Update what is being taught and split into substantive and disciplinary Design and Technology Progression of Knowledge St Joseph's Catholic Primary School.

Topics

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, form and function. Children share their creations, explaining the process they have used. Make use of props and materials when role playing	Mechanisms: Moving storybooks Textiles: Puppets Mechanisms: Wheels and axels	Mechanisms: Moving monsters Structures: Baby Bear's Chair Cooking and Nutrition: Wraps	Textiles: applique and cross stitch (Egyptian Collars) Cooking and nutrition: Eating seasonally (tarts) Mechanisms: Pneumatic toys	Textiles: Fastenings (book sleeve) Cooking and Nutrition: Biscuits (Christmas) Mechanisms: Slingshot cars Electrical: Torches	Mechanical: Pop-up books Structures: Bridges Cooking and nutrition: What could be healthier?	Electrical : Steady Hand Game Cooking and nutrition: Come dine with me Digital: Navigating the world

EYFS

In EYFS, design and technology learning begins in 'Expressive arts and design' where children begin to explore, use and a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. In Physical Development (Moving and Handling) Children handle equipment and tools effectively

Adapting the curriculum for pupils with SEND in design and technology

Design and technology is an essential means of creative expression that can boost self-esteem and give learners the agency needed to develop and communicate their personal ideas, observations, and creations. It lends learners opportunities to develop both individually and collaboratively, designing naturally encourages learners to problem solve, to be self-critical, to make decisions and to take risks within their learning. The encouragement of self-expression and exploration supports learners to embrace 'the happy accident' and 'learn through their mistakes'.

- Adaptive teaching takes place.
- The tools available are carefully considered for children with physical disabilities.

Update what is being taught and split into substantive and disciplinary Design and Technology
Progression of Knowledge St Joseph's Catholic Primary School.

- Encourage a culture of experimentation, with no one right way to do something
- For sensory needs, consider when alternative materials or tools may need to be offered
- Teachers identify and break down the components of the subject curriculum into manageable chunks for pupils who find learning more difficult, particularly those with cognition and learning needs. These may be smaller 'steps' than those taken by other pupils to avoid overloading the working memory.
- A variety of additional scaffolds may be used in lessons, such vocabulary banks, additional visual stimuli or adult support.

Substantive Knowledge

	Year 1	Year 2	Year 3
Cooking and Nutrition		**Balanced diet (wraps)** • That 'diet' means the food and drink that a person or animal usually eats. • What makes a balanced diet. • That the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and oils and spreads. • That I should eat a range of different foods from each food group, and roughly how much of each food group. • That 'ingredients' means the items in a mixture or recipe. • How to cut, grate, snip and spread to prepare foods. • How to review and give a score to evaluate	**Eating seasonally (tarts)** • That seasonal means foods that grow in a given season in a given country. • Some seasonal foods that grow in the UK and what season they grow in. • That eating seasonal foods can have a positive impact on the environment. • How to describe the flavour and texture of foods. • How to cut and peel safely. • That the appearance of food is as important as taste. • That similar coloured fruits and vegetables often have similar nutritional benefits.
Textiles	**Puppets** • To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins.		**Applique and cross stitch (Egyptian collars)** • To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric. • To understand that a product's function relies on material choices.

Update what is being taught and split into substantive and disciplinary Design and Technology
Progression of Knowledge St Joseph's Catholic Primary School.

	• To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.		• To identify and explain some materials and explain their aesthetic and functional properties.
Mechanisms	**Moving Storybooks** • A mechanism is the parts of an object that move together. • A slider mechanism moves an object from side to side or up and down. • A slider mechanism has a slider, slots, guides and an object. • Bridges and guides are bits of card that purposefully restrict the movement of the slider. **Wheels and axels:** • Many things that move have parts inside to help them work. • Mechanisms usually limit unwanted movement. • An axle allows the wheel to turn without falling off.	**Moving Monsters** • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and an output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.	**Pneumatic Toys** • How mechanisms work. • A mechanical system can allow us to move something more easily • Mechanical systems can have more than one mechanism that moves to make them work. • Mechanical systems are often hidden in products to make them look more appealing. • Pneumatic systems can be found in everyday objects. • Pushing air can be used to move a mechanism. • Pivots can be used to create more movement in a mechanical system. • A combination of mechanisms can improve a product.
Structures		**Baby Bear's Chair** • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily.	

Update what is being taught and split into substantive and disciplinary Design and Technology
Progression of Knowledge St Joseph's Catholic Primary School.

		• To know that a 'stiff' structure or material is one which does not bend easily	

	Year 4	Year 5	Year 6
Cooking and Nutrition	**Adapting a recipe (Christmas biscuits)** • That the amount of an ingredient in a recipe is known as the 'quantity'. • That safety and hygiene are important when cooking. • The following cooking techniques: sieving, measuring, mixing/stirring, cutting out and shaping. • The importance of budgeting while planning ingredients for a recipe. • That products often have a target audience.	**What could be healthier?** • That beef comes from cows reared on farms. • That recipes can be adapted to suit nutritional needs and dietary requirements. • That nutritional information is found on food packaging. • That coloured chopping boards can prevent cross-contamination. • That food packaging serves many purposes.	**Come Dine with Me** • That 'flavour' is how a food or drink tastes. • That many countries have 'national dishes' which are recipes associated with that country. • That 'processed food' means food that has been put through multiple changes in a factory. • That it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • What happens to a certain food before it appears on the supermarket shelf (farm to fork).
Textiles	**Fastenings (Book sleeve)** • To know that a fastening is something that holds two pieces of material together. • To know that different fastening types are useful for different purposes. • To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.		

Update what is being taught and split into substantive and disciplinary Design and Technology
Progression of Knowledge St Joseph's Catholic Primary School.

Mechanisms	**Slingshot cars** • To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.	**Pop up Books** • To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms. • To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	
Structures		**Building Bridges** • To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on their properties. • To understand the material (functional and aesthetic) properties of wood.	
Electrical	**Torches** • Electrical conductors are materials which electricity can pass through. • Electrical insulators are materials which electricity cannot pass through. • A battery contains stored electricity that can be used to power products. • An electrical circuit must be complete for electricity to flow.		**Steady Hand Game** • o know that 'form' means the shape and appearance of an object. • To know the difference between 'form' and 'function'. • To understand that 'fit for purpose' means that a product works how it should and is easy to use. • To know that 'form over purpose' means

Update what is being taught and split into substantive and disciplinary Design and Technology
Progression of Knowledge St Joseph's Catholic Primary School.

	• A switch can be used to complete and break an electrical circuit.		that a product looks good but does not work very well. • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'
Digital			**Navigating the World** • To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input. • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. • To know that 'multifunctional' means an object or product has more than one function. • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.

Update what is being taught and split into substantive and disciplinary Design and Technology 24 - 25
Progression of Knowledge St Joseph's Catholic Primary School.

Disciplinary Knowledge

	Year 1	Year 2	Year 3
Cooking and Nutrition		**Balanced diet (wraps)** • Learn that food can be divided into different groups and that wraps can form part of a healthy diet. • Taste a variety of different ingredients and examine flavours and textures. • Know how to design and plan a wrap for a particular purpose. • How to cut, grate, snip and spread to prepare foods. • Create a healthy wrap. • Know how to valuate a finished product.	**Eating seasonally (tarts)** • Describe how climate affects where foods grow. • Identify seasonal ingredients from the UK. • Tasting seasonal ingredients – describing their texture and flavour • Peeling and cutting ingredients • Choose ingredients based on a design brief • Following instructions within a recipe • Know how to evaluate.
Textiles	**Puppets** • Using a template to create a design for a puppet. • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction. • Reflecting on a finished product, explaining likes and dislikes.		**Applique and cross stitch (Egyptian collars)** • Designing and making a template for an Egyptian collar and applying individual design criteria. • Following their design criteria to create an Egyptian collar. • Selecting and cutting fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch to decorate or join fabric. • Decorating fabric using appliqué, beads (or other embellishments), ribbon and pinking scissors.

Update what is being taught and split into substantive and disciplinary Design and Technology 24 - 25
Progression of Knowledge St Joseph's Catholic Primary School.

			• Evaluating an end product.
Mechanisms	**Moving Storybooks** • Know the terms mechanism, lever and slider • Be able to create a sliding mechanism. • Learn how to use levers to create a moving mechanism. • Know about, investigate and create wheel mechanisms. • Be able to design a picture with a moving mechanism. • Know how to make a moving picture based on a design. • Know how to evaluate a finished product. **Wheels and axels:** • Thinking about what others might want from a design. • Beginning to recognise how products and designs in the world around us solve certain needs. • Considering who they are designing for – by identifying the user. • Stating what they intend to make and why – by identifying the purpose. • Talking about ideas with purpose and user in mind. • Talking about existing products when generating ideas. • Using basic drawing skills to communicate ideas. • Planning more than one step ahead. • Choosing between a small number of materials, ingredients or components.	**Moving Monsters** • Creating a design criteria for a moving monster as a class. • Designing a moving monster for a specific audience in accordance with a design criteria. • Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. • Cutting and assembling components neatly. • Evaluating own designs against design criteria.	**Pneumatic Toys** • Know about and investigate a variety of familiar objects that use air to make them work. • Know some techniques for making simple pneumatic systems. • Know how to gather ideas for creating moving monsters • Be able to design a monster including a moving pneumatic system. • Know how to make a monster with a moving pneumatic part. • Know how to evaluate a finished product.

	• Explaining their choices based on personal experiences. • Requesting equipment appropriate to the purpose (e.g. scissors for cutting and glue for joining). • Explaining in simple terms why certain tools must be handled carefully. • Following and recalling simple safety instructions. • Finding the middle of an object. • Refining their grip to cut competently and confidently. • Cutting straight lines and evenly spaced lines. • Beginning to cut large shapes and thicker materials like card. • Puncturing holes. • Recognising the edges of paper and card need to be stuck firmly using a glue stick. • Using tools, like scissors, to create shapes. • Beginning to use controlled painting or colouring techniques to finish a product. • Adding texture to create visual interest. • Discussing existing products, saying what they like about them. • Comparing two products and discussing which is better for a specific purpose.		
Structures		**Baby Bear's Chair** • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects.	

		• Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper. • Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of their own structures. • Identifying the weakest part of a structure • Evaluating the strength, stiffness and stability of their own structure.	

Update what is being taught and split into substantive and disciplinary Design and Technology 24 - 25
Progression of Knowledge St Joseph's Catholic Primary School.

	Year 4	Year 5	Year 6
Cooking and Nutrition	**Adapting a recipe (Christmas biscuits)** • Evaluating and comparing a range of products. • Following a baking recipe. • Understanding safety and hygiene rules. • Identifying a target audience. • Designing a biscuit within a given budget. • Suggesting modifications • Adapting a recipe • Conducting market research • Evaluating an adapted recipe.	**What could be healthier?** • Explaining the farm-to-fork process. • Researching existing recipes. • Suggesting alternative ingredients. • Analysing nutritional content. • Writing an alternative recipe. • Understanding cross-contamination. • Using preparation skills. • Designing a jar label. • Making a developed recipe.	**Come Dine with Me** • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. • Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence. • Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements in productions. • Evaluating health and safety in production to minimise cross contamination.
Textiles	**Fastenings (Book sleeve)** • Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve. • Making and testing a paper template with accuracy and in keeping with the		

Update what is being taught and split into substantive and disciplinary Design and Technology 24 - 25
Progression of Knowledge St Joseph's Catholic Primary School.

	design criteria. • Measuring, marking and cutting fabric using a paper template. • Selecting a stitch style to join fabric. • Sewing neatly using small regular stitches. • Incorporating a fastening to a design. • Testing and evaluating an end product against the original design criteria.		
Mechanisms	**Slingshot cars** • Designing a shape that reduces air resistance. • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design. • Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design. • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	**Pop up Books** • Designing a pop-up book which uses a mixture of structures and mechanisms. • Naming each mechanism, input and output accurately. • Storyboarding ideas for a book. • Following a design brief to make a pop up book, neatly and with focus on accuracy. • Making mechanisms and/or structures using sliders, pivots and folds to produce movement. • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. • Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.	
Structures		**Building Bridges** • Know what beams and pillars are and how they are used in bridge construction • Learn how to test the strength of different beam shapes using paper and card.	

Update what is being taught and split into substantive and disciplinary Design and Technology 24 - 25
Progression of Knowledge St Joseph's Catholic Primary School.

		• Be able to explain what a truss is and how trusses make bridges stronger. • Know how to identify the three types of trusses commonly used in bridge design. • Be able to use paper straws to build truss bridges • Know how arches work to make bridges stronger. • Be able to test and make an arch frame. • Be able to learn about how suspension bridges use tension forces to work. • Design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.	
Electrical	**Torches** • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. • Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria. • Evaluating electrical products. • Testing and evaluating the success of a final product.		**Steady Hand Game** • Designing a steady hand game, identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through sketching and discussion. • Modelling ideas through prototypes. • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. • Constructing a stable base for a game. • Accurately cutting, folding and assembling a net. • Decorating the base of the game to a high-quality finish. • Making and testing a circuit. • Incorporating a circuit into a base. • Testing their own and others' finished games, identifying what went well and making suggestions for improvement. • Gathering images and information about

Update what is being taught and split into substantive and disciplinary Design and Technology 24 - 25
Progression of Knowledge St Joseph's Catholic Primary School.

			existing children's toys. • Analysing a selection of existing children's toys.
Digital			**Navigating the World** • Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request. • Developing a product idea through annotated sketches. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combine one or more 3D objects, using CAD. • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they were chosen as part of a product concept • Programming an N,E, S,W cardinal compass. • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Developing an awareness of sustainable design • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept.

Design and Technology Progression of Knowledge St Joseph's Catholic Primary School.

	EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Food and Nutrition * Statements link to science	Understand that fruit and vegetables grow, and which ones we can grow at home	• Cut soft foods safely and hygienically using an appropriate tool. • Measure using measuring cups and spoons. • Assemble ingredients to make a simple recipe. • Discuss what a healthy and varied diet should look like, naming and sorting using the five main groups. * • Know where a range of fruits and vegetables come from. *	• Cut a range of foods safely and hygienically with an appropriate tool. • Measure ingredients using scales or jugs. • Follow recipes, starting to use techniques such as peeling, chopping, slicing, mixing, spreading, baking or kneading. • Cook using a pan or oven safely (with supervision and support). • Know where a wider range of foods come from. • Discuss the importance of a range of varied and nutritious foods. * • Discuss the importance of a balanced diet to provide energy for a healthy active lifestyle. *	• Discuss why we need to store and handle food hygienically (micro-organisms).* • Measure ingredients with a degree of accuracy using an appropriate measuring device. • Scale recipes up or down accordingly. • Design their own simple savoury recipes and test them. • Use a range of baking and cooking techniques with increasing confidence (e.g. boiling, frying, baking, grilling, steaming, roasting, microwaving) • Begin to explain why a recipe or meal is healthy or not, giving reasons based on their understanding.*
Analyse and Evaluate	• Enjoy looking at different products and designs. • Can say whether they like a product/design or not. • Identify materials used to make a product (e.g. plastic, metal, wood)	• Enjoy looking at different products and designs. • Can say whether they like a product/design or not. • Make a link between their work and a product. • Start to ask their own questions about a product or design.	• Can express an opinion about a product, giving simple reasons why. • Make simple comparisons between designers and products. • Begin to make links between key events and individuals in design and technology that have helped shape the world. • Discuss: what products are; who they are for; how they	• Express an opinion about a product, justifying reasons. • Make links between their work and the work of others, noting specific influences and techniques. • Explore: how well products have been designed and made; why materials have been chosen; what methods of construction have been used; how well products achieve their

			are made and what materials are used.	purpose.