, Healthy Eating Policy and SEN policy including acknowledgement of the school's legal duties under the Equality Act 2010, in respect of safeguarding and in respect of pupils with special educational needs (SEN).

Policy Amended: November 2014

Review date: November 2017

Appendix A – Resources

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KS 1 -

Wooden wheels	Wide lollypop sticks	Wool
Card wheels	Narrow lollypop sticks	Sewing thread
Pegs	Dowel	Glue gun
Cotton reels	Felt	Lego construction kit
Cotton reel inserts	Needles	4 Bebot robots
Plastic wheels	Stick on eyes	Wheel construction kit
	Duplo construction kit	Wooden bricks

KS2 –

Control technology	Lego construction kit	Cardboard cams
Clown model	Dowel	Bendable round file
House model	Glass paper	square section timber
Traffic light model	Modelling straws	Flat metal file
Control box	10 metal rulers	Aluminium wire
Control computer package	4 table clamps	Drink straws
	Table top cutting	

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Lightbulbs	board	Wide lollypop sticks
Buzzers	5 wood guides	Narrow lollypop sticks
Motors	6 junior saws	Match sticks
Modelling sticks	Syringes	Felt
Variety of card	Pompoms	Needles
Pneumatic piping and connectors	Balloons	Poppers
Card corners	Split pins	Buttons
Glue gun sticks	Sequins	Sewing thread
Tuppaware dishes	Glue gun	Zips
3 jugs	Cheese grater	Set of biscuit cutters
3 measuring jugs	6 plastic plates	2 weighing scales
2 cooling racks	Foil	12 wooden spoons
5 cake baking trays	Vinyl gloves	3 plastic spoons
2 baking trays	12 Aprons	1 tin opener
1 oven glove	20 old wallets/purses	2 chopping boards
		2 rolling pins

Appendix B

Design and technology follows a standard process

- <mark>Identify a need</mark>

- <mark>Research</mark>　　　– Internet/ books e.t.c.
  - Questioning/ Questionnaires (problem to be solved or purpose)

  - Disassembly of an existing product (pull apart)

  - Focused practical tasks – Little tasks to research part of a product

(methods of closing a pencil case/ how to join clay/ different switched/ different axles e.t.c.)

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- Initial ideas e.g. 20mins to come up with 4 different ideas that will solve the problem
- Focused ideas - make choices justifying their choice, WHY?
- SUCCESS CRITERIA – needs to be measurable
- Develop final design – annotate to identify materials and quantities/sizes(mm/cm)

• Manufacturing (making the product)
- Evaluate throughout developing plan (dating any new developments)

- Discuss skills
- Mark out cutting/ shaping(mouldable materials)/ joining/ finishing (making it look good
- Discuss accurate measuring

• Testing and evaluating
- Market research , peer testing / others opinion
- Identify modifications- How can it be improved?
- How can I make it work better?
- Remember to analyse the final product and process e.g. was research good enough at start/ more focus practical tasks on certain parts e.g. joining methods.

KS1 – Teacher scribe

Remember to develop technical language throughout – e.g. cog/ appliqué/ axle e.t.c.

Examples - Not a comprehensive list

Textiles: fabric (soft) materials – weaving/ joining fabrics/ knitting/ crochet e.t.c.

Structures: Bridges/ towers/ crane structure/ axles – something that holds itself or something else

Mechanisms: moving parts that do work – gears(teeth)/ levers in books// cams/ pulleys (belt or string)

Mouldeable materials: paper mache/ clay/ plasticinne/ plaster of Paris/ mod roc

Stiff and flexible materials: vehicles/ pop up books

Electrical control: sequencing burglar alarms/ motor both directions.