

Uplands Junior School

Design & Technology Policy June 2023

Our school policies reflect commitment to an inclusive, creative and exciting curriculum, based around high quality teaching and learning. All children and young people at Uplands Junior School are entitled to learn in a safe and supportive environment. **As part of our goal to become a 'Rights-respecting School' and further embed the 'Respect for All' ethos in school, this policy has been written in line with the UN Convention on the Rights of the Child. We acknowledge the following articles: 12 (respect for the views of the child), 13 (freedom of thoughts and opinions), 23 (children with disabilities), 28 (right to education) and 29 (goals of education).**

Introduction

This document is a statement of the aims, principles and strategies for teaching and learning of Design and Technology at Uplands Junior School.

Intent

At Uplands Junior, we strive for all children to be ambitious, creative and think critically through a sequence of Design and Technology lessons. Design and Technology is an inspiring, rigorous and practical subject. It is a unique subject within the curriculum where children are given the opportunity to exercise their creativity through design and make something, for somebody for a specific purpose. Through the curriculum, children will be 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. At Uplands Junior, all pupils use their creativity and imagination; they design and make products that solve real and relevant problems within a variety of contexts and consider their own and others' needs, wants and values. At Uplands, the Design and Technology curriculum allows for all children to be ambitious and empowers them to become independent and resilient. Our intent is to make sure that we ensure ambition for all children, regardless of their starting point. Children with lower starting points are not offered a diminished Design and Technology diet, but rather are supported to access more demanding and challenging work, through appropriate scaffolding and support and primarily through discussions. One of our key drivers is encouraging children to think, to learn and creatively solve problems both as individuals and as members of a team. Children are given opportunities to consider the designed world when creating their products, which are useful, functional and innovative and our high-quality Design and Technology Curriculum is designed to enhance essential contributions to the creativity, culture, wealth and well-being of the nation.

Aim

The national curriculum for design and technology 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 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.

Practical experiences, at the heart of this subject, need to foster positive attitudes towards overcoming problems, working collaboratively and developing a flexibility of approach. The subject serves to reinforce the notion that we do not always work towards pre-ordained solutions. It is essential knowledge for our pupils to be educated citizens and for them to engender an appreciation of human creativity and achievement.

Learning Objectives

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the attainment targets. This will include subject curriculum content, which has been identified as most useful, taught in a logical progression and systematically and explicitly enough for all pupils to acquire the intended knowledge and skills.

Key Stage 2

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at 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.
- select 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.

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- understand and use mechanical systems in their products.
- understand and use electrical systems in their products.
- 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

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The pupils design and create products that consider function, purpose and which are relevant to a range of sectors (for example, the home, school, leisure, culture, enterprise, industry and the wider environment). Teaching methods to achieve the aims and objectives of this document will vary according to the classroom situation and the work planned by individual teachers. However, the following points will help to achieve common themes and quality outcomes:

- Design and Technology should be taught in the context of current topics and themes in the classroom. It should possess tangible and evident cross-curricular links to other subjects.
- The subject curriculum is designed and delivered in a way that allows pupils to transfer key knowledge to long-term memory. Progression and continuity should be sustained by regular consolidation of previously taught skills and knowledge. This includes sequenced lessons that incorporate new knowledge and skills, which build on what have been taught before. The acquisition of new ones will then be a smoother process.
- Design and Making tasks should serve to reinforce collaborative work in group sizes that allow a challenging and appropriate division of labour.
- All pupils should have equal opportunities to access the curriculum irrespective of race or gender. Provision should be made for pupils with SEND to be provided with appropriately challenging tasks to develop their D&T capability.

The types of activities that take place should broadly fall into one of the following categories. Over a year, there should be a balanced blend of all three:

FOCUSED SKILLS TASKS – a highly structured session, working towards a predetermined outcome with a particular focus on acquiring knowledge or skills to secure a specialised capability in D&T.

DESIGN TASKS – these facilitate a freer design & make experience; pupils can explore their creative potential by applying their existing skills.

INVESTIGATION TASKS – pupils evaluate and assess the advantages and disadvantages of a range of other products in terms of their design elements. This could be achieved through observation, handling, testing and disassembly.

Classroom Organisation

Time allocated may vary from week to week and term to term. Teachers may prefer to structure their coverage in blocked or modular termly units of work, rather than in an allocated weekly timetabled 'slot'. However, there should be recognition in the sequencing of lessons and regular cross-curricular links made.

Group sizes should be determined by teachers according to the nature of the activity. A project may be broken down into a series of activities that may require different group sizes at different stages. Whole class teaching could be used to introduce new topics / projects. Classroom assistance may be sought from non-teaching staff within the school; students or trainees, governors or parents could also be used to facilitate D&T tasks in a supervisory capacity. Subject specialists with expertise can also be invited into to school to enhance a theme or objective.

Resources

Some resources are stored in dedicated year group areas. The coordinator stores some tools and specific pieces of equipment that need to be kept securely. Resources are regularly audited to allow access for all members of staff and pupils.

Impact

We ensure the children:

- 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 to design and make high-quality prototypes and products for a wide range of users and 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. Children will design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child.

Teachers should collect evidence of individual, group or class work for assessment purposes, chosen from the following formats: Pupils' annotated sketches/plans/drawings; photos/videos of pupils 'at work'; specific assessment assignments to evaluate a particular capability; photos/videos of part or completely finished work (products); children's own written/verbal evaluations of their tasks/activities; appraisal/evaluation of the finished article. These types of records can be used to accumulate a snapshot of current D&T practice within the subject portfolio for the whole school.

Displays of work will serve to reinforce and celebrate success in D&T activities. We use both formative and summative assessment information in design and technology lessons. This is collected through direct observation, discussion with pupils, peer assessment and pupil self-assessment opportunities. Staff use this information to inform their short-term planning allowing staff to implement support where necessary. We ensure that SEND, disadvantaged and more able children are given as much support as possible to reach their full potential in every lesson. Key skills have been carefully allocated to year groups to ensure progression across key stages. Monitoring in design and technology includes: DT book scrutinies, learning walks, pupil and staff voice. An annual report of the child's attainment and effort in D&T is to be included in the Parent's Report issued in the summer term.

As designers, our children learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens and apply this knowledge beyond school and into adulthood. 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 which is the skills we want children at Uplands Junior to acquire.

Health & Safety

Whilst Health and Safety considerations and risk assessment remain the primary responsibility of the teacher in charge, the children should be taught to:

- Reduce risks through responsible behaviour and use good practice to avoid hazardous situations developing.
- Abide by simple safety rules when using tools or equipment.
- Consider and recognise hazards in their proposed ways of working and take action to minimise them.
- Assess the risk of hurt or damage posed by evaluating their own and other designer's products and suggest remedial action.
- Store tools and materials with due regard and organise their working environment/practices in a safe way.

Areas for special concern include:

- The use of hot-melt glue guns – these are only to be used by older children under strict adult supervision. Low-melt glue guns are considered safer than hot-melt glue guns and should be used if possible.
- Food Technology lessons require that hygiene is given the utmost priority. Activities involving the use of cookers/ovens require a high level of supervision with appropriate safety/protective clothing being available.
- Fabric work that involves scissors, sharp cutting tools, pins and needles requires careful resource management. Children should be taught simple storage strategies for dealing with sharp objects that are 'not in use'.

- Contact with food and other materials likely to cause allergic reactions should be avoided.
- Any electrical equipment should be regularly tested for electrical safety.

The Role of the Co-ordinator

- To take the lead in policy development and be responsible for schemes of work that ensures progression and continuity in D&T throughout the school.
- To support colleagues.
- To suggest assessment and record keeping strategies.
- To oversee the resource needs of the subject and introduce teachers to new and appropriate materials & equipment as they become available.
- To monitor progress in D&T and advise the Head teacher on any action to take or areas to develop.
- To disseminate information to colleagues regarding up-to-date D&T curricular developments in accordance with national & local guidelines.
- To report back to staff and advise on INSET and other professional development opportunities.
- To conduct learning walks, work trawls and pupil and staff voice interviews.

SEND Inclusion

All children need a meaningful context, a clear purpose and concrete sensory experience to learn and progress in Design and Technology. Design and Technology is multi-sensory and should use the viewer's sense of touch, hearing and movement through space, as well as sight. By extending teaching and learning in Design and Technology to include all the senses, teachers can provide for the variety of thinking skills and learning styles that will include all learners. Pupils with Special Educational Needs and/or Disabilities receive support from their class teacher to undertake appropriate tasks or projects matched to their needs and ability.

All pupils will generally work in mixed ability groups, with individuals making a valued contribution to the overall process. This promotes self-reliance, self-esteem and a collaborative attitude. Pupils with learning difficulties who may need support with literacy and numeracy may well exhibit well-developed dextrous and practical skills and should be provided with appropriate opportunities to develop their potential.

Opportunities should be provided for pupils to communicate their ideas other than through writing or drawing. Help in realising their ideas into drawings or models could be achieved through means of a facilitator.

Pupils who possess physical difficulties in manipulating materials or tools may need specific support to help develop their skills into tangible experiences. Processes should be adapted to suit pupils with limited dexterity.

Pupils with physical disabilities should be given opportunities to use multisensory approaches to gain understanding about different products and to use this information to generate ideas.

Able pupils who demonstrate a high ability level should be presented with increasingly challenging assignments within the context or theme of the whole class project.

ICT Support for D&T

D&T assignments should provide pupils with opportunities to enhance their learning through incorporating the use of ICT.

ICT can support D&T activities in some of the following ways;

- By enhancing skills in designing and making – e.g. through the use of paint/draw/CAD/CAM software
- By providing a range of information sources for research & background knowledge – e.g. through CD-ROMs databases, internet
- By providing access to source of visual material / images for inclusion in research – e.g. through CD-ROMs, databases, internet
- By aiding the presentation of a completed project – e.g. through use of word-processed text or Digital Photography (annotations, instructions, packaging, evaluations etc.)
- By collecting and interpreting data collected during a project – e.g. through using a questionnaire on a database or displaying findings on a spreadsheet
- By employing Control Technology devices to help gain understanding of sequencing & control systems.
- By demonstrating how the latest technology is incorporated in commercial D&T processes and thus impacts on our everyday lives – e.g. through transmitting design information electronically via CD-ROM's & email, and through use of CAD/CAM and Control devices.

Useful websites that support D&T

General;

Design and Technology Association www.data.org.uk
<https://textilemuseum.ca/>
www.designandtech.com
www.dtonline.org
www.howstuffworks.com
www.3Dmodelworks.com

Food;

www.food.gov.uk
www.milk.co.uk
www.foodafactoflife.org.uk
www.birdseye.com
<https://www.health.com/nutrition>

Mechanisms;

www.cabaret.co.uk
<https://kid-museum.org/make-it/machines-mechanisms/>
<https://123ict.co.uk/2018/01/20/moving-toys/>

Miscellaneous;

Centre for Alternative Technology: <https://cat.org.uk/>