

# Sir Alexander Fleming Primary School



## Design & Technology Policy

# Policy for Design and Technology

## Principles

### What is Design and Technology?

“Design and Technology is about making things that people want and that work well. Creating these things is hugely exciting: it is an inventive, fun activity.”

James Dyson

At Sir Alexander Fleming, Design and Technology is taught to all children irrespective of their gender, race, creed or ability. It is important that all children are provided with equal access to all curriculum areas. We strive to teach Design & Technology within contexts which are meaningful and engaging to all learners. We challenge all children to reach their potential. We meet the needs of SEN children by providing targeted focussed support. We meet the needs of our More Able learners by providing focussed activities which challenge them to broaden, enrich, deepen and accelerate their learning.

## Aims

We aim to:

- Help children develop a curiosity and interest in the world and be prepared for the range of technologies operational in society;
- Create an interest and enthusiasm for designing and making for children of all abilities and provide opportunities for all children to design and make products;
- Provide a range of activities to develop the children’s capability and confidence in their own ideas;
- Teach pupils to combine practical skills with an understanding of aesthetics, social and environmental issues, function and industrial practices;
- Develop children’s confidence and skill in using and selecting a range of tools and materials safely and competently;
- Teach pupils to reflect on and evaluate present and past design technology, its uses and effects;
- Teach pupils to become innovators and informed users of products.

## 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;

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- acquire and refine the practical skills associated with making, including working with materials and components, tools and processes, e.g. planning, measuring and marking out, cutting and shaping, joining and combining, finishing, and evaluating;
- apply scientific skills, e.g. predicting and fair testing;
- apply mathematical skills, e.g. measuring to an appropriate number of decimal places, drawing and interpreting tables, graphs and bar charts;
- apply computing skills, e.g. making things happen by the use of control, handling information through the use of a database or spread sheet;
- apply art skills, e.g. 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.

## Design and Technology in the National Curriculum

### Foundation Stage

Design and Technology is taught in EYFS as a part of the topic work covered during each term. Children are encouraged through to develop their Design and Technology skills through daily independent activities and termly focused work as outlined in the Development Matters document. Design and Technology contributes to a child's Expressive Arts and Design development and Physical Development.

### 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, forest school, base camp and playgrounds, the local community, industry and the wider environment]. 4

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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.

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## 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, 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:

#### Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

#### Key stage 2

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- 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.

## Design and Technology History and Appreciation

Through evaluation of past and present design and technology, children will develop a critical understanding of impact on daily life and the wider world.

Organisation

Time Allocation

- Three units per year;
- One unit per term (carried out during one half-term);

'Blocking' of time may be used within Design and Technology as deemed appropriate by the class teacher.

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## Links with other subjects

As much as possible, we aim to make cross-curricular links within the teaching of Design and Technology and these can be seen in our creative curriculum termly overviews.

## Planning

Planning is the responsibility of the class teachers who deliver the lessons across the school. Guidance and support will be provided by the Design and Technology co-ordinator. Planning is used to:

- Set clear achievable goals;
- Ensure work is matched to pupils' abilities, experiences and interests;
- Ensure progression, continuity and subject coverage throughout the school;
- Provide criteria for assessment and evaluation of teaching and learning.

## Long Term Planning

Our long term planning matrix outlines the units to be covered during Key Stages 1 and 2. (The matrixes will be held centrally on the 'T' drive 'Workgroup' and in the co-ordinator's subject file.)

Throughout both Key Stages 1 and 2, the children will have the opportunity to work on each of the different components of design and technology (food technology, structures, mechanisms and textiles) at least twice within the planned framework. During Key Stage 2, at least two units in electrical control will also be taught.

## Medium Term Planning

Termly learning objectives are derived from the long-term matrix for each year group.

### Short term Planning

Teachers will produce an objective based lesson plan in accordance with the medium term planning grids.

## Resources

Written resources are kept on the 'T' drive 'Workgroup' or in the co-ordinator's subject file, whilst tools, materials and teaching aids are stored in the design and technology storage boxes and trolley. Existing products and examples of work from previous units will also be held in the storage boxes or with the co-ordinator. The co-ordinator is responsible for ensuring that consumable resources are replenished when necessary. Other members of staff should inform the co-ordinator when resources have run out or are broken.

## Assessment and Record Keeping

Class teachers assess a pupil's progress through observation, recorded work and specially planned assessment activities in line with our assessment objectives. The learning outcomes in each unit show 7

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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.

Examples of work will be kept as evidence of each unit of work across all Key Stages. These examples of work will also demonstrate the performance of children at different levels within their year group. These should be passed onto the co-ordinator upon completion of the unit and will then be stored in the D&T subject file and storage drawers.

## 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.

### Reporting

Class teachers comment upon children's progress in Design and Technology on parents' evenings and in annual reports.

### The Role of the Co-ordinator

The co-ordinator will:

- Lead the development of Design and Technology throughout the school and encourage cross-curricular links with other subject areas;
- Provide guidance on planning suitable activities for each unit of work;
- Review and monitor the success and progress of the units of work;
- Order and replenish resources and stock linked to each unit of work;
- Be responsible for the organisation and maintenance of design and technology resources;
- Keep up to date on local and national developments within Design and Technology and advise staff as appropriate.

### Health and safety

"The safety of the children is the responsibility of the class teacher. It is therefore important to ensure that all staff and helpers are confident in the appropriate and correct use of tools."

### The Design and Technology Primary Co-ordinator's File, DATA

Risk assessment guidance on Design and Technology is to be held on the 'T' drive 'Workgroup' and the co-ordinator's subject file. Copies of Risk Assessments may also be held in the main office. Staff 8

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should refer to this guidance before using or teaching children how to use tools, equipment, materials and when cooking.

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