Design & Technology

Subject Vision DGT

The purpose of our Design and Technology (DGT) teaching is to nurture children's creativity, innovation and problem-solving skills through hands-on, practical activities that are fun, exciting and engaging. Our lesson plans have clear objectives and questions that are designed to inspire children to be resourceful, creative and ambitious with their projects. Children have ownership over their projects by being involved in every stage – designing, making and evaluation. They are taught specific skills relevant to each topic and cross-curricular links are made where possible.

They are taught how to use equipment safely and will be encouraged to design for a purpose to develop an understanding of how Design and Technology is important in day-to-day life and the wider world.

National Curriculum Summary: D&T

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 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.

Curriculum Overview:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**Nursery Rhymes** **All about Me** Communication & Language, Personal, Social and Emotional Development; Physical development, Mathematics, Literacy, Understanding the World; Expressive Arts and Design	**Autumn** **Christmas** Communication & Language, Personal, Social and Emotional Development; Physical development, Mathematics, Literacy, Understanding the World; Expressive Arts and Design	**Winter** **Festival &** **Celebrations** Communication & Language, Personal, Social and Emotional Development; Physical development, Mathematics, Literacy, Understanding the World; Expressive Arts and Design	**Traditional Tales** **Spring is coming** Communication & Language, Personal, Social and Emotional Development; Physical development, Mathematics, Literacy, Understanding the World; Expressive Arts and Design	**Growing** **Mini-beasts** Communication & Language, Personal, Social and Emotional Development; Physical development, Mathematics, Literacy, Understanding the World; Expressive Arts and Design	**People who help us** Communication & Language, Personal, Social and Emotional Development; Physical development, Mathematics, Literacy, Understanding the World; Expressive Arts and Design
Reception	**What do I know about myself?** Communication & Language, Personal, Social and Emotional Development; Physical development, Understanding the World; Expressive Arts and Design, Literacy	**Why are all the leaves on the ground?** **Is Christmas the same everywhere?** Communication & Language, Personal, Social and Emotional Development; Physical development, Understanding the World; Expressive Arts and Design, Literacy	**Is it winter everywhere?** Communication & Language, Physical development, Understanding the World; Expressive Arts and Design, Literacy	**Plants and Growing** Communication and Language; Understanding the World – The Natural World; Personal, Social and Emotional Development; Physical development, Expressive Arts and Design – Creating with Materials & Being Imaginative and Expressive, Literacy	**What can we do with water?** Communication and Language; Understanding the World - Past and Present, People, Culture and Communities & The Natural World; Expressive Arts and Design – Creating with Materials & Being Imaginative and Expressive, Literacy	**Dinosaurs vs Minibeasts** **Who can I ask for help?** Communication and Language; Understanding the World - Past and Present & People, Culture and Communities; Expressive Arts and Design – Creating with Materials & Being Imaginative and Expressive, Literacy
Year 1	**Local Geography study:** **Where is our school?** **(Harold Hill focus)** Art, Geography	**What toys did children play with in the past?** D&T, History	**What is an explorer?** D&T, History	**What is the United Kingdom?** Art, Geography	**What is beyond the United Kingdom?** Art, Geography	**How has transport changed over time?** D&T, History

Curriculum Overview:

Year 2	**How do we use a map?** Art, Geography	**How did the Great Fire start?** D&T, History	**Why are you famous?** D&T, History	**Where is Kenya?** Art, Geography	**Have we always had the same King?** Art, History	**Local Geography & History study: What is in our local area? (Southend focus)** D&T, Geography, History
Year 3	**Local Geography & History study: Where do I live? (London focus)** D&T, Geography, History	**How did Stone Age and Bronze Age people live?** Art, History, Geography	**What would we find on a trek around Europe?** D&T, History, Geography	**Who were the Ancient Greeks?** Art, History, Geography	**What are Oceans and Mountains?** Art, Geography	**How did the Romans build their Empire?** D&T, History, Geography
Year 4	**What is it like to live in the United Kingdom?** Art, Geography	**What was the Indus Valley Civilisation?** D&T, Geography, History	**Local History study: Who were tougher - the Anglo-Saxons or the Vikings?** Art, Geography, History	**What is it like to live in Brazil?** D&T, Geography, History	**Local History study: How did the Normans change England?** D&T, Geography, History	**Can we explore Canada?** Art, Geography, History
Year 5	**Who were the Ancient Egyptians?** D&T, History, Geography	**What is it like to live in the Arctic?** Art, Geography, History	**What made the Shang Dynasty 'innovators of their time'?** Art, Geography, History	**Why did the Tudors have such a lasting legacy?** D&T, Geography, History	**Why does Engineering matter?** Art, D&T, Geography, History	**What is it like to take a journey around Africa?** D&T, Geography, History
Year 6	**Where shall we sail?** Art, Geography	**How did London survive the Blitz?** D&T, Geography, History	**How do we heal the world's conflicts?** D&T, Geography, History	**How did the Maya live?** Art, Geography, History	**What is Art?** Art, History	**Why do we care about Shakespeare?** D&T, History, Geography

Year Group Expectations
EYFS (nursery & reception)

- Explore different materials freely, to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Join different materials and explore different textures.

- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.

Year Group Expectations
Year 1 NC Objectives

- Explore and evaluate a range of existing products.
- Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) accurately.
- Design purposeful, functional, appealing products for themselves or 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.
- Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
- Evaluate their ideas and products against design criteria.
- Build structures, exploring how they can be made stronger, stiffer and more stable.

Year Group Expectations
Year 2 NC Objectives

- 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.
- 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.
- Explore and evaluate a range of existing products.
- Evaluate their ideas and products against design criteria.
- 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.

Year Group Expectations
Year 3 NC Objectives

- Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) accurately.
- Select from and use a wide range of materials and components, including construction materials, textiles and ingredients according to their characteristics, their functional properties and aesthetics.
- 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.
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Year Group Expectations
Year 4 NC Objectives

- 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.
- Select from and use a wider range of tools and equipment to perform practical tasks 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.
- Investigate and analyse a range of existing products.
- Understand and apply the principle 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.

Year Group Expectations
Year 5 NC Objectives

- 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.
- 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 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.
- Apply their understanding of how to strengthen, stiffen and reinforce structures that are more complex.
- Understand and use mechanical systems in their products, such as gears, pulleys, cams, levers and linkages.
- Investigate and dnalyse a range of existing products.
- 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.
- Select from and use a wider range of tools and equipment to perform practical tasks.

Year Group Expectations
Year 6 NC Objectives

- Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
- 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.
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- Select from and use a 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.
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Scheme Of Work

Design and Technology lessons aim to get children engaged and excited about how things work, and to encourage children to think innovatively and creatively. Our lessons are based on a scheme called Kapow and the lessons are adapted by our teachers to suit our bespoke curriculum to best support the needs of our pupils. At St Ursula's we have high expectations of our pupils. We strive to challenge all pupils, whilst also ensuring the lessons are accessible to all pupils.

The Kapow scheme of work ensures complete national curriculum coverage and is a progressive scheme of work from EYFS to year 6, building on prior learning and reinforcing knowledge and skills, covering areas such as cooking and nutrition, electrical systems, mechanisms, structures, textiles and the digital world. Our teachers adapt the lessons to suit our topics taught to enable strong cross curricular links.

Teaching and Learning Approaches

Design and Technology teaching in St Ursula's focuses on:

- Designing – encouraging children to think about what they want to make, sharing ideas and how to solve problems.
- Making – using a range of tools safely and effectively.
- Evaluating – Talking about their creations, what did they like, how can they improve their creations.
- Practical experience – hands on experience with materials, structures, mechanisms (levers, gears), electrical systems and textiles.
- Creative problem-solving – encouraging children to think about real-world needs and creating products that meet those needs (creating products that fit a purpose).
- Understanding nutrition and cooking – teaching basic cooking skills and developing an understanding of the importance of healthy eating.
- Working collaboratively – children learn to work with others as part of a team.

Supporting your child at home.

Here are some ways to support your child with their Design and Technology learning at home:

- Encourage hands-on projects such as using recyclable materials to make useful items such as a desk organizer (upcycling).
- Use construction sets such as Lego, K-Nex, Meccano, wooden blocks to create structures like towers, bridges, buildings etc.
- Cooking and nutrition – involve children in preparing meals, measuring ingredients, and following recipes.
- Moving mechanisms – create items with moving parts such as pop-up books, balloon-powered cars, or levers and linkages.
- Textiles – practice simple sewing techniques like stitching to make products like bags or cushions.
- Encourage children to ask 'Why' and 'How' – discuss how products around the home work.
- Always supervise when children are using sharp tools, such as scissors.
- Create an accessible junk box of cardboard, plastic bottles and packaging.

Useful Resources and Links for Parents

- BBC Bitesize – www.bbc.co.uk/bitesize
- STEM Learning – www.stem.org.uk
- Twinkl for creative step-by-step tasks – www.twinkl.co.uk
- Design & Technology Association for projects – www.designtechnology.org.uk
- The Design Museum – www.designmuseum.org