

Hornsea Burton and Skipsea Federation Design and Technology Policy

Aims and objectives

Design and technology prepares children to take part in the development of tomorrow's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of design and technology they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impacts. Design and technology helps all children to become discriminating and informed consumers and potential innovators.

The aims of 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 talk about how things work, and to draw and model their ideas;
- to encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures;
- to explore attitudes towards the made world and how we live and work within it;
- to develop an understanding of technological processes, products, and their manufacture, and their contribution to our society;
- to foster enjoyment, satisfaction and purpose in designing and making.

Teaching and learning style

The school uses a variety of teaching and learning styles in design and technology lessons. The principal aim is to develop children's knowledge, skills and understanding in design and technology. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products and then evaluating them. We do this through a mixture of whole-class teaching and individual/group activities. Within lessons, we give children 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 ICT.

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In all classes there are children of differing ability and ages. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies:

- setting common tasks that are open-ended and can have a variety of results;
- setting tasks of increasing difficulty where not all children complete all tasks;
- grouping children by ability and setting different tasks for each group;
- providing a range of challenges through the provision of different resources;
- using additional adults to support the work of individual children or small groups.

Design and technology curriculum planning



These are the essential characteristics of designers that that we want our pupils to achieve during their time at our school:

- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- An excellent attitude to learning and independent working.
- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.

In accordance with the new National Curriculum for Design and Technology, our school will provide opportunities for children in KS1 so that they:

Are taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making through a variety of creative and practical activities,. Work in a range of relevant contexts, such as the home and school, gardens and playgrounds, the local community, industry and the wider environment.

When designing and making, our pupils will be taught to:

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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 such as 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, such as levers, sliders, wheels and axles, in their products.

Cooking and nutrition

- use the basic principles of a healthy and varied diet to prepare dishes.

- understand where food comes from.

For children in KS2, opportunities will be provided so that they:

Are taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making through a variety of creative and practical activities. They will work in a range of relevant contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment.

When designing and making, pupils will 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, such as cutting, shaping, joining and finishing, accurately.

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- 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, such as gears, pulleys, cams, levers and linkages.
- understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors.
- apply their understanding of computing to programme, monitor and control their products.

Cooking and nutrition

- 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 is a foundation subject in the National Curriculum. Our school uses the new national curriculum alongside the Chris Quigley Essentials Curriculum (which is linked to the new National Curriculum) as the basis for its core subject teaching. We draw on the relevant Key Skills and cross-curricular themes to plan our units of work.as the basis for its curriculum planning in design and technology.

We carry out the curriculum planning in design and technology in three phases: long-term, medium-term and short-term. Our long-term plan shows how teaching units are distributed across the year groups, and how these fit together to ensure progression within the curriculum plan. The design and technology coordinator works this out in conjunction with teaching colleagues in each year group.

Our medium-term plans give an overview of work for that term and key skills for learning. They identify key learning objectives from the programme of study for

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Design and Technology and ensure an appropriate balance and distribution of work across the term.

The three main learning objectives linked to the new curriculum for DT are:

To master practical skills

To design, make, evaluate and improve

To take inspiration from design throughout history

Class teachers complete a short term plan for each design and technology lesson. These list the specific learning objectives for each lesson and detail how the lessons are to be taught as well as key skills, resources, success criteria, differentiation and use of additional adults. The Head teacher keeps copies of these individual plans and they are monitored on a regular basis as part of the school's ongoing self evaluation process.

We plan the activities in design and technology so that they build upon the prior learning of the children. We give children of all abilities the opportunity to develop their skills, knowledge and understanding and we also build planned progression into their work, so that the children are increasingly challenged as they move through the school.

We encourage the children to use and apply skills from other curriculum areas to support their work in Design and Technology. These may be planned activities or may arise from child-initiated projects.

Where children are to participate in activities outside of the classroom, for example a museum or factory trip, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

We use ICT to support design and technology teaching when appropriate. Children use software to enhance their skills in designing and making, and use draw-and-paint programs to model ideas and make repeating patterns. They use databases to provide a range of information sources and CD-ROMs to gain access to images of people and environments. The children also use ICT to collect information and to present their designs through draw-and-paint programs.

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/Key Stage 1 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 NC as well as the Development Matters. These underpin the curriculum planning for children aged 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 material safely and with increasing control.

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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.

Teaching design and technology to children with special educational needs

At our school we teach design and technology to all children, whatever their ability. Design and technology forms part of the school curriculum to provide 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 do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum through use of Chris Quigley milestones allows us to consider each child's attainment and progress against expected levels.

Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

We enable pupils to have access to the full range of activities involved in learning design and technology.

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Roles and responsibilities

The Head will

- Set high expectations and monitor teaching and progress
- Determine ways in which DT can support, enrich and extend the curriculum
- Ensure a whole school approach, keeping parents, governors and support staff well informed.
- Support the DT co-ordinator and other teachers

The Governors will

- Be well informed through the leadership of the Head teacher and the DT coordinator
- Support the staff in implementing the school's policy for DT
- Help monitor and review progress on the DT action plan

The DT co-ordinator will

- Support colleagues in planning, teaching and assessment
- Provide expertise and advice on the use of resources
- Write, monitor and review progress on the DT action plan
- Will act as a point of contact between the school and appropriate outside visitors.
- Work alongside the Head teacher to monitor and evaluate teaching and progress
- Coordinate the evaluation and review of the school's DT policy
- Manage the provision and deployment of resources

Teachers will

- Use the New National Curriculum and Chris Quigley Essentials Curriculum (which is linked to the new National Curriculum) to aid short term planning
- Share clear learning objectives and success criteria with the children
- Use a range of teaching styles
- Plan activities that allow for different levels of achievement by pupils

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- Use the learning outcomes at the end of each unit as an aid to record and monitor pupil progress.
- Record pupil progress on end of year assessment grids to show their current level.
- Inform Parents/Carers of their child's progress through annual reports

Support staff will

- Be included in staff training for DT where appropriate
- Have a clear understanding of the DT skills to be developed
- Share the learning objectives and success criteria for the lesson and know the key vocabulary to be developed

Parents will

- Be encouraged to develop positive attitudes to DT
- Be given opportunities to view pupils work
- Be informed of their child's progress through annual reports

Assessment and recording

Teachers assess children's work in DT by making informal judgements as they observe them during lessons. On completion of a piece of work, the teacher marks it and comments as necessary. At the end of a unit of work s/he makes a summary judgement about the work of each pupil in relation to the National Curriculum levels of attainment/Chris Quigley milestones, and records these attainment grades on the end of year assessment sheets. We use this as the basis for assessing the progress of the children and to pass information on to the next teacher at the end of the year.

The DT subject coordinator may choose to keep samples of the children's work in a portfolio. Staff may display in their own classrooms examples of work from their class.

Resources

Our school has a wide range of resources to support the teaching of design and technology across the school. These resources are kept centrally and are accessible to staff.

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Health and safety

The general teaching requirement for health and safety applies in this subject. We teach children how to follow proper procedures for food safety and hygiene.

Monitoring and review

The monitoring of the standards of the children's work and of the quality of teaching in DT is the responsibility of the DT coordinator. The DT coordinator is also responsible for supporting colleagues in the teaching of DT, for keeping informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The DT coordinator has specially-allocated time for carrying out the vital task of reviewing samples of the children's work and for visiting classes to observe the teaching of DT during the DT review cycle.

This policy has been reviewed Autumn term 2016 with no changes needed. It will be reviewed at least every 2 years.