Design and Technology Progression Map 2021-2022

Intent

Design and Technology is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. It requires children to be active learners with the confidence to 'have a go,' and the resilience to persist with a project when challenges occur.

At Holy Trinity the Design and Technology curriculum combines skills, knowledge, concepts and values to enable children to tackle real problems. It can improve critical analysis, problem solving, and practical capability and evaluation skills. Planning is progressive and skills are revisited from Years 1 to 6 to ensure children have deeper understanding of concepts and techniques. Knowledge, skills and understanding are progressively built upon through each of the areas of experience of designing, making, evaluate, technical knowledge and cooking and nutrition. Within each discipline this has been provided through gradually extending the breadth of content, increasing the depth of knowledge and understanding and focusing on improving the quality of responses and outcomes. We aim to, wherever possible, link work to other subject areas such as mathematics, science, engineering, computing and art thereby enabling pupils to notice connections and patterns in their learning. We also aim to, wherever possible, build relationships with local businesses and members of the school community.

Through Design Technology children are encouraged to become innovators and risk-takers. High-quality Design and Technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

r In DT curriculum aims are:
To develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making;
To enable children to talk about how things work, and to draw and model their ideas;
To encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures;
To foster enjoyment, satisfaction and purpose in designing and making;
To use ICT software to assist our designing and learning.

Implementation

The teaching of Design Technology across the school follows the National Curriculum through the use of Cornerstones topics and a dedicated STEM week. 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 plays 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.

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Design and Technology 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.

Early Years Foundation Stage

During the EYFS pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunities to learn to:

Use different media and materials to express their own ideas

Use what they have learnt about media and materials in original ways, thinking about form, function and purpose

Make plans and construct with a purpose in mind using a variety of resources

Develop skills to use simple tools and techniques appropriately, effectively and safely

Select appropriate resources for a product and adapt their work where necessary

Cook and prepare food adhering to good health and hygiene routines

National Curriculum requirements at Key Stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts, (for example the home and school, gardens and playgrounds, the local community, industry and the wider environment).

When designing and making, pupils should be taught to:

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, (or 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.

National Curriculum requirements for food and Nutrition at KS1

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As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:
• use the basic principles of a healthy and varied diet to prepare dishes
• understand where food comes from.

In Key Stage 2:
Within key stage 2 key events and individuals that have influenced the world of Design Technology are teaching focuses that are to be covered.
The use of computer programmes and applications are also a key focus to be utilised by children in their design of their products.

National Curriculum requirements at Key Stage 2
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts, for example, the home, school, leisure, culture, enterprise, industry and the wider environment.

When designing and making, 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, such as 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 as gears, pulleys, cams, levers and linkages)
- understand and use electrical systems in their products, (for example series circuits incorporating switches, bulbs, buzzers and motors)

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- to apply their understanding of computing to programme, monitor and control their products.

National Curriculum requirements for food and nutrition at KS2
As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
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
• to understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Impact

The impact of whole-school Design and Technology will be seen across the school with an increase in the profile of Design and Technology. The children will become problem solving designers who can produce innovative solutions to problems. The impact of the curriculum is monitored and assessed through: learning walks, lesson plan reviews, book scrutinies.

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End of EYFS Expectations
Pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have opportunities to learn to: • Explore the textures, movement, feel and look of different media and materials • Respond to a range of media and materials, develop their understanding of them in order to manipulate and create different effects. • Use different media and materials to express their own ideas • Explore colour and use for a particular purpose • Develop skills to use simple tools and techniques competently and appropriately • Select appropriate media and techniques and adapt their work where necessary

Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
Pupils are taught: • to use a range of materials creatively to design and make products • to use drawing, painting and sculpture to develop and share their ideas, experiences and imagination • to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space • about the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work.	Pupils are taught to develop their techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design. Pupils are taught: • to create sketch books to record their observations and use them to review and revisit ideas • to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay] • about great artists, architects and designers in history.

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Holy Trinity CE Academy School Progression document EYFS			
	3 and 4 years	Reception children	ELG
Physical development	• Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors.	• Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.	• Use a range of small tools, including scissors, paintbrushes and cutlery
Expressive Arts and Design	• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order 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. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects.	• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.	• 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.

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Understanding of the World	• Explore how things work		
Personal, Social and Emotional Development	• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.		

Holy Trinity CE Academy School
Progression document KS1 and KS2

Aspect	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing, planning and communicating designs and ideas	Begin to draw on their own experience to help generate ideas and research conducted on criteria. Begin to understand the development of existing products:	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.				

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	What they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do. Understand how to identify a target group for what they intend to design and make based on a design criteria. Begin to develop their ideas through talk and drawings. Make templates and mock ups of their ideas in card and paper or using ICT.	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. Develop their ideas through talk and drawings and label parts Make templates and mock ups of their ideas in card and paper or using ICT.	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. Learn about inventors, designers, engineers, chefs and manufacturers who have developed	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. Identify the strengths and areas for development in their ideas and products.	Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and CAD. 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	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and CAD. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. Accurately apply a range of finishing techniques, including those from art and design.

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			ground-breaking products. Start to understand whether products can be recycled or reused. Know to make drawings with labels when designing**.** When planning explain their choice of materials and components including function and aesthetics.	When planning consider the views of others, including intended users, to improve their work. Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. When planning explain their choice of materials and components according to function and aesthetic.	from art and design Draw up a specification for their design- link with Mathematics and Science. Use results of investigations, information sources, including ICT when developing design ideas. 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	Draw up a specification for their design- link with Mathematics and Science. Plan the order of their work, choosing appropriate materials, tools and techniques. Suggest alternative methods of making if the first attempts fail. Identify the strengths and areas for development in their ideas and products. Know how much products cost to make, how sustainable and innovative they are and the impact

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					products have beyond their intended purpose.	products have beyond their intended purpose.

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Working with tools and materials	Begin to make their design using appropriate techniques. 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. Begin to assemble, join and combine	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. 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.	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. Start to understand that mechanical systems such as levers and	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. 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.	Select appropriate materials, tools and techniques e.g. 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. Understand how mechanical systems such as cams or pulleys or gears create movement. Know how more complex electrical circuits and components	Confidently select appropriate tools, materials, components and techniques and use them. 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.

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	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.	Use basic sewing techniques. Start to choose and use appropriate finishing techniques based on own ideas.	linkages or pneumatic systems create movement. 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. Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. Start to measure, tape or pin, cut and join fabric with	Continue to learn how to program a computer to monitor changes in the environment and control their 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.	can be used to create functional products and how to program a computer to monitor changes in the environment and control their products. Understand that mechanical and electrical systems have an input, process and output. 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	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 products. Know how to reinforce and strengthen a 3D framework. Understand that mechanical and electrical systems have an input, process and output. Use finishing techniques to strengthen and

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			some accuracy.		Weigh and measure accurately (time, dry ingredients, liquids). Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.	improve the appearance of their product using a range of equipment including ICT.
Evaluating processes and products	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.	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,	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 their products carrying out appropriate tests. Start to 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.	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	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

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	Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.	identifying strengths and possible changes they might make. With confidence talk about their ideas, saying what they like and dislike about them.	Evaluate the key designs of individuals in design and technology has helped shape the world.	Evaluate the key designs of individuals in design and technology has helped shape the world.	seek evaluation from others. Evaluate the key designs of individuals in design and technology has helped shape the world.	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.
Cooking and nutrition	Begin to understand that all food comes from plants or animals. Explore the understanding that food has to be farmed, grown	Understand that all food comes from plants or animals. Know that food has to be farmed, grown elsewhere (e.g. home) or caught.	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,	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,	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,	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,

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	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 how to use techniques such as cutting, peeling and grating.	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.	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'	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	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,	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.

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			Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.	healthy, food and drink are needed to provide energy for the body.	spreading, kneading and baking. Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.	Know different food and drink contain different substances – nutrients, water and fibre – that are needed for health
DT1/1.4 Technical Knowledge should be integrated through all learning opportunities in Design and Technology. Most evidence of this can be found in Making -Working with Tools and Materials DT/1.2						