St Patrick's Catholic Voluntary Academy
Design and Technology Content and Concept Subject Organiser:

EYFS

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas.

The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects.

This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for DT within the national curriculum.

The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for DT.

The most relevant statements for DT are taken from the following areas of learning:

- Physical Development
- Expressive Arts and Design

Design and Technology			
Three- and Four-Year Olds	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.
	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.
	Understanding the World		• Explore how things work.
	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.
Reception	Physical Development		• 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.
	Expressive Arts and Design		• 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.
ELG	Physical Development	Fine Motor Skills	• Use a range of small tools, including scissors, paintbrushes and cutlery.
	Expressive Arts and Design	Creating with Materials	• 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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	KS1	Designing	Making	Evaluating	Technical Knowledge
Year 1/ 2	***Structures:*** *Free Standing Structures (2022, 2024, 2026)*	To generate ideas based on a simple design criteria and their own experiences, explaining what they could make. To develop, model and communicate ideas through talking, mock ups and drawings.	To plan by suggesting what to do next. To select and use tools, skills and techniques, explaining their choices. To select new and reclaimed materials and construction kits to build a structure. To use simple finishing techniques suitable for the structure they are creating.	To explore a range of existing freestanding structures in the school and the local environment. E.g. everyday products and buildings. To evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	To know how to make freestanding structures stronger, stiffer and more stable. To know and use technical vocabulary relevant to the project.
	Mechanisms: *Sliders and Levers (2022, 2024, 2026)*	To generate ideas based on a simple design brief and their own experiences. To develop, model and communicate ideas through drawings and mock ups with card and paper (prototypes).	To plan by suggesting what to do next. To select and use tools, explaining their choices, to cut shape and join paper and card. To use simple finishing techniques suitable for the product they are creating.	To explore a range of existing products (books and every day products) that use simple sliders and levers. To evaluate their product by discussing how well it works in relation to the purpose and the user, against a design brief.	To explore and use sliders and levers. To understand that different mechanisms produce different movements. To know and use relevant technical vocabulary relevant to the project.
	Food: *Preparing fruit and Vegetables (2022, 2024, 2026)* ***Fruit Kebab***	To design appealing products for a particular user based on a simple design brief. To generate initial ideas and design criteria through investigating a variety of fruit and vegetables. To communicate these ideas through talk and drawings.	To use simple utensils and equipment safely (e.g. to peel, cut, slice, squeeze and chop). To select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.	To taste and evaluate a range of fruit and vegetables to determine the intended user's likes and dislikes. To evaluate ideas and finished products against design criteria, including intended user and purpose.	To understand where a range of fruit and vegetables come from. E.g. farmed or grown at home, seasonal and 'British.' To understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*.' To know and use technical and sensory vocabulary relevant to the project.
	Textiles: Templates and joining techniques to create a bauble (2023, 2025, 2027)	To design a functional and appealing product for a chosen user and purpose based on simple design criteria. To generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock ups and information and communication technology.	To select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. To select from and use textiles according to their characteristics.	To explore and evaluate a range of existing textile products relevant to the project being undertaken. To evaluate their ideas throughout and their products against original criteria.	To understand how simple 3D textile products are made, using a template to create two identical shapes. To understand how to join fabrics using different techniques (e.g. running stitch, glue, over stitch, stapling). To explore different finishing techniques (e.g. painting, fabric crayons, stitching, sequins, buttons and ribbons). To know and use technical vocabulary relevant to the project.
	Mechanisms: Wheels and axles (2023, 2025, 2027)	To generate initial ideas and simple design criteria through talking and using own experiences. To develop and communicate ideas through drawings and mock-ups.	To select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. To select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.	To explore a range of existing products with wheels and axles. To evaluate their ideas throughout and their products against original criteria.	To explore and use wheels, axles and axle holders. To distinguish between fixed and freely moving axles. To know and use technical vocabulary relevant to the project.
	Food: *Preparing fruit and Vegetables (2023, 2025, 2027)* ***Fruit Salad***	To design appealing products for a particular user based on a simple design brief. To generate initial ideas and design criteria through investigating a variety of fruit and vegetables. To communicate these ideas through talk and drawings.	To use simple utensils and equipment safely (e.g. to peel, cut, slice, squeeze and chop). To select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.	To taste and evaluate a range of fruit and vegetables to determine the intended user's likes and dislikes. To evaluate ideas and finished products against design criteria, including intended user and purpose.	To understand where a range of fruit and vegetables come from. E.g. farmed or grown at home, seasonal and 'British.' To understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*.' To know and use technical and sensory vocabulary relevant to the project.

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	KS2	Designing	Making	Evaluating	Technical Knowledge
Year 3/ 4	**Structures:** Shell Structures (2022, 2024, 2026)	To generate ideas and design criteria collaboratively through discussions, focusing on the needs of the user and purpose of the product. To develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas	To order the main stages of making. To select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. To explain their choice of materials according to functional properties and aesthetic qualities. To use finishing techniques suitable for the product they are creating.	To investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. To test and evaluate their own products against the design criteria and the intended user and purpose.	To develop and use knowledge of how to construct strong, stiff shell structures. To develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. To know and use technical vocabulary relevant to the project.
	Mechanical Structures: Levers and Linkages (2022, 2024, 2026)	To generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. To use annotated sketches and prototypes to develop, model and communicate ideas.	To order the main stages of making. To select from and use appropriate tools with some accuracy to cut, shape and join paper and card. To select from and use finishing techniques suitable for the product they are creating.	To investigate and analyse books and, where available, other products with lever and linkage mechanisms. To evaluate their own products and ideas against criteria and user needs, as they design and make.	To understand and use lever and linkage mechanisms. To distinguish between fixed and loose pivots To know and use technical vocabulary relevant to the project.
	Food: Healthy and Varied Diet (2022, 2024, 2026) **A light snack (sandwich/ pitta/ wrap)**	To generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. To use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	To plan the main stages of a recipe, listing ingredients, utensils and equipment. To select and use appropriate utensils and equipment to prepare and combine ingredients. To select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.	To carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. To evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	To know how to appropriate equipment and utensils to prepare and combine food. To know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. To know and use relevant technical and sensory vocabulary appropriately.
	Textiles: 2-D shape to 3-D product e.g. to create a seasonal stocking (2023, 2025, 2027)	To generate realistic ideas through discussion and a design-criteria for an appealing, functional product fit for purpose and specific user/s. To produce annotated sketches, prototypes, final product sketches and pattern pieces.	To plan the main stages of making. To select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. To select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.	To investigate a range of 3-D textile products relevant to the project. To test their product against the original design criteria and with the intended user. To take into account others' views. To understand how a key event/ individual has influenced the development of the chosen product and/ or fabric.	To know how to strengthen, stiffen and reinforce existing fabrics. To understand how to securely join two pieces of fabric together. To understand the need for patterns and seam allowances. To know and use technical vocabulary relevant to the project.
	Mechanical Systems: Pneumatics (2023, 2025, 2027)	To generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. To use annotated sketches and prototypes to develop, model and communicate ideas.	To order the main stages of making. To select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. To select from and use finishing techniques suitable for the product they are creating.	To investigate and analyse books, videos and products with pneumatic mechanisms. To evaluate their own products and ideas against criteria and user needs, as they design and make.	To understand and use pneumatic mechanisms. To know and use technical vocabulary relevant to the project.
	Electrical Systems: Simple circuits and switches (2023, 2025, 2027)	To gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. To generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.	To order the main stages of making. To select from and use tools and equipment to cut, shape, join and finish with some accuracy. To select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.	To investigate and analyse a range of existing battery-powered products. To evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	To understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. To apply their understanding of computing to program and control their products. To know and use technical vocabulary relevant to the project.

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Year 4/5	***Textiles:*** Combining different fabric shapes to create a pencil case *(Y5/6)* **(yearly)**	To generate innovative ideas by carrying out research including surveys, interviews and questionnaires. To develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate computer aided design. To design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	To produce detailed lists of equipment and fabrics relevant to their tasks. To formulate step-by-step plans and, if appropriate, allocate tasks within a team. To select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resource and cost.	To investigate and analyse textile products linked to their final product. To compare the final product to the original design specification. To test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. To consider the views of others to improve their work.	To know that a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. To know and understand that fabrics can be strengthened, stiffened and reinforced where appropriate.
	Mechanical Systems: Pulleys or Gears *(Y5/6)* **(yearly)**	To generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. To develop a simple design specification to guide their thinking. To develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawing from different views.	To produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. To select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.	To compare the final product to the original design specification. To test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. To consider the views of others to improve their work. To investigate famous manufacturing and engineering companies relevant to the project.	To understand that mechanical and electrical systems have an input, process and an output. To understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. To know and use technical vocabulary relevant to the project.
	Food: Celebrating culture with seasonality, with a Healthy and Varied Diet. *(Y5/6)* **(yearly) A light, healthy handmade pizza**	To generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. To explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. To use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.	To write a step-by-step recipe, including a list of ingredients, equipment and utensils. To select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. To make and present the food product appropriately for the intended user and purpose.	To carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/ graphs/ charts such as star diagrams. To evaluate the final product, with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. To understand how key chefs have influenced eating habits to promote varied and healthy diets.	To know how to use utensils and equipment, including heat sources, to prepare and cook food. To understand about seasonality in relation to food products and the source of different food products. To know and use relevant technical and sensory vocabulary.

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	KS2	Designing	Making	Evaluating	Technical Knowledge
Y5/6	***Electrical Systems:*** More complex switches and circuits. (2022, 2024, 2026)	To use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. To generate and develop innovative ideas and share and clarify these through discussion. To communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.	To formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. To competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. To create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.	To continually evaluate and modify the working features of the product to make the initial design specification. To test the system to demonstrate its effectiveness for the intended user and purpose. To investigate famous inventors who have developed ground-breaking electrical systems and components.	To understand and use electrical systems in their products. To apply their understanding of computing to program, monitor and control their products. To know and use technical vocabulary relevant to the project.
	Structures: Frame Structures (2022, 2024, 2026)	To carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. To develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. To generate, develop and model innovate ideas, through discussion, prototypes and annotated sketches.	To formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. To competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. To use finishing and decorative techniques suitable for the product they are designing and making.	To investigate and evaluate a range of existing frame structures. To critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. To research key events and individuals relevant to frame structures.	To understand how to strengthen, stiffen and reinforce 3-D frameworks. To know and use technical vocabulary relevant to the project.
	Food: Celebrating Culture and Seasonality (2022, 2024, 2026)	To generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. To explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. To use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.	To write a step-by-step recipe, including a list of ingredients, equipment and utensils. To select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. To make and present the food product appropriately for the intended user and purpose.	To carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/ graphs/ charts such as star diagrams. To evaluate the final product, with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. To understand how key chefs have influenced eating habits to promote varied and healthy diets.	To know how to use utensils and equipment, including heat sources, to prepare and cook food. To understand about seasonality in relation to food products and the source of different food products. To know and use relevant technical and sensory vocabulary.
	Textiles: Combining different fabric shapes to create 'Funky Furnishings.' (2023, 2025, 2027)	To generate innovative ideas by carrying out research including surveys, interviews and questionnaires. To develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate computer aided design. To design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	To produce detailed lists of equipment and fabrics relevant to their tasks. To formulate step-by-step plans and, if appropriate, allocate tasks within a team. To select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Working within the constraints of time, resource and cost.	To investigate and analyse a range of textile products. To compare the finished product to the original design specification. To test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. To consider the views of others to improve their work.	To know and understand that a 3D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. To know and understand that fabrics can be strengthened, stiffened and reinforced where appropriate.
	Mechanical Systems: Cams (Pulleys and Gears) (2023, 2025, 2027)	To generate ideas by carrying out research, using surveys, interviews, questionnaires and web-based resources. To develop a simple design specification to guide their thinking. To develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.	To produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. To select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Working within the constraints of time, resources and cost.	To compare the finished product to the original design brief. To test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. To consider the views of others to improve their work. To investigate famous manufacturing and engineering companies relevant to the project.	To understand that mechanical systems have an input, process and an output. To understand how gears, pulleys and cams can be used to produce different types of movement and change the direction of movement. To know and use technical vocabulary relevant to the project.
	Electrical Systems: Monitoring and Control (2023, 2025, 2027)	To develop a design specification for a functional product that responds automatically to changes in the environment. To generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams.	To formulate step-by-step plans to guide making, listing tools, equipment, materials and components. To competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. To create and modify a computer control program to enable their electrical product to respond to changes in the environment.	To continually evaluate and modify the working features of the product to match the initial design specification. To test the system to demonstrate its effectiveness for the intended user and purpose.	To understand and use electrical systems in their products. To know and understand the use of computer control systems in products. To apply their understanding of computing to program, monitor and control their products. To know and use technical vocabulary relevant to the project.

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Assessment framework- Design and Technology

	Working at ARE
By the end of Y2, children can:	**National Curriculum Aims:** When designing and making, by the end of Key Stage 1 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 [for example, cutting, shaping, joining and finishing] ♣ select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluate:** ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria **Technical knowledge:** ♣ build structures, exploring how they can be made stronger, stiffer and more stable ♣ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. **Cooking and Nutrition:** ♣ use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from.
	Design: **Children will design purposeful, functional, appealing products for themselves and others based on design criteria. They will generate,** develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. **Understanding contexts, users and purposes:** • 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. • Identify who the product is intended for use by. • Draw a simple design with annotations. • 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, considering the user, the product and the intended use. • Understand and use simple design criteria to help develop their ideas. **Generating, developing, modelling and communicating ideas:** • Generate ideas by drawing on their own experiences • Use knowledge of existing products to help their come up with ideas. • Develop and communicate ideas by talking and drawing. • Add detail and annotations to a design to show how different components move. • 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.
	Make: Planning • Plan by suggesting what to do next. • Use tools and equipment available, explaining their choices. • Select from a range of materials and components according to their characteristics. **Practical skills and techniques** • Follow procedures for safety and hygiene, understanding the importance of this. • Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components. • Accurately measure, mark out, cut and shape materials and components. • Accurately assemble, join and combine materials and components. • Use finishing techniques, including those from art and design.
	Evaluate: Own ideas and products: • Talk about their design ideas and what they are making. • Evaluate and make judgements about their products and ideas against design criteria. • Suggest and make improvements to their product in order to improve the product. **Existing products:** • Pupils will explore what products are, who products are for, what products are for, how products are used, where products might be used, what materials products are made from. • Pupils will explore what they like and dislike about products. • Identify what the intended user may or may not like about the product.
	Technical knowledge: Making products work: • Talk about the simple working characteristics of materials and components. • Talk about the movement of simple mechanisms such as levers, sliders, wheels and axles. • Explain how mechanisms such as levers, sliders, wheels and axles work. • Explain, demonstrate and prove how free-standing structures can be made stronger, stiffer and more stable. • Explain that a 3-D textiles product can be assembled from two identical fabric shapes. • Use the correct technical vocabulary for the projects they are undertaking.

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	Cooking and Nutrition: Where food comes from: • Talk about how food comes from plants or animals. • Describe how food has to be farmed, grown elsewhere (e.g. home) or caught. • Explain where the food we eat comes from, understanding the term 'locally' sourced. **Food preparation, cooking and nutrition:** • Explain 'The Eat Well Plate,' the five different types of foods which would be categorised into these food groups. • Explain that everyone should eat at least five portions of fruit and vegetables every day. • Explain how food ingredients can be combined according to their characteristics. • Share ideas about how to prepare simple dishes safely and hygienically, without using a heat source. • Use techniques such as cutting, peeling and grating.

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	Working at ARE
By the end of Y4, children can:	**Design: Understanding contexts, users and purposes:** • Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. • Design 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. • Also gather information about the needs and wants of a user. • Also develop their own design criteria and use these to inform their ideas. **Generating, developing, modelling and communicating ideas:** • 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 their ideas. • Generate realistic ideas, focusing on and understanding the needs of the user. • Make design decisions that take account of the availability of resources.
	Make: Planning: • 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. • Also order the main stages of making. **Practical skills and techniques:** • 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. • Also measure, mark out, cut and shape materials and components with some accuracy. • Also 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.
	Evaluate: Own ideas and products: • Identify the strengths and areas for development in their ideas and products. • Consider the views of others, including intended users, to improve their work. • Refer to their design criteria as they design and make. • Use their design criteria to evaluate their completed products. **Existing products:** • Investigate and analyse how well products have been designed. • Explore and analyse how well products have been made. • Talk about why materials have been chosen. • Talk about what methods of construction have been used and why. • Analyse how well products work. • Investigate and analyse how well products achieve their purposes. • Evaluate how well products meet the users' needs and wants • Also investigate and analyse who designed and made the products • Also investigate and analyse where the products were designed and made • Also investigate and analyse when the products were designed and made • Explore and identify whether products can be recycled or reused and make choices according to decisions made around sustainability. **Key events and individuals:** • Talk about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
	Technical knowledge: Making products work: • Explain how to use learning from science to help design and make products that work. • Describe how to use learning from mathematics to help design and make products that work. • Understand that materials have both functional properties and aesthetic qualities. • Make links between what they have learnt in other subjects or life experiences to design and make products that work. • Recognise that materials can be combined and mixed to create more useful characteristics. • Understand that mechanical and electrical systems have an input, process and output. • Use correct technical vocabulary for the projects they are undertaking.
	• **Cooking and Nutrition: Where food comes from:** • Explain 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. • **Food preparation, cooking and nutrition:** • Suggest, prepare and cook a variety of predominantly 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. • 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. • Understand that to be active and healthy, food and drink are needed to provide energy for the body.

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	Working at ARE
By the end of Y6, children can:	**National Curriculum Aims:** When designing and making, by the end of Key Stage 2 pupils should be taught to: **Design** ♣ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups ♣ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **Make** ♣ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately ♣ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **Evaluate** ♣ investigate and analyse a range of existing products ♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ♣ understand how key events and individuals in design and technology have helped shape the world **Technical knowledge** ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures ♣ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] ♣ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ♣ apply their understanding of computing to program, monitor and control their products. **Cooking and Nutrition:** ♣ 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.
	Design: Understanding contexts, users and purposes: • Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. • Create a clear design specification to guide their thinking around 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. • Carry out research, using surveys, interviews, questionnaires and web-based resources. • Also identify the needs, wants, preferences and values of particular individuals or groups. • Create a simple design specification to guide their thinking. **Generating, developing, modelling and communicating ideas:** • 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 clearly communicate their ideas. • Use computer-aided design to develop and communicate their ideas. • Generate innovative ideas, drawing on research • Make design decisions, taking account of constraints such as time, resources and cost.
	Make: Planning: • 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 • Produce appropriate lists of tools, equipment and materials that they need. • Also formulate step-by-step plans as a guide to making. **Practical skills and techniques:** • Follow procedures for safety and hygiene. • Use a wider range of tools, equipment, materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components according to their functional properties and aesthetic qualities. • Demonstrate resourcefulness when tackling practical problems. • 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. • Also use techniques that involve a number of steps.

St Patrick's Catholic Voluntary Academy
Design and Technology Content and Concept Subject Organiser:

Evaluate: Own ideas and products:

- Identify the strengths and areas for development in their ideas and products.
- Consider the views of others, including intended users, to improve their work.
- 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 and consider the views of others to improve their work.

Existing products:

- Investigate and analyse how well products have been designed from the perspective of a user.
- Explore and analyse how well a range of existing products have been made.
- Talk about why materials have been chosen with explanation.
- Talk about what methods of construction have been used.
- Analyse how well products work.
- Investigate and analyse how well products achieve their purposes.
- Evaluate how well products meet the users needs and wants.
- Investigate and analyse how much products cost to make per item, suggesting alternatives.
- Investigate and analyse how innovative products are.
- Explore how sustainable the materials in products are.
- Analyse what impact products have beyond their intended purpose.

Key events and individuals:

- Understand how key events and individuals in design and technology have helped shape the world.
- Talk about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.

Technical knowledge: Making products work:

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- Explain how to use learning from science to help design and make products that work.
- Describe how to use learning from mathematics to help design and make products that work.
- Understand that materials have both functional properties and aesthetic qualities.
- Recognise that materials can be combined and mixed to create more useful characteristics.
- Understand that mechanical and electrical systems have an input, process and output.
- Apply their understanding of computing to program, monitor and control their products.
- Understand and use mechanical systems in their products making choices to achieve the desired result (gears, pulleys, cams, levers and linages).
- Understand and use electrical systems in their products making choices to achieve the desired result (series circuits incorporating switches, bulbs, buzzers and motors).
- Use correct technical vocabulary for the projects they are undertaking.

Cooking and Nutrition: Where food comes from:

- Know where and how a variety of ingredients are grown, (such as tomatoes, wheat and potatoes) reared (such as pigs, chicken and cattle) and caught (such as fish) and processed in the UK, Europe and the wider world.
- Understand seasonality and explain that seasons may affect choices made around food and ingredient choices.
- Explain how food is processed into ingredients that can be eaten or used in cooking.

Food preparation, cooking and nutrition:

- Understand and apply the principles of a healthy and varied diet.
- Prepare and cook a variety of predominantly 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.
- Also know that recipes can be adapted to change the appearance, taste, texture and aroma.
- Also know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.