

Policy Connections

This policy should be read in conjunction with the Schemes of Work for Design Technology, the Health & Safety Policy, the Healthy Eating Policy, and the Supplementary Guidance for Policies (including philosophy; ethos; policy connections; audience; monitoring and evaluation of curriculum subjects; assessment, recording and reporting; supporting beyond the school) which set out in detail what pupils in different Key Stage ability ranges will be taught.

Aims and Purpose of Study

Design & Technology is a foundation subject within the National Curriculum. The aims of Design & Technology are to:

1. *Enable all pupils with varying degrees of support to be involved in the creation of functional products*
2. *Enable pupils to work with a range of materials, tools and techniques*
3. *Foster independence through activities in which pupils develop design skills by making individual choices about material, size, shape, colour and taste*
4. *Allow pupils to work both individually and as a member of a team*
5. *Offer experience of achievement and success but also encourages the development of strategies for recognising and coping with products or ideas that fail or need improvement*
6. *Allow pupils to use knowledge and understanding gained from other areas of the curriculum in a practical manner.*
7. *Allow pupils to test their ideas and products and the work of others.*
8. *Help pupils to understand and apply the principles of nutrition and learn how to cook.*
9. *Allow pupils to develop the creative, technical and practical expertise needed to perform everyday tasks confidently.*
10. *To allow pupils to participate successfully in an increasingly technological world.*

These aims are consistent with our school philosophy and take account of National Curriculum Statutory guidance.

Programmes of study

Through all key stages pupils should be taught:

- to design
- to make
- to evaluate
- technical knowledge
- about cooking and nutrition

EYFS

Pupils in the Early Years Foundation Stage (EYFS) follow the educational programmes outlined in the framework for the EYFS. The strands personal, social, emotional development and expressive arts and design will give opportunities to play and explore and learn in an active and creative way. The document 'Development Matters' will be used to

support the planning and assessment of activities. These opportunities will provide broad and balanced experiences that will prepare pupils for the KS1 Design and Technology curriculum.

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 interactive 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].

Design

Pupils can be taught to:

- Make choices, choosing a product or elements of its design (e.g. on the basis of taste, colour, shape, texture, smell).
- Generate ideas, communicating them through talking, drawing, making models and where appropriate using information technology.
- Explore the qualities of a range of materials/media.
- Change the shape of materials and make non-intentional structures by playing and experimenting e.g. making playdough shapes and pressing them together.
- Develop ideas including intentional structures by shaping and playing with materials and putting together components.
- Demonstrate understanding of different processes in a simple task by performing appropriate actions.
- Plan by indicating, what to do next in a simple task.

Make

Pupils can be taught to:

- Explore the sensory qualities of materials.
- Participate in the use of and perform appropriate tasks or processes with a range of simple tools and techniques.
- Select tools, techniques and materials from a range suggested by the teacher, using them to perform a variety of tasks.
- Measure, mark out, cut and shape a range of materials.
- Assemble, join and combine simple materials and components, e.g. mixing, gluing, building.
- Assist in decorating their product or use simple finishing techniques to improve the appearance of their product, using a range of equipment, e.g. painting a model house, putting hundreds and thousands on a cake.
- Co-operate in and follow safe procedures for food safety and hygiene.

Evaluate

Pupils can be taught to:

- Indicate whether or not they are pleased with their product, communicating what they like/dislike.

- Identify in what way their product varies from the original plan or idea or whether it meets the purpose for which it is intended.
- Identify what they would have done differently or how they could improve their work in the future.
- Identify likes and dislikes of a range of existing products.

Technical Knowledge

Pupils can be taught:

- To discriminate between, or describe, materials on the basis of their sensory or other qualities, e.g. taste, colour, soft/hard.
- To describe the different characteristics of materials.
- About the working characteristics of materials (e.g. folding paper to make it stiffer, warming butter to make it softer) and how they are used to make different products.
- To observe the operation of, or operate, simple mechanisms in a product, e.g. pop-up card.
- How mechanisms can be used in different ways, e.g. wheels and axles, joints that allow movement.

Cooking and Nutrition

Pupils can be taught:

- How to select healthy foods to make a variety of dishes
- Explore where food comes from e.g. digging potatoes from the ground

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 interactive 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].

Design

Pupils can be taught to:

- Make choices, choosing a product or elements of its design (e.g. on the basis of taste, colour, shape, texture or smell).
- Follow a simple plan devised by another person.
- Generate and communicate ideas for products after thinking who will use them and what they will be used for, e.g. birthday cake for a friend, a container that will carry water without leaking.
- Initiate part of an activity, either directly or by giving a signal to another to do so.
- Plan what they have to do, indicating what they must do first or suggesting a simple sequence of actions.
- Use computers to aid with design work.

Make

Pupils can be taught to:

- Participate in the use of and perform appropriate tasks or processes with a range of simple tools and techniques.

- Select appropriate tools and techniques for making their product.
- Use tools to measure, mark out, cut and shape a range of materials.
- Join and combine components and materials accurately, e.g. mixing, gluing, building.
- Explore the sensory qualities of materials and use a range of simple processes on materials in order to change their properties, e.g. helping to cook cakes, rolling dough, folding paper.
- Select and participate in the use of simple finishing techniques (e.g. sanding, decorating, varnishing) in order to strengthen and improve the appearance of their product.
- Co-operate in and follow safe procedures for food safety and hygiene.
- Select from and use a wide range of materials including construction materials, textiles and ingredients.

Evaluate

Pupils can be taught to

- Communicate their ideas, indicating what they like and dislike.
- Reflect on the progress of their work as they design and make, identifying ways they could improve their products.
- Carry out appropriate tests before making any improvements, e.g. finding out if a fruit drink is sweet enough before adding more sugar.
- Investigate and analyse a range of existing products.
- Understand how key events and individuals in design and technology have helped shape the world.

Technical Knowledge

Pupils can be taught:

- To experience and manipulate materials with a variety of working characteristics.
- How the working characteristics of materials affect the ways they are used and to choose materials with characteristic appropriate to the task, e.g. soft material to make clothes.
- How materials can be combined and mixed to change their properties, making them more useful, e.g. mixing ingredients to make a cake, layering paper and glue to make papier-mache.
- To observe and operate simple mechanisms for example wheels and axles, utilising these in their products to make things move in different ways.
- To operate simple circuits that have been incorporated in their products, e.g. switching on a light.
- How electrical circuits, including those with simple circuits, can be used to achieve results that work, e.g. door bell, lighted window in a model house.
- Use computing to program, monitor and control their products.
- To explore how to stiffen, strengthen and reinforce structures

Cooking and Nutrition

Pupils can be taught:

- How to select healthy foods to make a variety of dishes
- Explore what food we get in different seasons

- Prepare and cook savoury dishes using a range of cooking techniques.

Key Stage 3 & 4

During Key Stage 3 and 4, pupils use a wide range of materials to design and make products. Pupils investigate commercially available products as a preliminary stage to designing their own and make design choices based on preferences expressed about these. Pupils use computers to make design choices or produce simple plans. Pupils use simple control systems in their products. Some pupils develop their understanding of designing and making by investigating products and finding out about the work of professional designers and manufacturing industry. Some pupils use computers, including computer aided design and manufacture and control software, as an integral part of design and making. Some pupils work out their ideas with some precision, taking into account how products will be used, who will use them, how much they cost and their appearance.

Design

- Make choices, choosing a product or elements of its design (e.g. on basis of taste, colour, shape, texture, smell).
- Identify relevant sources of information using a range of sources, e.g. Information technology, books and magazines and develop design ideas based on these investigations.
- Respond to design briefs by developing design ideas for products to fulfil a purpose.
- Consider aesthetics by making judgements as to whether a product is attractive or pleasing.
- Use ICT to express design choices and generate simple plans, e.g. colouring in outline plan, dragging and dropping design elements onto a picture outline or a computer screen.
- To use research and design criteria to design and make products which a fit for purpose and which are aimed at specific groups of people. For example t-shirts sports players.
- To generate, develop, model and communicate their ideas through discussions, sketches and diagrams.

Make

Pupils can be taught to:

- Participate in the use of simple tools.
- Independently use a variety of tools, equipment and processes, selected for them.
- Select and use tools, equipment and processes to shape and form materials safely and accurately and finish them appropriately.
- Participate in a range of procedures in order to join and combine materials and ready-made components.
- Make single products and products in quantity using a range of techniques.
- Use computer software, e.g. to move and assemble pictures or components on screen or print out the net for a box to be used to hold a product.
- Manufacture products with consideration to the quality of the product.

Evaluate

Pupils can be taught to:

- Try out their products / test how far they work / evaluate them.
- Communicate what they like/dislike about other people's products.
- To investigate new and emerging technologies
- Understand developments in technology and how it impacts different groups in society.
- Understand how developments in technology impact the environment.

Technical Knowledge

Pupils can be taught:

- To discriminate between, or describe, materials on the basis of their sensory or other qualities, e.g. taste, colour, hard/soft.
- To classify and consider the working characteristics of materials.
- To participate in processes to change their properties of materials to change their appearance.
- That materials can be combined, processed and finished to create more useful properties and particular aesthetic effects, e.g. whisking egg whites to stiffen them in order to make meringue.
- How multiple copies can be made of same product
- To operate and utilise simple mechanical and electrical input systems in their designs e.g. handles which can be turned / or switches.
- To operate simple systems incorporating electronics, microprocessors and computer control systems, e.g. lighting/sound systems in a multi-sensory room.
- To operate simple pneumatic systems, e.g. using a syringe and plastic tubing connected to a balloon to produce movement in a product.
- To recognise the relationship between inputs, outputs and processes, e.g. when pedals are turned on a bicycle, this makes the chain move, which makes wheel turn, propelling the bicycle.
- About the N.B. of feedback in control mechanisms, e.g. understanding that the bell in a microwave oven rings when food is cooked.
- To participate in the construction of simple structures.
- To recognise and use structures and how to support and reinforce them.
- Simple tests to work out the effects of loads, noticing when structures fall.

Cooking and Nutrition

Pupils can be taught:

- Select healthy foods to make a variety of dishes
- Explore what food we get in different seasons
- Prepare and cook savoury dishes using a range of cooking techniques.

Further Education Centre

Design Technology is applied through FE lessons and will focus on the application of knowledge and practical skills in modules such as horticulture, woodwork, decorating and cookery.

Health & Safety in design and technology.

As one of the few practical subjects in the curriculum, design and technology presents a number of safety issues. The main areas of concern are the hazards presented by the use of tools and certain materials and hygienic practice with the use of foods. All staff need to be aware of a common set of rules, which have been devised co-operatively and communicated to the pupils when appropriate. Refer to Schemes of Work for detailed notes.

Method of delivery

The curriculum organisation and structure is outlined in the policy document entitled 'Curriculum and School Organisation'. The procedures for planning, teaching and learning strategies, monitoring and evaluation are outlined therein. In relation to Design & Technology, however, additional considerations apply as outlined below:

Early Years

Design & Technology is planned and delivered as practical and appropriate elements within the wider context of the Early Years curriculum. Teachers plan a unit of work, which outlines the content, learning activities, learning outcomes and resources. The short term planning specifies the focus for each lesson.

Key stage 1 & 2

Design & Technology is planned and delivered as outlined in the subject mapping programme, ensuring progression throughout key stages 1 and 2. One theme then becomes the focus for Design & Technology throughout the term or blocked unit of time. Teachers plan a unit of work which outlines the content, learning activities, learning outcomes and resources. The short term planning specifies the focus for each lesson.

Key Stage 3 & 4

Design & Technology is planned and delivered as outlined in the subject mapping programme over 15 units, ensuring progression throughout key stages 3 and 4. One teacher focuses upon the subject, which is delivered to all pupils within key stages 3 and 4. Teachers plan a unit of work, which outlines the content, learning activities, learning outcomes and resources. The short term planning specifies the focus for each lesson.

Further Education Centre

Design Technology concepts are applied (as appropriate) through FE lessons and will focus on the application of knowledge and skills e.g horticulture, decorating, woodwork and cookery. Teachers plan a unit of work, which outlines the content, learning activities, learning outcomes and resources. The short term planning specifies the focus for each lesson.

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