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Design and Technology Curriculum Intent

At Bankfields Primary School, we aim to provide our children with a rich and enjoyable experience of design and technology, in which they can acquire and develop their own designing and making skills in line with the National Curriculum.

Design and Technology is essentially a practical subject that allows children to think imaginatively and creatively. We want our children to have as many opportunities as possible to become confident, independent learners, thinking critically and solving problems, both as individuals and as part of a team.

We strive to embed the key knowledge taught in Design and Technology throughout school and enable the children to be ready for the next phase of their education. We want our children to be able to acquire knowledge through research of existing products, to talk about the technical knowledge and understand the principles of cooking and nutrition. This is achieved across school through engage days and projects linked to our topics.

What's more, we intend our children to be able to evaluate past and present Design and Technology, developing a clear understanding of its impact on daily life in the local area and the wider world. This is particularly significant to the Redcar and Cleveland area, in the rich opportunities the numerous industries have to offer our children as they embark on their future careers.

Aims and Objectives

The objectives in teaching design and technology are:

- To develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making.
- To enable children to think and talk about how things work, and to draw and model their ideas.
- To critique, evaluate and test their ideas and products and the work of others.
- To encourage children to select appropriate tools and techniques to make quality products, whilst following safe procedures.
- To use and explore a range of materials, resources and equipment.
- To use the internet to explore ideas and already made products.
- To foster enjoyment, satisfaction and purpose in designing and making things.
- To understand and apply the principles of nutrition and learn how to cook.



Teaching and Learning in Design and Technology

Through a flexible and child-led learning curriculum, the school uses a variety of teaching and learning styles in design and technology lessons. The principle aim is to develop children's key knowledge, skills and understanding in the subject. These essential skills and key knowledge are clearly set out in each year groups long-term and medium-term planning. Teachers are to ensure that children are given every opportunity to develop and apply their knowledge and understanding when developing ideas, during planning and making products and when evaluating them. This is done through a mixture of whole class teaching and individual or group activities. Within lessons, children are given the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work and that of others. They have the opportunity to use a wide range of materials and resources including Computing.

Curriculum Planning in Design and Technology

Design and Technology is a foundation subject in the national curriculum. We have begun an exciting journey by following The Design and Technology Association's 'Projects on a Page' scheme of work. Projects on a Page is based on the six essentials of good practice in D&T. These ensure that children's learning is genuinely design and technological in nature and are applied whenever children are designing and making products:

- **User** - children should have a clear idea of who they are designing and making products for, considering their needs, wants, interests or preferences. The user could be themselves, an imaginary character, another person, client, consumer or a specific target audience.
- **Purpose** - children should know what the products they design and make are for. Each product should perform a clearly defined task that can be evaluated in use.
- **Functionality** - children should design and make products that function in some way to be successful. Products often combine aesthetic qualities with functional characteristics. In D&T, it is insufficient for children to design and make products which are purely aesthetic.
- **Design Decisions** - when designing and making, children need opportunities to make informed decisions such as selecting materials, components and techniques and deciding what form the products will take, how they will work, what task they will perform and who they are for.
- **Innovation** - when designing and making, children need some scope to be original with their thinking. Projects that encourage innovation lead to a range of design ideas and products being developed, characterised by engaging, open-ended starting points for children's learning.



- **Authenticity** - children should design and make products that are believable, real and meaningful to themselves i.e. not replicas or reproductions or models which do not provide opportunities for children to make design decisions with clear users and purposes in mind.

Our new DT long term and short term planning provides progression and coverage of the NC programmes of study for KS1 and 2, setting out what children should have previously learnt and detailing what they will learn through the project. We strive to build on current good practice, each project includes three types of activity:

- **Investigative and Evaluative Activities (IEAs)** where children learn from a range of existing products and find out about D&T in the wider world;
- **Focused Tasks (FTs)** where they are taught specific technical knowledge, designing skills and making skills;
- **Design, Make and Evaluate Assignment (DMEA)** where children create functional products with users and purposes in mind.

Also, activities in Design and Technology allow children of all abilities the opportunity to develop their skills, knowledge and understanding, so that they are increasingly challenged as they move through the school.

Design and Technology in the Early Years Foundation Stage

We encourage the development of skills, knowledge and understanding that help Nursery and Reception children make sense of their world. We relate this development to the objectives set out in the "Early Years Foundation Stage" (Development Matters Sep 2023), which underpins the curriculum planning for children aged from birth 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 materials safely and with increasing control.

We provide a range of experiences that encourage exploration, observation, problem solving, critical thinking, discussion and decision making. These activities take place both indoors and outdoors and are designed to arouse the children's interest and curiosity.

Throughout the Foundation Stage, activities and opportunities are planned where children can learn through talk, play and their own life experiences.

Children in the Foundation Stage will experience a variety of activities including:

- Choosing and exploring a variety of materials such as fabric, card, paper, wood, boxes etc.
- Learning how to use scissors safely and correctly.

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- Exploring a variety of joining techniques such as PVA glue, Pritt stick, masking tape, elastic bands, sellotape, treasury tags, split pins, paper clips and string to join materials together,
- Taking part in both cooking and non-cook food activities, learning about the importance of food hygiene,
- Having opportunities to explore creating models using a wide range of construction kits that fit together in a variety of different ways,
- Having opportunities to talk about and explain how they will/have made their model and to discuss what they like/dislike about it,
- Folding and shaping paper in order to create a range of structures.

Design and Technology in Key Stage 1

In Key Stage 1, children are able to now access continuous provision in the learning zones to build on their key knowledge, understanding and skills in DT. Children are given opportunities to complete independent learning activities linked to the Year 1 and Year 2 topics, as well as the inclusion of whole class learning opportunities.

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.

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Design and Technology in 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.

Cooking and Nutrition in design and technology

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

- 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.

Cross Curricular Links in design and technology

English -

Design and Technology contributes to the teaching of English in our school by providing valuable opportunities to reinforce what the children have been doing in their English lessons. The evaluation of products requires children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion children learn to justify their own views and clarify their design ideas.

Mathematics -

In design and technology, children learn to measure and use equipment correctly, generate nets of shapes in order to create packaging and weigh and measure accurately. They will also learn about size and shape and make "real" use of their mathematical knowledge in order to be creative and practical in their designs and modelling.

Science -

Science helps in design and technology, looking at and drawing electrical circuits. It also helps children to think about using materials to create structures which can withstand a force.

Computing -

We use Computing to support design and technology teaching when appropriate. The children also use Computing to collect information and to present their ideas through draw and paint programs.

Personal, Social, Relationship and Health Education (PSRHE) -

We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about health and healthy diets. Through



their understanding of personal hygiene they also learn how to prevent disease from spreading when working with food.

Spiritual, moral, social and cultural development -

Our groupings allow children to work together and they understand how we expect them to do this. Collaborative work in design and technology develops respect for the abilities of others and a better understanding of themselves. In addition, they develop a respect for the environment, for their own health and safety and that of others. They learn to appreciate the value of similarities and differences. A variety of experiences teaches them to appreciate that all people are equally important.

Equal opportunities in design and technology

At our school we teach design and technology to all children, whatever their ability and individual needs. Design and technology implements the school curriculum policy of providing a broad and balanced education to all children. Through our design and technology teaching we provide learning opportunities that enable all pupils to make progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details see the Curriculum Policy.

Assessment and Recording in Design and Technology

Teachers assess work in design and technology by making observations of the children working during lessons, which are judged based on the learning objectives for that lesson. At the end of a topic, children undertake a review of their work that focuses upon an evaluation of the finished product and an overview of the various tasks undertaken. Teachers will complete a termly assessment of the key knowledge and skills taught, as well as identifying the children who have achieved at a basic level or if the pupil has demonstrated deeper learning. Teachers will make judgements based on assessing the strengths of each topic, analysing the 'basic learner' and 'deep learner', identifying groups of children requiring further consolidation and highlighting actions for future planning. These judgements will be recorded on the Design and Technology assessment for learning grids for individual year groups. Children's progress in Design and Technology will be included in the annual report to parents.

During the Foundation Stage children will be assessed as part of Expressive Arts and Design against the development matters statements and early learning goals.

Due to the practical nature of Design and Technology, evidence of work undertaken by children can be in the form of teacher's notes or as a photographic record. Samples of the design process and end product are also valuable evidence. These are displayed in

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floor books for each year group, recorded in children's workbooks or uploaded and stored to Seesaw.

Monitoring and Evaluation in design and technology

The subject leader will monitor the quality of teaching and learning of design and technology across the school. The subject leader will make judgements about the quality and success of design and technology across the school.

The subject leader will monitor and evaluate design and technology in order to assess the impact of their actions. This will involve:

Monitoring - The subject leader will gather and check evidence through a variety of methods, which includes lesson 'drop in' sessions, learning walks, moderation, book looks, planning scrutinies, discussion with staff and children, displays and analysing data etc.

Evaluating- The subject leader will evaluate the evidence by asking 'So what...' questions, deciding on 'next steps' for the subject and reflecting on what has worked well and what needs improving. Each term, the subject leader will complete a data analysis sheet which covers all year groups. This will identify any strengths and weaknesses and will create a focus for the next set of monitoring.

Resources in design and technology

Our school has a wide range of resources to support the teaching and learning of this subject across the school. Classrooms have a range of basic resources. More specialised equipment is kept in the DT cupboard, which can be found in Year 1. Cooking equipment can be located in the community room.

Health and safety in design and technology

All adults leading DT lessons/ activities should ensure that they have read and understood DT Health and Safety section of the policy.

All adults should ensure that:

- DT equipment is not left out unsupervised. Floors and work surfaces are kept clean and tidy and all tools used must be of good quality, in good condition and stored safely.
- Direct safety instructions should be given to children each time they undertake an Design and Technology activity.
- Children should be given a suitable instruction on the operation of all equipment before being allowed to work with it.



- Children should be strictly supervised in their use of equipment at all times. Adult to child ratio must be appropriate to the activity eg closer supervision on activities such as the use of a glue gun.
- Children should be taught to recognise and consider hazards and risks and to take action to control these risks, having followed simple, clear instructions.
- ***Specific health and safety points will need to be included onto topic plans.*** These will help teachers to identify activities of a high risk and highlight any areas in which they need to reduce risk or ensure safe practice.
- ***Risk assessments for specific tools should be referred to during the planning and use of equipment.***

Design and Technology Policy Statement regarding the use of Food.

When working with food:

- An adult will be required to supervise activities involving cooking and food handling/preparation.
- When undertaking food activities the appropriate Health and Safety Procedures must be adhered to.
- When working with food all children should follow personal hygiene guidance (wash hands, tie back long hair, wear a clean apron, cover a wound with a plaster.)
- Teachers should check the dietary needs of the children in their class to identify any foods that should not be available to specific children or groups of children.
- Any perishable food should be kept in the fridge.
- Only food equipment, from the food area, which is for food use only, should be used.
- Ensure that the work surfaces to be used / plastic work sheets for use with food,
- Should be sprayed with/wiped down with a steriliser.
- Teachers/adults taking part in any food activity should dress appropriately and follow the same procedures as the children regarding personal hygiene.
- Ensure that all food equipment is cleaned and put away in the food cupboard after use.
- Ensure that all children use their own equipment when tasting food. Certain spoons should be identified and used when placing food onto plates for children to taste food, teachers/TA's need to ensure children do not use their own.
- Consult the school's Health and Safety Manual for further guidance.

The role of a design and technology coordinator is to:

- lead the development of design and technology in school
- provide guidance to individual members of staff
- attend training courses to build on their own CPD, sharing information with other staff members

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- keep up to date with local and national developments in design and technology and disseminate relevant information
- review and monitor the success and progress of the planned units of work
- order stock linked to the planned units of work at the end of each term
- be responsible for the organisation and maintenance of design and technology resources
- co-ordinate any display of design and technology work.

Signed: Mr Andrews (DT Subject Leader)

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