Jennett's Park Design Technology Curriculum

Intent

Educating for Wisdom, Knowledge and Skills	To help grow resourceful, resilient and reflective children who are equipped with the skills, knowledge and tenacity empower themselves, their learning throughout their lives.
Educating for Hope and Aspiration	To inspire and enrich lives beyond current opportunities and experiences in order to open minds to the potential their future holds
Educating for Community and Living Well Together	To be a multi-cultural, inclusive community of individuals loved by God who feel valued and involved where we create qualities of character to enable people to flourish.
Educating for Dignity and Respect	That children might know how much that they are loved and valued by so that they might show dignity and respect for themselves and others by carefully and safely thinking through their actions.

At our school we want Design and Technology to prepare our children to deal with tomorrow's rapidly changing world. We want to ensure that it encourages children to become independent, creative problem solvers and thinkers as individuals and part of a team. We want our pupils to be able to identify needs and opportunities and to respond to them by developing a range of ideas and by making products and systems. Through the study of Design and Technology, they will combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industry. This will allow them to reflect on and evaluate past and present technology, it's uses and impacts. Design and Technology also embeds our school learning behaviours. It is an inspiring, rigorous and practical subject, requiring creativity, resourcefulness, and imagination. Pupils design and make products that solve real and relevant problems within a variety of contexts. It is very cross - curricular and draws upon subject knowledge and skills within Mathematics, Science, History, Computing and Art. Children learn to take risks, be reflective, innovative, enterprising and resilient. Through the evaluation of past and present technology they can reflect upon the impact of Design Technology on everyday life and the wider world

Implementation

Key skills and key knowledge for D and T have been mapped across the school to ensure progression between year groups. The context for the children's work in Design and Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons are also mainly taught as a block so that children's learning is focused throughout each unit of work. We have created a comprehensive progression document for staff to follow to best embed and cover every element of the Design Technology curriculum. The knowledge/skills statements build year on year to deepen and challenge our learners.

Key objectives of intent within the Design Technology Curriculum based on the National Curriculum 2014 guidance:

- Products are to be made for a purpose.
- Individuality should be ensured in children's design and construction of products.
- Delivery of the two strands: Designing and Making and Cooking and Nutrition.
- More emphasis to be given on creating 'innovative' products in KS2.
- Teaching the importance of making on-going changes and improvements during making stages.
- Looking into seasonality of ingredients and how they are grown, caught or reared.
- The introduction of computing and coding of products in KS2.
- Researching key events and individual designers in the History of Technology in KS2.

Aims

The national curriculum for Design and Technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise need 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.

How to Implement the progression document and long-term plan

It is the intent at Jennetts Park C of E Primary School for Design Technology to be taught in all year groups through at least one topic per term, which includes topics relating to food. Design Technology projects are often made cross curricular - linking to other subjects taught. The teaching of Design Technology across the school follows the National Curriculum. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this. Design and technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high quality Design and Technology curriculum; through well planned and resourced projects and experiences.

When designing and making, the children are 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 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
• understand and use electrical systems in their products
• apply their understanding of computing to program, monitor and control their products

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 in order 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

Children 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.

Progression in EYFS

	Design	Make	Evaluate	Technical Knowledge	Food and Nutrition
EYFS	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.	To learn to construct with a purpose in mind. -Selects tools and techniques needed to shape, assemble and join materials.	Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method.	To 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.	To begin to understand some of the tools, techniques and processes involved in food preparation. -Children have basic hygiene awareness.

DT Progression Map KS1/KS2

Designing	Key Stage 1	Key Stage 2
Understanding contexts, users and purpose	Across KS1 pupils should: • Work confidently within a range of contexts, such as imaginary, story based, home, school, gardens, playgrounds, local community, industry and the wider environment • State what products they are designing and making • Say whether their products are for themselves or other users • Describe what their products are for • Say how their products will work • Say how they will make their products suitable for their intended users • Use simple design criteria to help develop their ideas	Across KS2 pupils should: • Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • Describe the purpose of their products • Indicate the design features of their products that will appeal to intended users • Explain how particular parts of their products work In early KS2 pupils should also: • Gather information about the needs and wants of particular individuals and groups • Develop their own design criteria and use these to inform their ideas In Late KS2 pupils should also:

		• Carry out research, using surveys, interviews, questionnaires and web-based resources • Identify the needs, wants, preferences and values of particular individuals and groups • Develop a simple design specification to guide their thinking
Generating, developing, modelling and communicating ideas	Across KS1 pupils should: • Generate ideas by drawing on their own experiences • Use knowledge of existing products to help come up with ideas • Develop and communicate ideas by talking and drawing • Model ideas by exploring materials, components and construction kits and by making templates and mock-ups • Use information and communication technology, where appropriate, to develop and communicate their ideas	Across KS2 pupils should: • Share and clarify ideas through discussion • Model their ideas using prototypes and pattern pieces • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • Use computer-aided design to develop and communicate this ideas In early KS2 pupils should also: • Generate realistic ideas, focusing on the needs of the user • Make design decisions that take account of the availability of resources In Late KS2 pupils should also: • Generate innovative ideas, drawing on research • Make design decisions, taking account of constraints such as time, resources and cost

Making	Key Stage 1	Key Stage 2
Planning	Across KS1 pupils should: • Plan by suggesting what to do next • Select from a range of tools and equipment, explaining their choices • Select from a range of materials and components according to their characteristics	Across KS2 pupils should: • Select tools and equipment suitable for the task • Explain their choice of tools and equipment in relation to the skills and techniques they will be using • Select materials and components suitable for the task • Explain their choice of materials and components according to functional properties and aesthetic qualities In early KS2 pupils should also: • Order the main stages of making In Late KS2 pupils should also:

		• Produce appropriate lists of tools, equipment and materials that they need • Formulate step-by-step plans as a guide to making
Practical skills and techniques	Across KS1 pupils should: • Follow procedures for safety and hygiene • Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • Assemble, join and combine materials and components • Use finishing techniques, including those from art and design	Across KS2 pupils should: • Follow procedures for safety and hygiene • Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components In early KS2 pupils should also: • Measure, mark out, cut and shape materials and components with some accuracy • Assemble, join and combine materials and components with some accuracy • Apply a range of finishing techniques, including those from art and design, with some accuracy In Late KS2 pupils should also: • Accurately measure, mark out, cut and shape materials and components • Accurately assemble, join and combine materials and components • Accurately apply a range of finishing techniques, including those from art and design • Use techniques that involve a number of steps • Demonstrate resourcefulness when tackling practical problems

Evaluating	Key Stage 1	Key Stage 2
Own ideas and products	Across KS1 pupils should: • Talk about their design ideas and what they are making • Make simple judgements about their products and ideas against design criteria • Suggest how their products could be improved	Across KS2 pupils should: • Identify the strengths and areas for development in their ideas and products • Consider the views of others, including intended users, to improve their work In early KS2 pupils should also: • Refer to their design criteria as they design and make • Use their design criteria to evaluate their completed products In Late KS2 pupils should also:

		• Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • Evaluate their ideas and products against their original design specification
Existing products	Across KS1 pupils should: • What products are • Who products are for • What products are for • How products work • How products are used • Where products might be used • What materials products are made from • What they like and dislike about products	Across KS2 pupils should: • How well products have been designed • How well products have been made • Why materials have been chosen • What methods of construction have been used • How well products work • How well products achieve their purposes • How well products meet user needs and wants In early KS2 pupils should also: • Who designed and made the products • Where products were designed and made • When products were designed and made • Whether products can be recycled or reused In Late KS2 pupils should also: • How much products cost to make • How innovative products are • How sustainable the materials in products are • What impact products have beyond their intended purpose

Technical Knowledge	Key Stage 1	Key Stage 2
Making products work	Across KS1 pupils should know: • About the simple working characteristics of materials and components • About the movement of simple mechanisms such as levers, sliders, wheels and axles • How freestanding structures can be made stronger, stiffer and more stable • That a 3d textiles product can be assembled from two identical fabric shapes	Across KS2 pupils should know: • How to use learning from science to help design and make products that work • How to use learning from mathematics to help design and make products that work • That materials have both functional properties and aesthetic qualities • That materials can be combined and mixed to create more useful characteristics

	• That food ingredients should be combined according to their sensory characteristics • The correct technical vocabulary for the projects they are undertaking	• That mechanical and electrical systems have an input, process and output • The correct technical vocabulary for the projects they are undertaking In early KS2 pupils should also know: • How mechanical systems such as levers and linkages or pneumatic systems create movement • How simple electrical circuits and components can be used to create functional products • How to program a computer to control their products • How to make strong, stiff shell structures • That a single fabric shape can be used to make a 3d textiles product • That food ingredients can be fresh, pre-cooked and processed • In Late KS2 pupils should also know: • How mechanical systems such as cams or pulleys or gears create movement • How more complex electrical circuits and components can be used to create functional products • How to program a computer to monitor changes in the environment and control their products • How to reinforce and strengthen a 3d framework • That a 3d testiltes product can be made from a combination of fabric shapes • That a recipe can be adapted by adding or substituting one or more ingredients

Cooking and nutrition	Key Stage 1	Key Stage 2
Where food comes from	Across KS1 pupils should know: • That all food comes from plants or animals • That food has to be farmed, grown elsewhere (e.g. home) or caught	Across KS2 pupils should: • That food is grown (such as tomatoes, wheat etc), reared (such as chickens and cattle) and caught (such as fish) in the UK, Europe and the world In Late KS2 pupils should also:

		• That seasons may affect the food available • How food is processed into ingredients that can be eaten or used in cooking •
Food preparation, cooking and nutrition	Across KS1 pupils should know: • How to name and sort foods into the five groups in The Eatwell Plate • That everyone should eat at least five portions of fruit and vegetables every day • How to prepare simple dishes safely and hygienically, without using a heat source • How to use techniques such as cutting, peeling and grating	Across KS2 pupils should: • How to prepare and cook a variety of predominatntly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking In early KS2 pupils should also: • That a healthy diet is made up from a variety and balance of different food and drink (The Eatwell Plate) • That to be active and healthy, food and drink are needed to provide energy for the body In Late KS2 pupils should also: • That recipes can be adapted to change the appearance, taste, texture and aroma • That different food and drink contain different substances- nutrients, water and fibre – that are needed for health

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing, planning and communicating ideas.	• Draw on their own experience to help generate ideas • Suggest ideas and explain what they are going to do • Identify a target group for what they intend to design and make • Model their ideas in card and paper • Develop their design ideas applying findings from their earlier research	• Generate ideas by drawing on their own and other people's experiences • Develop their design ideas through discussion, observation , drawing and modelling • Identify a purpose for what they intend to design and make • Identify simple design criteria • Make simple drawings and label parts	• Generate ideas for an item, considering its purpose and the user/s • Identify a purpose and establish criteria for a successful product. • Plan the order of their work before starting • Explore, develop and communicate design proposals by modelling ideas • Make drawings with labels when designing	• Generate ideas, considering the purposes for which they are designing • 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 • Evaluate products and identify criteria that can be used for their own designs	• Generate ideas through brainstorming and identify a purpose for their product • Draw up a specification for their design • 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 • Use results of investigations, information sources, including ICT when developing design ideas	• Communicate their ideas through detailed labelled drawings • Develop a design specification • Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways • Plan the order of their work, choosing appropriate materials, tools and techniques
Working with tools, equipment, materials and components to make quality products (inc-food)	• Make their design using appropriate techniques • With help measure, mark out, cut and shape a range of materials • Use tools *eg scissors and a hole punch* safely • Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape • Select and use appropriate fruit and vegetables, processes and tools • Use basic food handling, hygienic practices and personal hygiene • Use simple finishing techniques to improve the appearance of their product	• Begin to select tools and materials; use vocab' to name and describe them • Measure, cut and score with some accuracy • Use hand tools safely and appropriately • Assemble, join and combine materials in order to make a product • Cut, shape and join fabric to make a simple garment. Use basic sewing techniques • Follow safe procedures for food safety and hygiene • Choose and use appropriate finishing techniques	• Select tools and techniques for making their product • Measure, mark out, cut, score and assemble components with more accuracy • Work safely and accurately with a range of simple tools • Think about their ideas as they make progress and be willing change things if this helps them improve their work • Measure, tape or pin, cut and join fabric with some accuracy • Demonstrate hygienic food preparation and storage • Use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT	• Select appropriate tools and techniques for making their product • Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques • Join and combine materials and components accurately in temporary and permanent ways • Sew using a range of different stitches, weave and knit • Measure, tape or pin, cut and join fabric with some accuracy • • Use simple graphical communication techniques	• Select appropriate materials, tools and techniques • Measure and mark out accurately • Use skills in using different tools and equipment safely and accurately • Weigh and measure accurately (time, dry ingredients, liquids) • Apply the rules for basic food hygiene and other safe practices *e.g. hazards relating to the use of ovens* • Cut and join with accuracy to ensure a good-quality finish to the product	• Select appropriate tools, materials, components and techniques • Assemble components make working models • Use tools safely and accurately • Construct products using permanent joining techniques • Make modifications as they go along • Pin, sew and stitch materials together create a product • Achieve a quality product
Evaluating processes and products	• Evaluate their product by discussing how well it works in relation to the purpose • Evaluate their products as they are developed, identifying strengths and possible changes they might make • Evaluate their product by asking questions about what they have made and how they have gone about it	• Evaluate against their design criteria • Evaluate their products as they are developed, identifying strengths and possible changes they might make • Talk about their ideas, saying what they like and dislike about them	• Evaluate their product against original design criteria *e.g. how well it meets its intended purpose* • Disassemble and evaluate familiar products	• Evaluate their work both during and at the end of the assignment • Evaluate their products carrying out appropriate tests	• Evaluate a product against the original design specification • Evaluate it personally and seek evaluation from others	• Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests • Record their evaluations using drawings with labels • Evaluate against their original criteria and suggest ways that their product could be improved