

Design and Technology

Why do we teach DT?

At St Mary's Catholic Primary School, we teach DT to provide a rich and varied curriculum, which fulfils all requirements of the National Curriculum, whilst teaching a diverse range of high-quality lessons that support and challenge every pupil. It equips them with the tools to problem solve and be analytical and imaginative. Our spiral curriculum is designed to show a clear progression of skills. All staff understand DT is not stand-alone subject, but one that is an in-extricable part of our class topics and supports and enables a deeper learning across all subject areas, going hand in hand with our key school values. The inclusive nature of DT also allows pupils to understand they are part of a community, which can work together to achieve something fantastic. We believe that children's enjoyment in DT can act as a vehicle for building self-esteem and wellbeing in all children, including those with SEND.

How do we teach DT?

DT is an integral part of our curriculum and our core values as a school. Staff follow a spiral curriculum of work with clear learning objectives (WALTS), as set by the subject leader. Activities are carefully designed by teachers with a secure subject knowledge, in order to confidently deliver lessons that meet the learning objectives and ensure balance, breadth, continuity and progression. The children's creativity is enriched by and the six key areas: Structures; Mechanisms; Textiles; Electrical systems; Digital world; and Cooking and nutrition and four key strands: Design, Make, Evaluate, and Technical Knowledge. Our curriculum is designed to show a clear progression of skills. The children take pride in their journals which are used to plan, review and revisit ideas and provide them with the opportunity to celebrate their successes.

What do we want our children to achieve through their DT lessons?

Our purpose is to help equip children with the problem-solving skills to be able to work as part of a team and to inspire others. We want children to recognise the skills they gain in DT are integral and transferable. They enrich other curriculum areas, thus improving their confidence and enjoyment on a number of levels, in order that they can achieve their personal best and can go on to achieve in KS3 and beyond. Our curriculum is well resourced and allows pupils to gain an increasing amount of independence and ownership over their learning journey, using a variety of tools and techniques and methods of critical thinking which are invaluable skills for their future.

Where it all begins - laying the foundations for DT in EYFS

Autumn	Spring	Summer
<p>Structures: Junk Modelling Pupils explore and learn about various types of permanent and temporary joins. They are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.</p> <p>Hibernation box: Pupils walk around the school grounds and the teacher introduces the concept of hibernation and how it varies in different habitats. They then create a hibernation box and place it in a green space if desired.</p> <p>Continuous Provision Autumn Leaf Wreaths</p>	<p>Cooking and Nutrition: Soup Children explore the differences between fruits and vegetables using their senses (taste, texture, smell etc.). They listen to the story 'The best pumpkin soup' and discuss the key ingredients the characters used before developing a class-based vegetable soup recipe.</p> <p>Spring Flower weaving To use a range of tools and techniques to create a threaded spring flower.</p> <p>Continuous Provision</p>	<p>Textiles: Bookmarks (WBT) Pupils refresh their knowledge of fruits and vegetables and explore what it means to have a healthy balanced diet. They design their own rainbow salad combination.</p> <p>Making a rainbow salad Pupils refresh their knowledge of fruits and vegetables and explore what it means to have a healthy balanced diet. They design their own rainbow salad combination.</p> <p>Continuous Provision</p>

Vocabulary

Autumn -

Junk modelling- join, stick, cut, bend, slot, scissors, measure, materials, fix

Hibernation Boxes: season, weather, leaves, frost, cold, brown, crunchy, wet, hibernate, hibernation, dormouse, hedgehog, black bear, bumble bee, tortoise, frog, fish

Spring -

Cooking and Nutrition: Soup

fruit, vegetables, safety, knife, blade, tool, edge, handle, chop, slice, cut, saucepan, blender, chopping board, hob, boil, blend, mix, packaging, recyclable, metal, plastic, reusable

Spring Flower Threading

Thread, punch, pinch, push, pull, through, under, over, up, down, pattern

Summer -

Textiles: Bookmarks

Thread, weave, pattern, sew, sewing needle, embroider, design, evaluate

Making a Rainbow Salad

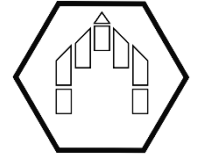

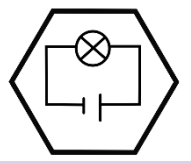



Healthy, balanced diet, healthy eating, healthy lifestyle, mind, body, brain, fruit and vegetable names

DT Curriculum – Big Ideas:

The Big Ideas are the key concepts

Pupils will develop an understanding of

They will learn how to

Structures	Mechanisms	Electrical Systems	Cooking and Nutrition	Textiles	Process, Design and Construction
					
<p>To critique, evaluate and test structures. Developing on the understanding that structures are made from a frame and a shell and that they can be strengthened by manipulating shapes and materials to create an object.</p>	<p>To develop the creative, technical and practical expertise of mechanisms and understand that mechanisms are a collection of moving parts that work together.</p>	<p>To build and apply a repertoire of knowledge around electrical systems. Building on the understanding that these systems allow the transfer of energy from power to source to cause a reaction. To also gain an understanding that for an electrical system to work, it must be a complete circuit.</p>	<p>Nutritional information explains what is in the food we are eating and helps us to understand the world around us. The principles of nutrition can be applied to help us cook.</p>	<p>Fabrics are joined together in many ways: sewing, stapling and gluing. Gaining an insight how different materials can impact the environment.</p>	<p>Produce creative work whilst exploring different concepts. Art journals can be used to record, review and revisit ideas.</p>

Year 1 Autumn: Mechanisms- Making a Moving Story Book Duration: 4 lessons

Autumn One Making a Moving Story Books Big Idea: Mechanisms



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Junk modelling in EYFS. Know that glue and sellotape can be used to join different materials together.	<ol style="list-style-type: none"> 1. As a Designer, I understand that mechanisms are a collection of moving parts. 2. As a Designer, I understand that a slider is a mechanism that allows things to move. 3. As a Designer, I know that the words up, down, left, right, vertical and horizontal describe movement. 	Moving Monsters (Y2) – further explore how different mechanisms can do a variety of different things.
Disciplinary Knowledge	Junk modelling in EYFS – create simple creations of work using cardboard, lolly sticks, glue, sellotape and paint.	<ol style="list-style-type: none"> 1. As a Designer, I can design a slider for a storybook for a specific audience by following a design plan. 2. As a Designer, I can follow a set of instructions to construct a working slider. 3. As a Designer, I know the importance of testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed or made more suitable for purpose next time. 	Ferris Wheel (Y2) – learning how to create stable structures for moving mechanisms.
Vocabulary	assemble, design, evaluation, mechanism, model, sliders, stencil, target audience, template, test		
Mission Advocate SJA	<i>How can our slider help tell a story which reflects our CAFOD values?</i>		

Year 1 Spring: Wheels and Axles

Duration: ½ term

Big Idea: Mechanisms



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Junk modelling in EYFS. Know that materials can be stuck together to create creations.	<ol style="list-style-type: none"> 1. As a Designer, I know that mechanisms are a collection of moving parts that work together. 2. As a Designer, I understand that wheels move because they are attached to an axle. 3. As a Designer, I know that wheels and axles are used in everyday life, not just in cars. 	Moving Monsters (Y2) and Ferris Wheel (Y2): Apply this knowledge to help a Ferris Wheel to remain stable while moving effectively.
Disciplinary Knowledge	Y1 Storybooks – using simple mechanisms to create moving parts.	<ol style="list-style-type: none"> 1. As a Designer, I can identify and explain vehicle design flaws using the correct vocabulary and use this to inform the development of your final product. 2. As a Designer, I can design a vehicle that includes functioning wheels, axles and axle holders. 3. As a Designer, I can make a moving vehicle with working wheels and axles. 4. As a Designer, I can explain and reflect about what must be changed if there are any operational issues. 	Moving Monsters (Y2) and Ferris Wheel (Y2): Apply this knowledge to help a Ferris Wheel to remain stable while moving effectively.
Vocabulary	Axle, axle holder, chassis, diagram, dowel equipment, mechanism, wheel.		
Mission Advocate SJA	<i>What everyday materials can we re-use and re-cycle?</i>		

Year 1 Summer: Nutrition Fruit and Vegetables

Duration: 4 lessons

Big Idea: Cooking and Nutrition



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Foundation: Cooking and Nutrition- Soup Making a Rainbow Salad. Know that different foods can be different colours.	<ol style="list-style-type: none"> 1. As a Designer, I know and can name a range of fruits and vegetables. 2. As a Designer, I understand that fruits and vegetables are nutritious and an important part of a healthy diet. 3. As a Designer, I know where and how some fruits and vegetables grow, and what that can tell us about the world around us. 	Y2 Making a healthy wrap – understanding that some foods are healthier than others.
Disciplinary Knowledge	Foundation: Cooking and Nutrition- Soup Making a Rainbow Salad. Combining different foods together.	<ol style="list-style-type: none"> 1. As a Designer, I know how to chop foods safely and follow a set of instructions to make soup. 2. As a Designer, I can taste and evaluate different food combinations. 3. As a Designer, I can describe the appearance, smell and taste of different fruits and vegetables. 4. As a Designer, I can reflect and suggest information to be included on the packaging. 	Y2 Healthy Wrap – Choosing and using healthy food choices to make a wrap.
Vocabulary	Blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable, healthy, balanced diet, healthy eating, healthy lifestyle, mind, body, brain, fruit and vegetable names.		
Mission Advocate SJA	<i>How can we select nutritious food which also reduces the potential environmental impact?</i>		

Resources

Blender, Cucumbers, tomatoes, bananas, potato, onions, spinach leaves (250g bag), carrots, paper plates, sugar paper sheets (A2 - coloured) or large plastic hoops Post-it note sheets
Fruit and vegetable selection to discuss as a class (ideally that can or are be grown in your area. For example: bell peppers, oranges, apples, broccoli, onions, carrots
Smoothie ingredients — Recipe 1: carrots, pineapples, mango

Year 2 Autumn: Moving Monsters

Duration: 4 lessons

Big Idea: Mechanisms



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Wheels and Axles and Making a Moving Story Book (Y1). Understanding how to fix parts together to create simple mechanisms.	<ol style="list-style-type: none"> 1. As a Designer, I know that mechanisms are a collection of moving parts that work together as a machine to produce movement. 2. As a Designer, I know that there is always an input and an output in a mechanism. 3. As a Designer, I know that an input is the energy that is used to start something working. 4. As a Designer, I know that an output is the movement that happens as a result of the input. 5. As a Designer, I know that a lever is something that turns on a pivot. 6. As a Designer, I know that a linkage mechanism is made up of a series of levers. 	Ferris Wheel (Year 2) Where they have to apply this knowledge to help a Ferris Wheel to remain stable while moving effectively.
Disciplinary Knowledge	Wheels and Axles and Making a Moving Story Book (Y1). Fixing parts together to create simple mechanisms and evaluating effectiveness.	<ol style="list-style-type: none"> 1. As Designers, we can create a design criteria for a moving monster as a class. 2. As a Designer, I can design a moving monster for a specific audience in accordance with a design criteria. 3. As a Designer, I can make linkages using card for levers and split pins for pivots. 4. As a Designer, I can experiment with linkages adjusting the widths, lengths and thicknesses of card used. 5. As a Designer, I can cut and assemble components neatly. 	Y2 Ferris Wheel – Create a moving but stable structure.

		6. As a Designer, I can evaluate my own designs against design criteria. 7. As a Designer, I can use peer feedback to modify a final design.	
Vocabulary	evaluation, input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, rotary motion, survey		
Mission Advocate SJA	<i>What materials and resources can we re-use to produce minimal impact to the environment?</i>		

Year 2 Spring: Healthy Wrap

Duration: 6 lessons

Big Idea: Cooking and Nutrition



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Cooking and Nutrition- Fruit and Vegetables (Y1) – Knowing how to make a healthy soup.	<ol style="list-style-type: none"> 1. As a Designer, I know how to chop and grate foods safely and spread soft foods on a wrap. 2. As a Designer, I know the five food groups and know these are an essential part of a balanced diet. 3. As a Designer, I know how to describe taste, texture and smell using appropriate language. 4. As a Designer, I understand what the term 'target market' means and how this affects chosen recipe selection. 	Eating Seasonally- Food Tech unit (Y3) Learning how to choose food that is in season and the benefits that this brings.
Disciplinary Knowledge	Y1 Fruit and Vegetables – Combining healthy options to create a healthy soup.	<ol style="list-style-type: none"> 1. As a Designer, I can create a wrap based on the concept of 'target market.' 2. As a Designer, I can evaluate (giving a score) whether certain flavour combinations were effective and whether it was suitable for the target market, the effectiveness of the taste, smell and whether it was nutritious and suitable for the target market. 3. As a Designer, I can reflect on what changes I would make if I repeated the recipe. 	Y3 Eating Seasonally – Being able to combine both healthy and seasonal choices when creating a product.
Vocabulary	alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute		

**Mission
Advocate
SJA**

How can we make a nutritious wrap to help children (the target market) enjoy a healthy snack?

Year 2 Summer: Ferris Wheel

Duration: 4 lessons

Big Idea: Mechanisms



Year 2 Sum	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Moving Monsters (Y2) learning about the different types of mechanisms that can move parts in a product.	<ol style="list-style-type: none"> 1. As a Designer, I understand what a linkage system is, and know the importance of selecting and choosing appropriately to produce the desired motions. 2. As a Designer, I know the key parts that enable a wheel to function. 3. As a Designer, I know the importance of selecting appropriate materials based on their properties. 	Constructing a Castle (which will become Iron Man Y3) to learn about stable structures.
Disciplinary Knowledge	Moving Monsters (Y2) learning about the different types of mechanisms that can move parts in a product.	<ol style="list-style-type: none"> 1. As a Designer, I can follow a design brief and make. 2. As a Designer, I evaluate different designs and select the most appropriate final design. 3. As a Designer, I can test and adapt design appropriately based on new knowledge after construction. 	Y3 Iron Man – Learning techniques how to stabilise structures.
Vocabulary	axle, decorate, evaluation, Ferris Wheel, mechanism, stable, strong, test, waterproof, weak		
Mission Advocate SJA	<i>How can we create a design which is as environmentally sustainable as possible?</i>		

Year 3 Autumn: Cushions Duration: 5 lessons

Big Idea: Textiles



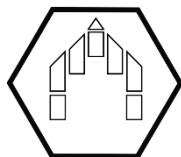
	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Y1 ART Woven Wonders - As an Artist, I know how to measure lengths of wool and join wool sections together.	<ol style="list-style-type: none"> 1. As a Designer, I know that fabrics are joined together in many ways. 2. As a Designer, I know how to thread a needle and tie knots more independently. 3. As a Designer, I know how to cross stitch, applique, add beads or other embellishment, and use pinking scissors to join and decorate fabric. 4. As a Designer, I know the importance of selecting and cutting fabric carefully. 5. As a Designer, I know a deeper range of techniques that can enhance my designs. 	Y5 Textiles Stuffed Toys – Learning about different stitches and applique techniques.
Disciplinary Knowledge	Y1 ART Woven Wonders - As an Artist, I can select and prepare materials for weaving – considering colour, thickness and flexibility.	<ol style="list-style-type: none"> 1. As a Designer, I can plan a cushion design to demonstrate new techniques that I have learnt. 2. As a Designer, I can cut fabric accurately. 3. As a Designer I can decorate the outside of cushion using a range of stitches, applique and embellishments. 4. As a Designer, I can assemble cushion, sew it together and then evaluate my work. 	Y5 Stuffed Toys – creating shaped designs with embellishments.

Vocabulary	Accurate, applique, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template
Mission Advocate SJA	<i>Can we learn techniques which can help us to repair items or create our own, rather than buy more and waste more?</i>

Year 3 Spring: Constructing a castle becomes: Constructing Iron Man

Duration: 4 weeks

Big Idea: Structures



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Ferris Wheel (Y2) – learning how to create stable but moving designs.	<ol style="list-style-type: none"> 1. As a Designer, I understand how to draw a structure to be assembled. 2. As a Designer, I understand how to strengthen a structure to meet a design brief. 3. As a Designer, I know the properties of a range of materials and how they can be used for an intended purpose. 	Pavillion Structures & Designing a Torch (Y4) – learning how to create a stable structure for a product.
Disciplinary Knowledge	Moving Monsters & Ferris Wheel (Y2) – Creating designs and products with moving mechanisms.	<ol style="list-style-type: none"> 1. As a Designer, I can design an Iron Man with key features to appeal to a specific person/purpose. 2. As a Designer, I can draw and label an Iron Man design using 2D shapes and 3D geometric nets. 3. As a Designer, I can design and decorate my Iron Man using CAD software. 4. As a Designer, I can evaluate a product based on aesthetics, compared to design and suggest future alterations. 	Y4 Pavillions – Creating a product with a strong structure whilst being visually appealing.
Vocabulary	2D shapes, 3D shapes, Iron Man, design criteria, evaluate, façade, feature, flag, net, recyclable, scoring, stable, strong , structure, tab, weak		
Mission Advocate SJA	<i>How can we re-use a range of packaging and other rubbish materials effectively?</i>		

Year 3 Summer: Eating Seasonally

Duration: 6 Lessons

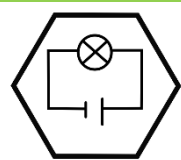
Big Idea: Cooking and Nutrition



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Y2 Healthy Wrap – Learning what foods are healthy choices and how they are grown.	<ol style="list-style-type: none"> 1. As a Designer, I know about food that is grown locally and how climate and season affects this. I know the impact this has on the environment. 2. As a Designer, I can taste and use seasonal food in order to inform preferences when cooking. 3. As a Designer, I know how to select ingredients partly based on knowledge of nutrition. 	Adapt a recipe (Y4) – Understanding the key elements to a recipe and how these can be changed for different reasons.
Disciplinary Knowledge	Y2 Healthy Wrap – Combining flavour and healthy choices to create wrap.	<ol style="list-style-type: none"> 1. As a Designer, I can create a puff pastry tart using seasonal ingredients. 2. As a Designer, I can evaluate the choices I made, and the taste and look of the end product, based on the design brief. 	Y4 Adapt a recipe – Changing and trying out recipes.
Vocabulary	Eating seasonally, climate, dry climate, exported, imported, Mediterranean climate, nationality, nutrients, Polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate		
Mission Advocate SJA	<i>How can we all be more proactive in eating locally and seasonally, to reduce the environmental impact of our food consumption?</i>		

Year 4 Autumn: Design and make a Torch Duration: 4 lessons

Big Idea: Electrical Systems



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Constructing a Castle (Iron Man) Y3 - learning the importance of structure for a product. Y4 Science electricity unit – parts of a circuit.	<ol style="list-style-type: none"> 1. As a Designer, I know and understand key terms in electrical systems, and how a battery contains stored energy. 2. As a Designer, I understand that these systems allow the transfer of energy from power to source to cause a reaction. 3. As a Designer, I understand that for an electrical system to work, it must be a complete circuit and that a switch can be used to complete or break a circuit. 	Y6 Electrical Systems- Steady Hand Game: learning how to create different parts to the game by altering the circuit.
Disciplinary Knowledge	Can create a working electrical circuit in Y4 Science Electricity.	<ol style="list-style-type: none"> 1. As a Designer, I can make a circuit with one or more switches, batteries and lights. 2. As a Designer, I can reflect and suggest changes which could be made and assess the aesthetics for the function of a torch. 	Y6 Steady Hand Game – Using the circuit to create different effects.
Vocabulary	Design and make a torch battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electronic item, function, insulator, series circuit, switch, test, torch, wire		
Mission Advocate SJA	<i>How can light be used to enhance worship? What meaning does light carry?</i>		

Year 4 Spring: Adapt a Recipe

Duration: 6 weeks

Big Idea: Cooking and Nutrition

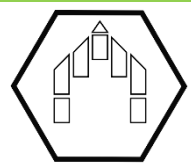


	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Eating Seasonally (Y3) – learning about different foods that are available in different seasons. Y2 Healthy Wrap – to know about healthy food choices.	<ol style="list-style-type: none"> 1. As a Designer, I know the principles of nutrition and how this can be applied to the food we eat. 2. As a Designer, I understand that the food around us tells us something about the world we live in. 3. As a Designer, I know that a recipe gives us step-by-step instructions. 	Cooking and Nutrition: What could be Healthier? (Y5) – learning more about food safety and cross-contamination.
Disciplinary Knowledge	Y3 Eating Seasonally – Learning about what food grows when and how to follow a simple recipe to create a product.	<ol style="list-style-type: none"> 1. As a Designer, I can evaluate a range of biscuits, considering target audience and use that to inform design choice. 2. As a Designer, I can create a design for the biscuits and make, following health and safety guidelines 3. As a Designer, I can follow a recipe. 4. As a Designer, I can test products and suggest future modifications. 	Y5 What could be Healthier? – applying principles of food safety to handle different ingredients.
Vocabulary	Adapt, budget, cooling rack, creaming, equipment, evaluation, flavour, ingredients, method, net, packaging, prototype, quantity, recipe, rubbing, sieving, target audience, unit of measurement, utilities		
Mission Advocate SJA	<i>How can we source foods locally, to minimise the environmental impact and help fund local businesses?</i>		

Year 4 Summer: Pavilion Structures

Duration: 4 Weeks

Big Idea: Structures



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Constructing a Castle (Iron Man) (Y3) and A Ferris Wheel (Y2) – knowing how to create stable structures to support a product.	<ol style="list-style-type: none"> 1. As a Designer, I understand that structures are made from a frame and shell, and that they can be strengthened by manipulating shapes and materials. 2. As a Designer, I know a 'free standing structure' is one that can stand alone. 3. As a Designer, I know that evaluating and testing other structures can be used to inform design. 4. As a Designer, I know that cladding can be added to the outside of a structure for a purpose. 5. As a Designer, I know that aesthetics mean how something looks. 	Y6 Automata toys – learning how to maintain a rigid structure even when force is applied.
Disciplinary Knowledge	Constructing a Castle (Iron Man) (Y3) and A Ferris Wheel (Y2) – creating structures that will stand strong.	<ol style="list-style-type: none"> 1. As a Designer, I can plan and design a Pavilion structure which is free standing, with cladding. 2. As a Designer, I can build a Pavilion Structure with cladding, which is stable, considering how to join each component effectively. 3. As a Designer, I can review my final product and suggest future improvements. 	Y6 Automata toys – creating moving parts that can be interacted with.
Vocabulary	Aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme		

**Mission
Advocate
SJA**

***Why doesn't everyone in the world have a home or sheltered place to live?
How can we show our gratitude for having a roof over our heads?***

Year 5 Autumn: Pop-Up Books

Duration: 4 weeks

Big Idea: Mechanisms



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Moving Monsters (Y2) and Ferris Wheel (Y2) – learning how to create moving mechanisms.	<ol style="list-style-type: none">1. As a Designer, I know that a structure created from a frame can be strengthened by manipulating shapes and materials.2. As a Designer, I know the importance of critiquing, evaluating and testing structures.3. As a Designer, I have the creative, technical and practical expertise to understand that mechanisms are a collection of moving parts that work together.4. As a Designer, I understand that mechanisms can be used to change one kind of motion into another.5. As a Designer, I understand how to use sliders, pivots and folds to create paper-based mechanisms.6. As a Designer, I know that a design brief is a description of what I am going to design and make.7. As a Designer, I know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	Mechanical systems Automata Toys (Y6) – Learning how to combine mechanisms with applied force.

Disciplinary Knowledge	Y4 Pavilions – Using cladding to hide structures and make a product more visually appealing.	<ol style="list-style-type: none"> 1. As a Designer, I can create a design brief. 2. As a Designer, I can follow brief and make a product. 3. As a Designer, I can make a product with a range of moving mechanisms. 4. As a Designer, I can add layers and spacers to ensure technical parts are covered and it is aesthetically pleasing. 5. As a Designer, I can assess a design against target market, reflecting on changes for an improved design if reconstructed. 	Y6 Automata toys – Creating aesthetic products to appeal to a target audience.
Vocabulary	Aesthetic, computer-aided design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template		
Mission Advocate SJA	<i>Can the theme of the pop -up book be something which teaches children useful values in a child centered way?</i>		

Year 5 Spring: What could be Healthier? Duration: 6 Weeks

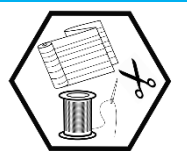
Big Idea: Cooking and Nutrition



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Y2 Healthy Wrap, Y3 Eating Seasonally & Y4 Adapt a Recipe – Learning how to make healthy choices and make changes in recipes.	<ol style="list-style-type: none"> 1. As a Designer, I understand that nutritional information explains what is in the food we are eating, and helps us to understand the world around us and looking in detail at the ‘farm to fork process.’ 2. As a Designer, I understand more about nutrition and how principles of nutrition can be applied to help us cook and select alternative ingredients. 3. As a Designer, I understand the processes of safe cooking practice, with a focus on cross contamination. 	Cooking and Nutrition: Come Dine with me (Greek Themed) (Y6) – learning about farm to fork.
Disciplinary Knowledge	Y4 Adapt a Recipe – Making simple adaptations to a recipe to make it healthier.	<ol style="list-style-type: none"> 1. As a Designer, I can adapt recipes to improve, with special focus on nutritional content. 2. As a Designer, I can prepare ingredients using safe hygiene and cooking practices. 3. As a Designer, I can design an appropriate label for the product, including nutritional content. 4. As a Designer, I can make a healthy and safe product. 	Y6 Come Dine with me – Writing recipes based on world cuisine.
Vocabulary	Beef, cross-contamination, diet, ethical issues, farm, healthy, Ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare		
Mission Advocate SJA	<i>How can we use our new knowledge of the ‘farm to fork’ concept to plan recipes which encourage greater sustainability?</i>		

Year 5 Summer: Stuffed Toys Duration: 4 Weeks

Big Idea: Textiles



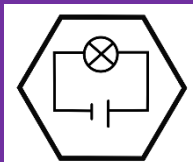
	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Textile Art: Cushions (Y3) – Learning how to join fabrics together using stitching.	<ol style="list-style-type: none"> 1. As a Designer, I know that fabrics are joined together in many ways: sewing, stapling and gluing. 2. As a Designer, I understand how different materials can impact the environment. 3. As a Designer, I know how to measure, mark and cut fabric, cutting it accurately and independently. 4. As a Designer, I know that strong blanket stitches can be used to join fabric and know how to stitch these. 5. As a Designer, I know how to thread a needle safely and independently. 6. As a Designer, I know how to use appliqué to attach pieces of fabric together. 	KS3 Design Technology: Textiles
Disciplinary Knowledge	Textile Art: Cushions (Y3) – Creating a product by joining and embellishing fabrics.	<ol style="list-style-type: none"> 1. As a Designer, I can design a stuffed toy to demonstrate a variety of stitching techniques. 2. As a Designer, I can join fabrics using a blanket stitch and then create details and add embellishments. 3. As a Designer, I can assemble a product using a variety of techniques. 	KS3 Design Technology: Textiles

Vocabulary	Accurate, annotate, blanket-stitch, design criteria, detail, embellishment, evaluation, fabric, sew, shape, stuffed, stuffing, template
Mission Advocate SJA	<i>Can we create a product useful in an RE display or to demonstrate our 8 bees (our school values)?</i>

Year 6 Autumn: Steady Hand Game

Duration: 4 Weeks

Big Idea: Electrical Systems



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	<p>Design and Make a Torch (Y4) – Knowing the parts of electrical systems to create a working torch.</p> <p>Mechanical Pop up Systems (Y5) – Know how to create a strong but moving structure.</p>	<ol style="list-style-type: none"> 1. As a Designer, I know that for an electrical system to work, it must be a complete circuit. 2. As a Designer, I understand that these systems allow the transfer of energy from power to source to cause a reaction. 3. As a Designer, I know how to use a net for a structure and how to strengthen a structure by manipulating shapes and materials to create an object. 	<p>KS3- electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge □ potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current □ differences in resistance between conducting and insulating components.</p>
Disciplinary Knowledge	<p>Design and Make a Torch (Y4) – Using the parts of electrical systems to create a working torch.</p>	<ol style="list-style-type: none"> 1. As a Designer, I can research and analyse children’s toys. 2. As a Designer, I can design a steady hand game targeted to be appealing for children. 3. As a Designer, I can construct a stable base. 4. As a Designer, I can construct a game, ensuring the circuit is complete. 	<p>KS3</p>

Vocabulary	Assemble, battery, battery pack, benefit, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, fine motor skills, fit for purpose, form, function, gross motor skills, insulator, LED, user
Mission Advocate SJA	<i>How can we create an electrical product for children, using lower power options or recycled materials?</i>

Year 6 Spring / Summer: Cooking – Come Dine With Me Duration: 4 weeks

Big Idea: Cooking and Nutrition



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Cooking and Nutrition: What Could be Healthier? (Y5) Learning what foods are healthy and how to avoid cross-contamination.	<ol style="list-style-type: none"> 1. As a Designer, I know what makes a recipe workable, and considers nutritional information, with some understanding of where food comes from. 2. As a Designer, I know how to prepare a recipe using a variety of cooking techniques. 3. As a Designer, I understand key guidelines on how to cook safely and know how to avoid cross contamination. 4. As a Designer, I know that we can evaluate a recipe by considering: taste, smell, texture and origin of the food group and health and safety. 	KS3
Disciplinary Knowledge	Cooking and Nutrition: What Could be Healthier? (Y5) Using a recipe to make a product.	<ol style="list-style-type: none"> 1. As a Designer, I can research and design a three-course meal, with some consideration of where food comes from, watching the 'Slippery Salmon Food to Fork.' 2. As a Designer, I can write a recipe using the correct terminology, for example imperative verbs. 3. As a Designer, I can compile utensils efficiently and create the recipe safely, with some consideration of aesthetics. 4. As a Designer, I can taste and evaluate the effectiveness of a product and recipe instructions. As a Designer, I can research and design a three-course meal, with some consideration of where food comes from, watching the 'Slippery Salmon Food to Fork.' 	KS3

Vocabulary	Accompaniment, collaboration, cookbook, cross-contamination, equipment, farm, flavour, illustration, imperative-verb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, target audience, top tips
Mission Advocate SJA	<i>How can we help others to eat a healthy nutritious diet, filled with delicious food?</i>

Year 6 Summer: Mechanisms Automata Toys Duration: 4 Weeks

Big Idea: Mechanisms



	Prior Knowledge	New Knowledge to be explicitly taught (Including 3 Keys)	Future Knowledge How knowledge will be built upon
Substantive Knowledge	Pop-up Book (Y5) – Know how a variety of mechanisms can be used to make different moving parts.	<ol style="list-style-type: none"> 1. As a Designer, I understand that mechanisms are a collection of moving parts that work together. 2. As a Designer, I know how to create a stable frame, with strong joins and the correct direction of force. 3. As a Designer, I know how to manipulate shape and materials to create better stability. 4. As a Designer, I know to critically analyse a structure and make alterations. 	KS3
Disciplinary Knowledge		<ol style="list-style-type: none"> 5. As a Designer, I can research a range of products and select appropriate materials for my own design. 6. As a Designer, I can assemble a stable product. 7. As a Designer, I can experiment with cams. 8. As a Designer, I can complete the making of a product, test it, and evaluate it. 	KS3

Vocabulary	Accurate, assembly-diagram, automa, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits , exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square • Tenon Saw
Mission Advocate SJA	<i>How can we make toys more sustainable?</i>