



The Grove Primary School
"The Grove School Cares"
Design & Technology Policy
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The Grove Primary School Design and Technology Policy



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Version	Date	Description
19.0	16.12.22	Review of the policy

Related Documents/Policies

References	Title
	Design and Technology Overview
	Health and Safety Policy



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Rationale

At The Grove Primary School, we aim to give our children a rich and varied curriculum. A high-quality Design Technology education should engage, inspire and challenge pupils, equipping them with the knowledge and skills to experiment, invent and create their own works. As pupils progress, they should be able to think critically and develop a more rigorous understanding of Design Technology. They should also know how design and technology both reflect and shape our history, and contribute to the culture, creativity and wealth of our nation.' National Curriculum, 2014

At The Grove we will give children the opportunity to develop skills from other curriculum areas such as mathematics, science, computing, DT and literacy. The vibrant and varied curriculum ensures that pupils know how to take educated risk becoming resourceful, innovate, enterprising and capable citizens.

Aims and Objectives

Through the teaching of DT, we aim to:

- To enable children to record from first-hand experience and from imagination, and to select their own ideas to use in their work;
- To develop creativity and imagination through a range of complex activities;
- To improve the children's ability to control materials, tools and techniques;
- to increase their critical awareness of the roles and purposes of Design Technology in different times and cultures;
- To develop increasing confidence in the use of visual and tactile elements and materials;

Implementation

Elements of Design Technology are delivered to the Reception children, through the Foundation Stage Curriculum and are incorporated into the termly topics. In Year 1- Year 6 DT and Design must be taught. Ideally DT is best taught in a block session or over a period of 5/6 weeks of 1 hour per week where children can Research, design, make, test and evaluate.



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Cross Curricular Links

Occasionally if a unit does not fit the half term/ termly topic within a class, then DT and Design will be taught as a discrete subject. The units covered by each year group can be found on the long-term plans.

All pupils are encouraged to reach their full potential through the provision of varied opportunities. We recognize that our curriculum planning must allow pupils to gain a progressively deeper understanding and competency as they move through the school.

Expectations

Key stage 1 Pupils should be taught:

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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Key stage 2 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.



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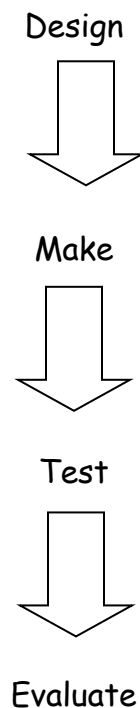


In KS1 and KS2 we follow a skills based approach to learning. Each class teacher is given the list of skills for the Age Related Expectations (ARE) of their class. The key elements are closely related and should be developed through the Areas of Study, as appropriate. Not all the key elements need to be developed in each Area of Study.

With the change to the curriculum and the focus being shifted to skills and progression throughout the year groups in the foundation subjects, there is a progression document that shows what each year group is expected to accomplish within the year. Teachers can decide when best to fit these skills into the year but have to ensure all skills are met for children to meet ARE. Teachers must follow the pattern of design, make, test and evaluate with the chance of improving their products after the first test. The children must be aware of this model. Children need to understand that a product can be made but will not be perfect on the first try and will have to change and amend their designs and models in order to improve their product.

Planning (see Appendix A for example of planning)

All staff will complete a medium term plan that follow the cycle of:





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Design:

- Children should be given a real life context or purpose
- Children should review products that exist or similar products
- They should think about what materials and mechanisms they will use. They should have opportunity to draw and label how they want their finished product to look
- They should use topic words and rich language to increase their **technical vocabulary**.

Test:

- Children should build prototypes of their product to test and evaluate
- They should use **technical language** to assess how effectively their product meets the initial design objective
- They should have time to adapt their final designs titling their new findings.

Make:

- Children should be able to select the correct tools for purpose
- Children should be reminded of health and safety
- Children should be creative and innovate
- Children should consider the environment and be resourceful with their materials
- Children should take ownership of their products
- Children should use cross curricula skills when developing their products.

Evaluate:

- Children should be reflective learners
- Children should consider the design brief and how they have met this
- Children should consider what could be improved
- Children should understand that Design Technology is a cycle process and in the wider world products are test and adapted for the best

Key stage 1 and 2 unit overviews

Below is the coverage of Design and Technology skills for academic year 2021-2022. This list is not conclusive and other skills may arise depending on the designs and creativity of the children.

Year	Autumn	Spring	Summer
EYFS	Through out the year the children will have access to continuous provisions. This will link into the EYFS curriculum for Expressive Arts and Design. See the EFYS LTP for more details.		
1	<p>Food Fruit and vegetable</p> <p>Handle and explore fruits and vegetables and learn how to identify which category they fall into, before undertaking taste testing to establish chosen ingredients for a smoothie they will make, with accompanying packaging.</p> <p>Structures Constructing a windmill</p> <p>Design, decorate and build a windmill for a mouse (client) to live in, develop an understanding of different types of windmill, how they work and their key features. Look at real existing examples and the functions that they carry out.</p>	<p>Textile Puppets</p> <p>Explore different ways of joining fabrics before creating hand puppets based upon characters from a well-known fairy-tale. Develop technical skills of cutting, gluing, stapling and pinning.</p>	<p>Mechanisms Wheels and axles</p> <p>Learn about the main components of a wheeled vehicle. Develop understanding of how wheels, axles and axle holders work; problem-solve why wheels won't rotate; to design and build their own vehicle designs.</p>
2	<p>Mechanisms Making a moving monster</p> <p>After learning the terms: pivot, lever and linkage, pupils design a monster that will move using a linkage mechanism. Pupils practise making linkages and experiment with various materials to bring their monsters to life.</p> <p>Food A balanced diet</p> <p>Explore and learn what forms a balanced diet, pupils will taste test ingredient combinations from different food groups that</p>	<p>Structures Baby bears chair</p> <p>Using the tale of Goldilocks and the Three Bears as inspiration, pupils help Baby Bear by making him a brand new chair, exploring different shapes and materials. When designing the chair, they consider his needs and what he likes.</p>	<p>Textile Pouches</p> <p>Introduction to sewing. Pupils make their own template, accurately cut their fabric and sew a basic running stitch.</p>



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3 Electrical Digital	<p>will inform a wrap design of their choice which will include a healthy mix of protein, vegetables and dairy.</p> <p style="text-align: center;">Textiles Cushions</p> <p>Introduce two new skills to add to the pupils' repertoire: cross stitch and appliqué. Pupils apply their knowledge to the design, decoration and assembly of their own cushions. (4 lessons)</p>	<p style="text-align: center;">Mechanical systems Pneumatic toys</p> <p>Design and create a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts. Pupil are introduced to thumbnail sketches and exploded diagrams.</p>	<p style="text-align: center;">Food Eating seasonally</p> <p>Pupils discover when and where fruits and vegetables are grown and learn about seasonality in the UK. They look at the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.</p> <p style="text-align: center;">Structures Constructing a castle</p> <p>Learning about the features of a castle, pupils design and make one of their own. They will also be using configurations of handmade nets and recycled materials to make towers and turrets before constructing a stable base.</p>
4 Textile structures	<p style="text-align: center;">Mechanical systems Making a sling shot car</p> <p>Transform lollipop sticks, wheels, dowel and straws into a moving car. Pupils use a glue gun to construct, make the launch mechanism, design and create the chassis of a vehicle using nets.</p>	<p style="text-align: center;">.Food Adapting recipes</p> <p>Work in groups to adapt a simple biscuit recipe, to create the tastiest biscuit ensuring that their creation comes within the given budget of overheads and costs of ingredients.</p> <p style="text-align: center;">Electrical systems Torches</p> <p>Pupils apply their scientific understanding of electrical circuits to create a torch made from recycled and reclaimed materials and objects. They design and evaluate their product against set design criteria.</p>	<p style="text-align: center;">Digital world Mindful moments timer</p> <p>Design, program, prototype and brand a Micro:bit timer to a specified amount of minutes. Pupils carry out research and existing product analysis to determine how a programmable product could be personalised to their needs</p>



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5 Electrical Textile	<p>Mechanical systems Making a pop up book 4 lessons</p> <p>Create a four-page pop-up story book design, incorporating a range of functional mechanisms that use levers, sliders, layers and spacers to give the illusion of movement through interaction</p>	<p>Food What could be healthier 4 lessons</p> <p>Research and modify a traditional Bolognese sauce recipe to make it healthier. Cook improved versions, creating appropriate packaging and learn about where the ingredients the importance of animal welfare when farming cattle.</p> <p>Structures Bridges 4 lessons</p> <p>After learning about various types of bridges and exploring how the strength of structures can be affected by the shapes used, create their own bridge and test its durability - using woodworking tools and techniques.</p>	<p>Digital world Monitoring devices 4 lessons</p> <p>Program a Micro: bit animal monitoring device that will alert the owner when the temperature is not optimal. Develop 3D CAD skills by learning how to navigate the Tinker cad interface and essential tools.</p>
6 Structures mechanical	<p>Digital world Navigating the world</p> <p>Program a navigation tool to produce a multifunctional device for trekkers. Combine 3D virtual objects to form a complete product concept in 3D computer-aided design modelling software.</p> <p>Food Come dine with me</p> <p>Research and prepare a three-course meal and taste-test and score their food. Research the journey of their main ingredient from 'farm to fork' or write a favourite recipe.</p>	<p>Textiles Waistcoats</p> <p>Select fabrics, use templates, pin, decorate and stitch materials together to create a waistcoat for a person or purpose of their choosing. Create or use a pattern template to fit a desired person or item (e.g. teddy bear)</p>	<p>Electrical systems Steady hand game</p> <p>Design and create a steady hand game, use nets to create the bases and apply knowledge of electrical circuits to build an operational circuit with a buzzer that completes the circuit when the handle makes contact with the wire</p>

Assessment and Monitoring

Class teachers will assess children's understanding skills through observation and discussion of their work. The children are also involved in self evaluating their learning. Teachers will relate these to the four key assessment areas using their Teacher Assessment (TA).

- Emerging- working below ARE
- Developing- Working below with some ARE.
- Secure- Working at ARE
- Advance- showing skills above ARE

Subject Development

The Design Technology Coordinator is responsible for supporting colleagues in the teaching of Design Technology by informing them of current developments in the subject and by providing a strategic lead and direction for the subject in school. The Coordinator is also responsible for evaluating strengths and weaknesses in the subject and identifying areas for improvement and development. Coordinator release time enables the Coordinator to fulfill their role by reviewing medium term plans, monitoring children's work and displays and identifying next steps for the subject.

Resources

The resources for Design Technology topics are mainly based in the DT cupboard. Other resources that staff need can be requested and ordered in advance of the topic starting. Staff should make good, resourceful use of the products and materials in order to model good practice for the children. Staff can also request resources from Durham Learning Resources.

Health and Safety Guidelines

When planning the activities that children will complete staff and children should conduct suitable risk assessments. As children move up through the school they should be able to see and manage risk more appropriately. Children will need to be shown carefully how to work with tools safely and general classroom organisation in these lessons should be carefully planned. Please see the schools Health and Safety policy.

Equal Opportunities and SEN

A balance of interest must be provided for both boys and girls in topic work. For example, the role of women and men in Design Technology is equally important in areas of study.



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Activities should be carefully planned by the class teacher and be differentiated where appropriate for children with SEN and equally the more able and Gifted and Talented children. Please refer to appropriate policy for more information.

At The Grove Primary we have due regard for our duties under the Equality Act 2010. Through the delivery of the Design Technology curriculum, we will ensure that we: eliminate discrimination, advance equality of opportunity and foster good relations.

Advancing Equality of Opportunity

This involves:

- Removing or minimizing disadvantages
- Taking steps to meet people's needs
- Encouraging participation in any activity in which participation by such people is disproportionately low.