



KINNERLEY CE PRIMARY SCHOOL DESIGN TECHNOLOGY

Progression of Skills in each curriculum area
How we cover all of the relevant DT knowledge and skills across our school curriculum.

Level Expected at the End of EYFS

Expressive Arts and Design (Exploring and Using Media and Materials)

Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Expressive Arts and Design (Being Imaginative)

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Physical Development (Moving and Handling) Children handle equipment and tools effectively, including pencils for writing.

Level Expected at the End Key Stage 1/ Key Stage 2

Key Stage 1 National Curriculum Expectations

Design

Pupils should be taught to:

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

Pupils should be taught to:

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

Pupils should be taught to:

explore and evaluate a range of existing products;

Key Stage 2 National Curriculum Expectations

Design

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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

Pupils should be taught to:

- investigate and analyse a range of existing products;

evaluate their ideas and products against design criteria.

Technical Knowledge

Pupils should be taught to:

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.

Cooking and Nutrition

Pupils should be taught to:

use the basic principles of a healthy and varied diet to prepare dishes;
understand where food comes from.

- 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

Pupils should be taught 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.

Please note, the National Curriculum for KS2 states that children should ‘generate, develop, model and communicate their ideas through computer-aided design’. In most units, there will be lessons where children focus on creating designs for their products: these designs can be created using computer-aided design according to the software our school has access to.

Intent

Our Design and Technology curriculum offers sequences of lessons to ensure pupils have progressively covered the knowledge, understanding and skills required in the National Curriculum. Design and Technology aims to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts. The iterative design process is fundamental and runs throughout our units. This iterative process encourages children to identify real and relevant problems, critically evaluate existing products and then take risks and innovate when designing and creating solutions to the problems. As part of the iterative process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process. Opportunities are provided for children to evaluate key events and individuals who have helped shape the world, showing the real impact of design and technology on the wider environment and helping to inspire children to become the next generation of innovators. Through these lessons, we intend to inspire pupils to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.



Implementation

Design and Technology skills and understanding are built into lessons, following an iterative process. In KS2 a sequence of lessons takes place over a half termly block and alternates with Art. In EYFS/ Key stage 1 Art and DT may have shorter sequences of lessons, and be less discrete from one another. Through revisiting and consolidating skills, the lessons and resources help children build on prior knowledge alongside introducing new skills, knowledge and challenge. Units of work are often based on class themes to give purpose and meaningfulness as well as creating a cohesion and interest. The revision and introduction of key vocabulary is built into each lesson. As the classes comprise of whole Key Stages, learning is not linear but rather spiral based and revisited.



Impact

The impact of using the full range of resources, including display materials, will be seen across the school with an increase in the profile of Design and Technology. The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of Seesaw to share children's work. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to want to continue building on this wealth of skills and understanding, now and in the future. Impact can also be measured through key questioning skills built into lessons, child-led assessment such as success criteria grids, jigsaw targets and KWL grids and summative assessments aimed at targeting next steps in learning.

DESIGN AND TECHNOLOGY- KNOWLEDGE PROGRESSION AT KINNERLEY

| DESIGN AND TECHNOLOGY- KNOWLEDGE PROGRESSION AT KINNERLEY | | | | | | | |
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| | BARN OWLS | | SNOWY OWLS | | | LONG EARED OWLS | |
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| DESIGN. | <p>Begin to use the language of designing and making, e.g. join, build and shape. - Learning about planning and adapting initial ideas to make them better.</p> | <p>Begin to draw on their own experience to help generate ideas and research conducted on criteria.</p> <p>Begin to understand the development of existing products: What they are for, how they work, materials used.</p> <p>Start to suggest ideas and explain what they are going to do.</p> <p>Understand how to identify a target group for what they intend to design and make based on a design criteria.</p> <p>Begin to develop their ideas through talk and drawings.</p> | <p>Start to generate ideas by drawing on their own and other people's experiences. Begin to develop their design ideas through discussion, observation, drawing and modelling. Identify a purpose for what they intend to design and make. Understand how to identify a target group for what they intend to design and make based on a design criteria.</p> <p>Develop their ideas through talk and drawings and label parts.</p> <p>Make templates and mock ups of their ideas in card and paper or using ICT.</p> | <p>With growing confidence generate ideas for an item, considering its purpose and the user/s. Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product. Understand how well products have been designed, made, what materials have been used and the construction technique.</p> <p>Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p> <p>Start to understand whether products can be recycled or reused.</p> <p>Know to make drawings with labels when designing.</p> <p>When planning, explain their choice of materials and components including function and aesthetics.</p> | <p>Start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science. Confidently make labelled drawings from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail.</p> <p>Identify the strengths and areas for development in their ideas and products.</p> <p>When planning, consider the views of others, including intended users, to improve their work.</p> <p>Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground -breaking products.</p> <p>When planning, explain their choice of materials and components according to function and aesthetics.</p> | <p>Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.</p> <p>Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. With growing confidence apply a range of finishing techniques, including those from art and design. Draw up a specification for their design- link with Mathematics and Science.</p> <p>Use results of investigations, information sources, including ICT when developing design ideas.</p> <p>With growing confidence select appropriate materials, tools and techniques. Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.</p> | <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</p> <p>Accurately apply a range of finishing techniques, including those from art and design.</p> <p>Draw up a specification for their design- link with Mathematics and Science.</p> <p>Plan the order of their work, choosing appropriate materials, tools and techniques.</p> |

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| <p style="text-align: center; color: red; font-weight: bold;">MAKE</p> | <p>To learn to construct with a purpose in mind. - Selects tools and techniques needed to shape, assemble and join materials.</p> <p>Learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. -Learn how everyday objects work by dismantling things.</p> | <p>Begin to make their design using appropriate techniques.</p> <p>Begin to 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. With help measure, mark out, cut and shape a range of materials. Explore using tools e.g. scissors and a hole punch safely.</p> <p>Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape. Begin to use simple finishing techniques to improve the appearance of their product.</p> | <p>Begin to select tools and materials; use correct vocabulary to name and describe them. Build structures, exploring how they can be made stronger, stiffer and more stable. With help measure, cut and score with some accuracy.</p> <p>Learn to use hand tools safely and appropriately. Start to assemble, join and combine materials in order to make a product. Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques. Start to choose and use appropriate finishing techniques based on own ideas.</p> | <p>Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Start to understand that mechanical and electrical systems have an input, process and output.</p> <p>Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement.</p> <p>Know how simple electrical circuits and components can be used to create functional products. Measure, mark out, cut, score and assemble components with more accuracy. Start to work safely and accurately with a range of simple tools.</p> <p>Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.</p> <p>Start to measure, tape or pin, cut and join fabric with some accuracy.</p> | <p>Select a wider range of tools and techniques for making their product safely. Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.</p> <p>Start to join and combine materials and components accurately in temporary and permanent ways. Know how mechanical systems such as cams or pulleys or gears create movement. Understand how more complex electrical circuits and components can be used to create functional products. Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches, to weave and knit. Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy. Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</p> | <p>Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately.</p> <p>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. Understand how mechanical systems such as cams or pulleys or gears create movement. Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their understand that mechanical and electrical systems have an input, process and output.</p> <p>Begin to measure and mark out more accurately. Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence cut and join with accuracy to ensure a good-quality finish to the product. Weigh and measure accurately (time, dry ingredients, liquids). Use finishing techniques to strengthen and improve the appearance of their product.</p> | <p>Confidently select appropriate tools, materials, components and techniques and use them.</p> <p>Use tools safely and accurately. Assemble components to make working models. Aim to make and to achieve a quality product. With confidence pin, sew and stitch materials together to create a product. Demonstrate when make modifications as they go along. Construct products using permanent joining techniques. Understand how mechanical systems such as cams or pulleys or gears create movement.</p> <p>Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products. Know how to reinforce and strengthen a 3D framework. Understand that mechanical and electrical systems have an input, process and output.</p> <p>Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT</p> |
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| <p style="text-align: center;">EVALUATE.</p> | <p>Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method.</p> | <p>Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria). When looking at existing products explain what they like and dislike about products and why. Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.</p> | <p>Evaluate their work against their design criteria. Look at a range of existing products explain what they like and dislike about products and why. Start to evaluate their products as they are developed, identifying strengths and possible changes they might make. With confidence talk about their ideas, saying what they like and dislike about them.</p> | <p>Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose Begin to disassemble and evaluate familiar products and consider the views of others to improve them. Evaluate the key designs of individuals in design and technology has helped shape the world.</p> | <p>Evaluate their products carrying out appropriate tests. Start to evaluate their work both during and at the end of the assignment. Be able to disassemble and evaluate familiar products and consider the views of others to improve them. Evaluate the key designs of individuals in design and technology has helped shape the world.</p> | <p>Start to evaluate a product against the original design specification and by carrying out tests. Evaluate their work both during and at the end of the assignment. Begin to evaluate it personally and seek evaluation from others. Evaluate the key designs of individuals in design and technology has helped shape the world.</p> | <p>Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests. Evaluate their work both during and at the end of the assignment. Record their evaluations using drawings with labels. Evaluate against their original criteria and suggest ways that their product could be improved. Evaluate the key designs of individuals in design and technology has helped shape the world.</p> |
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| <p style="text-align: center;">FOOD AND NUTRITION.</p> | <p>To begin to understand some of the tools, techniques and processes involved in food preparation. -Children have basic hygiene awareness.</p> | <p>Begin to understand that all food comes from plants or animals. Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught. Start to understand how to name and sort foods into the five groups in 'The Eat well plate' Begin to understand that everyone should eat at least five portions of fruit and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source. Know about techniques such as cutting, peeling and grating.</p> | <p>Understand that all food comes from plants or animals. Know that food has to be farmed, grown elsewhere (e.g. home) or caught. Understand how to name and sort foods into the five groups in 'The Eat well plate' Know that everyone should eat at least five portions of fruit and vegetables every day. Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source. Demonstrate how to use techniques such as cutting, peeling and grating.</p> | <p>Start to know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Start to understand that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.</p> | <p>Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' Know that to be active and healthy, food and drink are needed to provide energy for the body.</p> | <p>Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Begin to understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Start to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</p> | <p>Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</p> |
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