

DT Policy

Intent

Aims

Our aims agree with those set out in the National Curriculum:

- *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 and products 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*

The school aims to develop in all children a positive attitude towards DT by making it an interesting and relevant subject as well as providing opportunities for all children within the school to develop to their full potential in DT. Therefore, achieving the overall school aim: *"We aim to teach and prepare your child today, for their tomorrow."*

The main aspects of DT to be studied are determined by the programmes of study of the National Curriculum 2014. DT projects should be carried out once every term.

We aim to:

- Provide a relevant, challenging and enjoyable curriculum for DT for all children
- Use DT as a tool to enhance learning throughout the curriculum
- Respond to new developments in design and in new technologies
- Encourage creative problem solving individually and in groups
- Develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making.
- Encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures
- Foster enjoyment, satisfaction and purpose in designing and making
- To use ICT software to assist our designing and learning

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

- 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.

Implementation

Overview

New Invention Junior School adheres to the guidelines laid down in the National Curriculum for DT. The Design Technology Association's 'Projects on a page' resources have been used to form the basis of the DT curriculum with projects being linked to the wider curriculum where possible.



Overview of DT projects for each year group



(linked to 'projects on a page' resources)

Year 3		Year 4		Year 5		Year 6	
Topic	Aspect of DT	Topic	Aspect of DT	Topic	Aspect of DT	Topic	Aspect of DT
<ul style="list-style-type: none"> • Healthy and varied diet - Making sandwiches • Lever and linkages - pop up cards (link to forces in Science) • Shell structures - paper bags 	<p>Food</p> <p>Mechanical systems</p> <p>Structures</p>	<ul style="list-style-type: none"> • Healthy and varied diet - Healthy pizza • Simple circuits (link to electricity in Science) - Night lights • 2D shape to 3D product - purses/money wallets 	<p>Food</p> <p>Electrical systems</p> <p>Textiles</p>	<ul style="list-style-type: none"> • Celebrating culture and seasonality - Fruit cheesecakes • Moving toys (link to forces in Science) • Frame Structures - Mini greenhouses (link to properties of materials in Science) 	<p>Food</p> <p>Mechanical systems</p> <p>Structures</p>	<ul style="list-style-type: none"> • Celebrating culture and seasonality - Bread • More complex switches and circuits (link to electricity in Science) - alarms • Combining different fabric shapes - Advent calendars 	<p>Food</p> <p>Electrical systems</p> <p>Textiles</p>

Planned activities are designed to enable children to develop the skills, knowledge and understanding being taught through:

- Investigating and evaluating a range of familiar products including how they work and how well they work.
- Focused practical tasks that develop a range of techniques, skills, processes and knowledge.
- Design and make assignments where the children use a range of material.

Learning resources

Children will use a range of materials including stiff and flexible sheet materials, textiles, mouldable materials, food, electrical and mechanical components. Most of the materials and equipment are organised in the central DT store. Sufficient materials are

available for all tasks and sometimes pupils will be asked to bring in recyclable materials such as cardboard to use within their DT projects.

Any tools, equipment and consumables required in order to teach the units of work which are not available must be ordered by teachers at the start of the term. The funds are deducted from the school DT budget.

Safe Practice

When working with tools, equipment and materials, children will be taught the appropriate health and safety procedures and understand the steps they should take to control risks. Risk assessments are the responsibility of the teacher delivering the unit.

- Particular attention will be paid to the safe use of craft knives, which will only be used by adults and under supervision by children in year 5 and 6.
- Low melt glue guns are for adult use across the school and for children who can demonstrate that they can use the equipment safely and correctly.
- Adults working with the children will have understanding of the school food technology guidelines and appropriate school risk assessments.

ICT

Opportunities for using ICT are identified in the DT Scheme of Work. To develop children's skills, knowledge and understanding, children may be given access to a range of activities including those where they:

- Use computer aided design to produce designs.
- Use database and other information sources.
- Develop their understanding of sequencing and control systems.
- Use the Internet to find out about other times and cultures.
- Present their ideas.
- Develop their awareness of how ICT is used in the wider world.

SMSC

Where possible, DT activities are used to encourage children to recognise and value their own and other people's creativity and understand the tensions between material and non-material needs that may occur when designing.

Assessment

Staff at New Invention use the results of both ongoing teacher assessment and formative assessment to help them make informed decisions about the progress of individual children, to plan the next developmental stage and to evaluate their delivery of certain aspects of the National Curriculum for DT.

The assessment of DT is based on a combination of teacher assessment and pupil self-assessment. Self-assessment grids are provided for the children to assess their learning at the end of each unit based on the KS2 national curriculum objectives for DT and an area for development is identified by each child after discussion with their teacher.

Staff complete teacher assessment grids so that children's progress (working towards, expected or greater depth) can be tracked and monitored throughout their time at New Invention Junior School.

Monitoring

The DT co-ordinator, head teacher and SMT take responsibility for the monitoring of the DT curriculum and the standards achieved by the pupils. Monitoring takes the form of:

- Lesson observations;
- Planning;
- work scrutiny/ completed projects;
- Learning Walks;
- Pupil voice.

SEND

All pupils, irrespective of age, ability, gender and ethnic origin are entitled to participate fully in and benefit from a broad range of appropriate experiences in DT. SEND children may not need the same level of support with some aspects of DT as with their academic work.

Planning and teaching

Teachers use our progression of skills document to ensure lessons are pitched at an appropriate level for the children and that they develop their DT skills (designing, making, evaluating, technical knowledge and cooking & nutrition) from Year 3 to Year 6.

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Year 3

- Healthy and varied diet - Making sandwiches (Food)
- Levers and linkages - pop up cards (Mechanical systems)
- Shell structures - paper bags (Structures)

Designing	Making	Evaluating	Technical knowledge	Cooking and nutrition
Design products from a given design brief and criteria that are fit for purpose aimed at a particular user. Use annotated sketches and prototypes to present designs.	Use tools and equipment to perform practical tasks e.g. knowing how to use scissors accurately and how to fold accurately. Choose materials from a given selection for function and appearance.	Analyse some existing products suggesting what is good or bad based on their purpose and user. Write simple evaluations of their products against the design criteria.	Understand how to reinforce and strengthen simple 3D structures. Understand basic levers and linkages and use these within a product.	Assemble ingredients carefully (making healthy sandwiches). Understand the principles of a healthy and varied diet.

All year groups should study at least one key individual or event who has helped to shape the World linked to one of their projects (this may also be covered across the wider curriculum)

Year 4

- Healthy and varied diet - Healthy pizza (Food)
- Simple circuits (linked to electricity in Science) - Night lights (Electrical systems)
- 2D shape to 3D product - purses/money wallets (Textiles)

Designing	Making	Evaluating	Technical knowledge	Cooking and nutrition
Design products from a given design brief aimed at a user - begin to develop own design criteria and collect data to inform designs. Use annotated sketches, prototypes and exploded diagrams to present designs.	Use a wider range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing accurately. Choose materials from a wider selection for their functional properties and aesthetic qualities.	Analyse existing products considering who designed and made the products, where and when they were designed and made and whether products can be recycled or reused. Evaluate their products against the design criteria, beginning to consider the views of others to support their evaluations.	Understand how to reinforce and strengthen simple 3D structures. Understand and use electrical systems in their products e.g. switches, bulbs, etc. Use computing software to programme, monitor and control a product. Understand and use some basic stitches when making a product.	Prepare ingredients hygienically using appropriate utensils (healthy pizzas) and use cooking equipment carefully e.g. rolling pins, knives, etc. Understand and apply the principles of a healthy and varied diet (healthy pizza) and know where and how a variety of ingredients are grown, reared, caught and processed.

All year groups should study at least one key individual or event who has helped to shape the World linked to one of their projects (this may also be covered across the wider curriculum)

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Year 5

- Celebrating culture and seasonality – Fruit cheesecakes (Food)
- Pulleys or gears (linked to forces in Science) – moving toys (Mechanical systems)
- Frame structures – mini greenhouses (Structures)

Designing	Making	Evaluating	Technical knowledge	Cooking and nutrition
<p>Research and design products from a given design brief – identify user and develop own design criteria. Collect and present data to inform designs.</p> <p>Use annotated sketches, cross-sectional and exploded diagrams, prototypes as well as computer-aided design to present designs.</p>	<p>Measure and mark out to the nearest cm. Apply appropriate cutting and shaping techniques and select and using appropriate equipment.</p> <p>Choose materials from a wide selection for their functional properties and aesthetic qualities.</p>	<p>Analyse a range of existing products using CAFEQUE.</p> <p>Write detailed evaluations of their products against their design criteria and effectiveness for the intended user.</p> <p>Consider the views of others to suggest how to improve their work.</p>	<p>Apply understanding of how to reinforce and strengthen more complex 3D structures.</p> <p>Use scientific knowledge of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p>	<p>Choose ingredients based on seasonality.</p> <p>Prepare ingredients hygienically, selecting and using appropriate utensils and measuring ingredients accurately (fruit cheesecakes).</p> <p>Demonstrate baking techniques and create detailed recipes.</p>

All year groups should study at least one key individual or event who has helped to shape the World linked to one of their projects (this may also be covered across the wider curriculum)

Year 6

- Celebrating culture and seasonality – Bread (Food)
- Combining different fabric shapes – Advent calendars (Textiles)
- More complex switches and circuits (link to electricity in Science) – alarms (Electrical systems)

Designing	Making	Evaluating	Technical knowledge	Cooking and nutrition
<p>Decide their own design brief & design products for their identified user. Develop own design criteria and collect and present data to inform designs.</p> <p>Use annotated sketches, cross-sectional and exploded diagrams, pattern pieces and computer-aided design to present designs.</p>	<p>Measure and mark out to the nearest mm. Apply appropriate cutting and shaping techniques selecting and using appropriate equipment with precision.</p> <p>Choose materials from a wide selection for their functional properties and aesthetic qualities.</p>	<p>Analyse and investigate a range of existing products using CAFEQUE.</p> <p>Critically evaluate products, writing detailed evaluations against their design criteria and needs of the user, considering the views of others to suggest how to improve their work.</p>	<p>Apply understanding of how to reinforce and strengthen more complex 3D structures.</p> <p>Join textiles with appropriate stitching and select the most appropriate techniques to decorate textiles.</p> <p>Understand and use a wider range of electrical systems in their products e.g. more complex switches.</p>	<p>Prepare ingredients hygienically using appropriate utensils and measure ingredients accurately (making bread).</p> <p>Demonstrate a range of cooking and baking techniques. Create and refine detailed recipes.</p>

All year groups should study at least one key individual or event who has helped to shape the World linked to one of their projects (this may also be covered across the wider curriculum)

Teachers may employ a range of delivery techniques for the main teaching activity, to introduce or consolidate learning:

- **Teacher led didactic teaching:** Whereby the teacher delivers explicit concepts and methods to the whole class, while differentiating questioning;
- **Pupil led learning:** whereby the teacher begins with a question; concept cartoon; scenario or an investigation and pupils use a range of techniques to investigate and develop their own lines of enquiry, with support materials and adults available throughout;
- **Teacher led small groups:** whereby smaller groups within the class have the teacher led focus whilst others investigate or consolidate learning.

By employing a range of such methods throughout the DT topics, it enables the needs of all children to be met, in order to enable them to progress further.

Work presentation

All pupils to have a DT folder in which they put their project work. High expectations are expected for the presentation of all work in line with school neat work expectations for all other subjects.

Role of the subject Leader

The Subject Leader will provide professional leadership and management for DT and will ensure that it is managed and organised so that it meets the aims and objectives of the school. The Subject Leader will monitor teaching and learning within the subject. The Subject Leader will manage the resources for DT and will maintain the stock to meet the needs of the curriculum. Also, the leader will support and guide the team of staff whenever necessary.

Resources

- Projects on a page - plans
- Stocked resources room

Impact

Philosophy of DT

The National Curriculum states: Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing

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and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

DT at New Invention Junior School is a subject that children enjoy. The skills and knowledge learned can be used in lots of ways in the world beyond the classroom. Our school views the acquisition of DT skills to be of the utmost importance and so the teaching of all aspects of DT is given a high priority. Through developing their DT skills, pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens.