

The Levett School



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Positivity | Determination | Reflection | Integrity

Design Technology Policy

<i>Policy agreed by Governors on:</i>	31/01/2023
<i>Review date for Governors:</i>	October 2022
<i>Allocated Group/Person to Review:</i>	Sara Rook
<i>Agreed frequency of Review, by allocated person:</i>	Every Year
<i>Last Review date:</i>	21/07/2022

Lower School, Melton Road, Sprotbrough, Doncaster, DN5 7SB
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Statement of Intent

It is the Levett School's intention through the DT curriculum, that pupils are inspired by engineers, designers, chefs and architects to enable them to create a range of structures, mechanisms, textiles, electrical systems and food products with a real life purpose.

The Levett School's study of DT is routed in the school's fundamental core values; positivity, determination, integrity and reflection so that what is delivered within lessons has a clear link to current day-to-day life, locally and nationally.

As an inspiring and practical subject, it is our intent to prepare pupils to deal with an ever-changing technological world, encouraging them to become creative and resourceful problem solvers, working both independently and as members of a team.

Legal Framework

This policy has due regard to all relevant legislation and statutory guidance including, but not limited to, the following:

- DfE (2018) 'Keeping children safe in Education'
- DfE (2013) 'Design and technology programmes of study: key stages 1 and 2'
- DfE (2013) 'Design and technology programmes of study: key stages 3'
- The School Admissions (Infant Class Sizes) Regulations 2012

Roles and responsibilities

Overall responsibility for monitoring the teaching of D&T throughout the school lies with the Assistant Headteacher (AHT) for Teaching and Learning and the Subject Leader.

The AHT will make decisions on:

- How D&T should support, enrich and extend the curriculum.
- The provision and allocation of resources.
- The ways in which D&T can benefit the aims and objectives of the school.
- The AHT will also be responsible for overseeing the review of this policy with the subject leader.

The subject leader will be responsible for monitoring the progression of teaching and learning. The D&T subject leader will also be responsible for:

- Implementing this policy across the school.
- Maintaining resources and advising staff on the use of materials.
- Assisting the AHT in deciding on the allocation of resources.
- Supporting teaching staff, advising and offering to share their expertise and experience through peer teaching, advice and support.
- Deliver additional support within Curriculum Clinics.
- Leading staff training on new initiatives.
- Helping staff to plan future lessons and assessments and advising teachers on teaching methods they may wish to explore.

- Encouraging staff and pupils to be creative.
- Work alongside any outside agency that deliver aspects of DT to ensure high quality teaching and learning as well as experiences that promote additional DT skills.
- Assisting the AHT in reviewing this policy.

Classroom teachers will be expected to:

- Plan and deliver interesting and engaging lessons that adhere to the national curriculum.
- Provide equality of opportunity through their teaching approaches and methods.
- Keep up-to-date assessment records.
- Ensure pupils' development of skills and knowledge progresses through their learning and understanding of D&T.
- Set pupils suitable targets based on prior attainment.
- Maintain an enthusiastic approach to D&T.

National curriculum

The school aims to assist pupils in achieving attainment targets set out in the national curriculum. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills, and processes specified in the national curriculum. Pupils will learn a broad range of subject knowledge and draw on disciplines such as maths, science, engineering, computing and art.

In accordance with the national curriculum, the school aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding, and skills in order to design and make high-quality prototypes for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook.

KS1

By the end of KS1, 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 and mock-ups and, where appropriate, ICT.

Make

- Select from and use a range of tools and equipment to perform practical tasks, e.g. 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, e.g. levers, sliders, wheels and axles, in their products.

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed through a variety of creative and practical activities. They should work in a range of relevant contexts, e.g. the home, school, leisure, enterprise, industry and the wider environment.

KS2

By the end of KS2, pupils 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 accurately, e.g. cutting, shaping, joining and finishing.
- 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 D&T 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, e.g. gears, pulleys, cams, levers, and linkages.
- Understand and use electrical systems in their products, e.g. series circuits incorporating switches, bulbs, buzzers and motors.
- Apply their understanding of computing to program, monitor and control their products.

Key Stage 3

By the end of KS3, pupils will be able to:

Design

- Use research and exploration, such as the study of different cultures, to identify and understand user needs
- Identify and solve their own design problems and understand how to reformulate problems given to them
- Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses
- Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tool

Make

- Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties

Evaluate

- Analyse the work of past and present professionals and others to develop and broaden their understanding
- Investigate new and emerging technologies test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
- Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

Technical knowledge

- Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- Understand how more advanced mechanical systems used in their products enable changes in movement and force
- Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

Cooking and Nutrition

As part of their work with food, pupils will be taught how to cook and apply the principles of nutrition and healthy eating. 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. We understand at the Levett School the importance of teaching such a key life skill so additional cookery sessions are provided to support a more bespoke timetable.

By the end of KS1, pupils will be able to:

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

By the end of KS2, pupils will be able to:

- 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.

By the end of KS3, pupils will be able to:

- Understand and apply the principles of nutrition and health
- Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet
- Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]
- Understand the source, seasonality and characteristics of a broad range of ingredients.

Equal Opportunities

We are an inclusive school that ensures all pupils are provided with equal learning opportunities, regardless of their characteristics or backgrounds.

To support this:

- Teachers will adapt how they deliver the D&T curriculum based on the needs of pupils.
- Teachers will adapt targets and the delivery of the curriculum for these pupils.
- The planning and organising of teaching strategies for each subject will be consistently reviewed to ensure that no pupil is at a disadvantage.
- The school will aim to maximise the use and benefits of D&T as one of many resources to enable all pupils to achieve their full potential.

Cross Curricular Links

D&T contributes to the teaching of a number of other subjects in school.

English

- D&T offers the opportunity to reinforce what pupils have been learning during English lessons. Discussion, drama and role-play are important methods that the school employs to help pupils develop an understanding of people's different views and opinions of D&T and society.
- Evaluating products requires pupils to articulate and formulate their ideas to compare their views with other pupils'; through discussion, pupils will learn to justify their own views and clarify their design ideas.

Math

- D&T will assist pupils in learning about shape and size and will make use of what they have already learned in math lessons.
- Pupils will carry out investigations – by doing this, they will learn to read and interpret scales, collect and present data, as well as draw their own conclusions.

Science

- D&T will support the pupils understanding of biology—linking to the Human body and the requirements that it needs to stay fit and healthy.
- It will give a practical understanding of Healthy foods and diets to deepen the pupil’s knowledge.
- Pupils can also use their understanding of materials and their properties within the designing process, ensuring that their choices suit and meet the requirements of the design brief.

PSHE

- D&T lessons will be used to teach pupils how to discuss their own work and the work of others; in addition, pupils will be taught about health and hygiene, including diets, and how to prevent disease from spreading when working with food.

Spiritual, Moral, Social and Cultural (SMSC) Development

- Teaching D&T offers opportunities to support the social development of pupils through the way they are expected to work with each other in lessons. D&T helps pupils to develop a respect for other pupils’ abilities. Working in groups encourages collaboration and gives pupils the opportunity to learn from each other and share ideas and feelings.

ICT

- ICT enhances the teaching of D&T and provides pupils with additional equipment, extending the possibilities for developing, sharing and recording their work.
- Utilising ICT also benefits pupils by helping them collect information and present their designs and ideas through a range of design and presentation software.

Health, Safety and Hygiene

In order to maximise their learning experience, pupils are allowed full access to a wide range of materials in D&T lessons; however, health and safety concerns are inherent with D&T, including storing materials and tools, and the use of equipment.

- PPE; such as gloves, head protection, eye protection and hearing protection is made available to all pupils and teachers.
- The risks of each task will be assessed by the classroom teacher and D&T subject leader before lessons and relevant PPE will be compulsory based on their decisions.
- Equipment will be tested before the start of every lesson by the classroom teacher.

- Pupils will be supervised at all times during D&T lessons. In order to maintain safe supervision D&T classes will not exceed 6 pupils.
- Copies of the school's D&T Room Risk Assessment will be available in all classrooms.
- All tools, such as glue guns, will be checked before use by the D&T subject leader. It is also the duty of staff to recognise and assess the hazards and risks associated when working with food and other materials.
- All pupils will be taught how to use all equipment properly by the classroom teacher before doing so; similarly, pupils will also be fully briefed on the importance of how to correctly use equipment and tools.
- Pupils are only allowed to use a lower temperature glue gun under one-to-one supervision – an adult must use the glue gun at all other times. Glue guns will be considered alongside all viable alternatives such as adhesive tapes, blue tack and other fasteners, to ensure the most suitable materials are used for each project.
- Perishable food will be stored sensibly and refrigerated if necessary. Care must be taken by teachers and teaching assistants to ensure food is not used after the given sell by date.
- A fire safety blanket will be kept next to the cooker at all times.
- If any cooking or food preparation is taking place in the classroom, all surfaces will be cleaned before and after use.
- TAs may take a maximum of four pupils to cook in the cooking kitchen.
- Parent helpers will be supervised when cooking with groups of pupils.
- Teachers and TAs will oversee that all cupboards, table tops and cookers are clean and in working order.
- Correspondence will be sent to parents one week before cooking lessons to ensure pupils' allergies are taken into account.

Teaching and Learning

The school uses a variety of teaching and learning styles in D&T lessons, the main aim of these lessons is to develop pupils' knowledge, skills and understanding. Teachers will ensure pupils apply their knowledge and understanding when developing ideas, planning and making products, and then evaluating them.

The school aims to do this through a mixture of whole-class teaching, group work, and individual activities. Pupils are given the opportunity to work on their own and collaborate with others, listening to their classmates' ideas and treating these with respect.

Principles for effective teaching include:

- Setting tasks in the context of pupils' prior knowledge.
- Promoting active learning.
- Inspiring, exciting and motivating pupils to know more.
- Strategies for effective teaching include:
 - Ensuring the teaching methods used suit the purpose and needs of pupils.
 - Providing a meaningful context and clear purpose when assigning tasks.
 - Investigating, disassembly and evaluative activities.
 - Using focused practical tasks to help pupils make and evaluate products.
 - Ensuring tasks are built on skills and understanding.

Assessment

Pupils' D&T work may be assessed throughout the design process and by teachers judging recorded work. Teachers will also assess pupils':

- Knowledge of tools, materials and equipment.
- Ability to record and communicate their design ideas in a clear manner.
- Personal qualities and attitudes towards their work.
- Ability to explain what they have created and how.
- Ability to use tools and materials safely and effectively.
- Ability to evaluate their work and the work of others.

The majority of assessments will be conducted through observations, discussion, work completed in their DT book and pertinent photographs used to evidence the pupils learning journey and their finished product. Assessments will be recorded in the end of year reports to parents. A selection of work may be retained as evidence or photographed for this purpose.

Resources and Equipment

The school has a selection of centrally stored materials, tools and equipment to ensure that all pupils have access to the necessary resources. The D&T budget covers the cost of materials and replacement tools. Teachers will be required to maintain the tools and equipment on their sites.

Pupils may occasionally be asked to bring materials from home if they can; however, to allow all pupils the same opportunities, pupils that are unable to do this will be provided for.

Food technology resources will be kept in the DT kitchen at the Upper site and the Acorn Kitchen at the Lower site. Additional learning resources, such as books and videos, will be kept in the resource room on each site, with the textile equipment at Upper being stored in the sewing room and the woodwork equipment being kept within the "garage".

At the start of every school year, the D&T subject leader and Headteacher will assess the school's D&T tools and materials to ensure there is sufficient equipment for pupils, allowing funds to be allocated where necessary.

Monitoring and Review

This policy will be reviewed every year by the D&T subject leader and the Assistant head teacher.

Any changes made to this policy will be communicated to all members of staff.

All members of staff directly involved with the teaching of D&T are required to familiarise themselves with this policy. The scheduled review date for this policy is December 2022.