DT vision statement

INTENT:

At All Saints, by nurturing hearts and inspiring minds, we encourage all pupils to shine in everything they do in Design and Technology.

The Design and technology scheme of work aims to inspire pupils to be innovative and creative thinkers who have an appreciation for the product design cycle through ideation, creation, and evaluation. We want pupils to develop the confidence to take risks, through drafting design concepts, modelling, and testing and to be reflective learners who evaluate their work and the work of others. Through our scheme of work, we aim to build an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.

Our Design and technology scheme of work enables pupils to meet the end of key stage attainment targets in the National curriculum and the aims also align with those in the National curriculum. EYFS (Reception) units provide opportunities for pupils' to work towards the Development matters statements and the Early Learning Goals.

Our intent is to inspire children and young people to create, experience, and participate in great arts and culture.

IMPLEMENTATION:

The Design and technology National curriculum outlines the three main stages of the design process: design, make and evaluate. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical, and technical understanding required for each strand. Cooking and nutrition* has a separate section, with a focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality.

The National curriculum organises the Design and technology attainment targets under four subheadings: Design, Make, Evaluate, and Technical knowledge. We have taken these subheadings to be our Primary strands:

- Design
- Make
- Evaluate
- Technical knowledge

All Saints' Design and technology scheme has a clear progression of skills and knowledge within these strands and key areas across each year group.

Cooking and nutrition is given a particular focus in the National curriculum and we have made this one of our six key areas that pupils revisit throughout their time in primary school:

- Cooking and nutrition
- Mechanisms/ Mechanical systems
- Structures
- Textiles
- Electrical systems (KS2 only)
- Digital world (KS2 only)

Our National curriculum overview shows which of our units cover each of the National curriculum attainment targets as well as each of the four strands.

Our Progression of skills shows the skills and knowledge that are taught within each year group and how these skills develop to ensure that attainment targets are securely met by the end of each key stage.

Through All Saints' Design and technology scheme, pupils respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in the six key areas.

Each of our key areas follows the design process (design, make and evaluate) and has a particular theme and focus from the technical knowledge or cooking and nutrition section of the curriculum. The All Saints scheme is a spiral curriculum, with key areas revisited again and again with increasing complexity, allowing pupils to revisit and build on their previous learning.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work including practical hands-on, computer-based and inventive tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.

Strong subject knowledge is vital for staff to be able to deliver a highly effective and robust Design and technology curriculum. Each unit of lessons includes multiple teacher videos to develop subject knowledge and support ongoing CPD. The All Saints Design and technology scheme has been created with the understanding that many teachers do not feel confident delivering the full Design and technology curriculum and every effort has been made to ensure that they feel supported to deliver lessons of a high standard that ensure pupil progression.

Design and Technology is taught half termly in descreat lessons. Class teachers are usually responsible for teaching design technology, although there will be times when professional artists/helpers will be involved in the teaching of the topic. We take every opportunity to develop links with outside agencies and experts, including the local high school, in order to enrich our Design and Technology provision.

IMPACT:

Our children enjoy the self-expression that they experience in Design and Technology. They are always keen to learn new skills and work hard to perfect those shown to them. The children's Design and Technology is very often cross-curricular, and helps them to express feelings and emotions in Design and Technology, as well as show their knowledge and understanding in history, geography and science.
Through their Design and Technology, the children are able to reach out into the wider community, with our pupil's work proudly displayed around the school.

The impact of Kapow Primary's scheme can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives. Furthermore, each unit has a unit quiz and knowledge catcher which can be used at the start and/ or end of the unit.

After the implementation of Kapow Primary Design and technology, pupils should leave school equipped with a range of skills to enable them to succeed in their secondary education and be innovative and resourceful members of society.

The expected impact of following the Kapow Primary Design and technology scheme of work is that children will:

- Understand the functional and aesthetic properties of a range of materials and resources.
- Understand how to use and combine tools to carry out different processes for shaping,
- decorating, and manufacturing products.
- Build and apply a repertoire of skills, knowledge and understanding to produce high
- quality, innovative outcomes, including models, prototypes, CAD, and products to fulfil the needs of users, clients, and scenarios.
- Understand and apply the principles of healthy eating, diets, and recipes, including key processes, food groups and cooking equipment.
- Have an appreciation for key individuals, inventions, and events in history and of today that impact our world.
- Recognise where our decisions can impact the wider world in terms of community, social and environmental issues.
- Self-evaluate and reflect on learning at different stages and identify areas to improve.
- Meet the end of key stage expectations outlined in the National curriculum for Design and technology.
- Meet the end of key stage expectations outlined in the National curriculum for
- Computing.

SMSC

(to be developed in all lessons)

Spiritual: Explore beliefs and experience; respect faiths, feelings and values; enjoy learning about oneself, others and the surrounding world; use imagination and creativity; reflect.
Moral: Recognise right and wrong; respect the law; understand consequences; investigate moral and ethical issues; offer reasoned views.
Social: Use a range of social skills; participate in the local community; appreciate diverse viewpoints; participate, volunteer and cooperate; resolve conflict; engage with the **'British values'** of democracy, the rule of law, liberty, respect and tolerance.
Cultural: Appreciate cultural influences; appreciate the role of Britain's parliamentary system; participate in culture opportunities; understand, accept, respect and celebrate diversity.

BRITISH VALUES

(to be developed in all lessons)

The teaching of Design and Technology offers an unique opportunity to explore the evolution of the core british values in the creating and evaluating of end products. Children will have the opportunity to:

Democracy - The children must take the views and opinions into account but still have the right to make their own choices.To take turns both in speech and practically with others. To understand that it is not always possible or right to have their own way and understand the value of compromise.

The rule of law - To understand the importance of safety rules when using tools. To understand and accept that if these rules are not followed that there are consequences to this.

Individual liberty - To understand that there are able to listen to others but can use their own ideas and design choices when making an artefact. To accept that others ideas may not be the same as their own but are able to accept this.

Tolerance - To tolerate ideas from others that are different to their own. To understand that many great design ideas originate from other cultures.

Mutual Respect - To listen to and consider the ideas and opinions of others even if they differ from your own. To be able to take turns during discussions to resolve difficulties or make decisions. To offer supportive comments in evaluations that will improve learning outcomes in a way that is objective but ensitive to the listener.

Progression of skills and knowledge

Progression of skills and knowledge — **Structures**

		EYFS (Reception)	
		Junk modelling	Boats
Skills	Design	• Making verbal plans and material choices. • Developing a junk model.	• Designing a junk model boat. • Using knowledge from exploration to inform design.
	Make	• Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together.	• Making a boat that floats and is waterproof, considering material choices.
	Evaluate	• Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model.	• Making predictions about, and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves.
Knowledge	Technical	• To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model.	• To know that 'waterproof' materials are those which do not absorb water.
	Additional		• To know that some objects float and others sink. • To know the different parts of a boat.

Progression of skills and knowledge — **Structures**

		Year 1	Year 2
		Constructing a windmill	Baby bear's chair
Skills	Design	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design.	• Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects.
	Make	• Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure.	• 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.
	Evaluate	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure.
Knowledge	Technical	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together.	• To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • 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. • To know that a 'stiff' structure or material is one which does not bend easily.
	Additional	• To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.

Progression of skills and knowledge

Structures

		Year 3	Year 4
		Constructing a castle	Pavilions
Skills	Design	• Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. • Designing and/or decorating a castle tower on CAD software.	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight.
	Make	• Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials.	• Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials.
	Evaluate	• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs.	•Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.
Knowledge	Technical	• To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures.	• To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.
	Additional	• To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable to withstand enemy attack. • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product.	• To know that a pavilion is a a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing.

Progression of skills and knowledge

Structures

		Year 6
		Playgrounds
Skills	Design	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
	Make	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures.
	Evaluate	• Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure.
Knowledge	Technical	• To know that structures can be strengthened by manipulating materials and shapes.
	Additional	• To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.

Progression of skills and knowledge

Mechanisms / mechanical systems

		Year 2	
		Fairground wheel	Making a moving monster
Skills	Design	• Selecting a suitable linkage system to produce the desired motion. • Designing a wheel.	• Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria.
	Make	• Selecting materials according to their characteristics. • Following a design brief.	• 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.
	Evaluate	• Evaluating different designs. • Testing and adapting a design.	• Evaluating own designs against design criteria. • Using peer feedback to modify a final design.
Knowledge	Technical	• To know that different materials have different properties and are therefore suitable for different uses.	• 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 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.
	Additional	• To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur.	• To know some real-life objects that contain mechanisms.

Progression of skills and knowledge

Mechanisms / mechanical systems

		Year 4	Year 5
		Making a slingshot car	Making a pop up book
Skills	Design	• 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.	• 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.
	Make	• Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.	• 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.
	Evaluate	• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.
Knowledge	Technical	• 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.	• 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.
	Additional	• To understand that products change and evolve over time. • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. •To know that it is important to assess and evaluate design ideas and models against a list of design criteria.	• 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.

Progression of skills and knowledge

Electrical systems (KS2 only)

		Year 4	Year 5
		Torches	Doodlers
Skills	Design	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user.
	Make	• 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.	• Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product.
	Evaluate	• Evaluating electrical products. • Testing and evaluating the success of a final product.	• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.
Knowledge	Technical	• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.	• To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function.
	Additional	• To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.	• To know that product analysis is critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged.

Progression of skills and knowledge

Cooking and nutrition

		Year 1	Year 3
		Fruit and vegetables	Eating seasonally
Skills	Design	• Designing smoothie carton packaging by-hand or on ICT software.	• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.
	Make	• Chopping fruit and vegetables safely to make a smoothie. • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow.	• Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe.
	Evaluate	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.	• Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart.
Knowledge		• Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	• To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food which has been brought into the country. • To know that exported food is food which has been sent to another country.. • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits.

Progression of skills and knowledge

Cooking and nutrition

		Year 5
		What could be healthier?
Skills	Design	• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe.
	Make	• Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe.
	Evaluate	• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.
Knowledge		• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.

Progression of skills and knowledge

Textiles

		EYFS: Reception	Year 1	Year 6
		Bookmarks	Puppets	Waistcoats
Skills	Design	• Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials.	• Using a template to create a design for a puppet.	• Designing a waistcoat in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.
	Make	• Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading.	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction.	• Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric without creases or bulges. • Marking and cutting fabric accurately, in accordance with their design. • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a waistcoat, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches.
	Evaluate	• Reflecting on a finished product and comparing to their design.	• Reflecting on a finished product, explaining likes and dislikes.	• Reflecting on their work continually throughout the design, make and evaluate process.
Knowledge		• To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object.	• 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. • 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 understand that it is important to design clothing with the client/ target customer in mind. • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. • To understand the importance of consistently sized stitches.

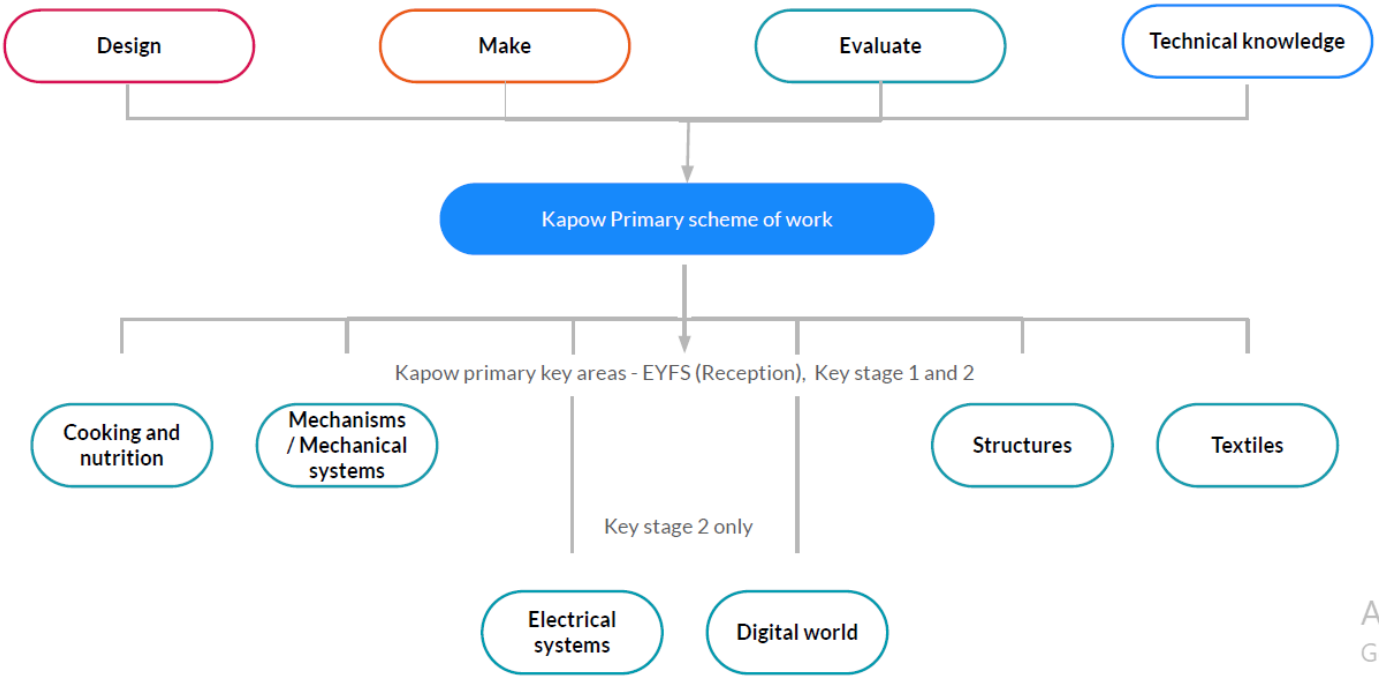
Progression of skills and knowledge

Digital world (KS2 only)

		Year 3	Year 6
		Electronic charm	Navigating the world
Skills	Design	• Problem solving by suggesting potential features on a Micro: bit and justifying my ideas • Developing design ideas for a technology pouch • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge	• Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool • 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
	Make	• Using a template when cutting and assembling the pouch • Following a list of design requirements • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch • Applying functional features such as using foam to create soft buttons	• 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
	Evaluate	• Analysing and evaluating an existing product • Identifying the key features of a pouch	• 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 • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client's request and how it will benefit the customers • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • 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
Knowledge	Technical	• To understand that in programming a 'loop' is code that repeats something again and again until stopped • To know that a Micro:bit is a pocket-sized, codeable computer • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm	• 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
	Additional	•To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result •To know that in Design and technology the term 'smart' means a programmed product •To know the difference between analogue and digital technologies • To understand what is meant by 'point of sale display' • To know that CAD stands for Computer-aided design	• 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

National Curriculum coverage

All Saints offers full coverage of the KS1 and KS2 Design and technology curriculum and we have categorised our content into six areas, with four strands that run throughout:



Oveview:

	Cooking and nutrition	Mechanisms	Structures	Textiles	Electrical systems	Digital world
Aside from Electrical systems and Digital world, which are taught in KS2 only, each of these acts as the focus for a unit within each year group						
EYFS (Reception)	Soup		Boats Junk modelling	Bookmarks		
Year 1	Fruit and vegetables Smoothie	Moving storybook Wheels and axles	Windmills	Puppets		
Year 2	A balanced diet	Moving monsters Ferris wheels	Baby bear's chair	Pouches		
Year 3	Eating seasonally	Pneumatic toys	Castles	Cross stitch and appliqué	Electric poster	Electronic charm
Year 4	Adapting a recipe	Slingshot cars	Pavilions	Fastenings	Torches	Mindful moments timer
Year 5	What could be healthier?	Pop-up books	Bridges	Stuffed toys	Doodlers	Monitoring devices
Year 6	Come dine with me	Automata toys	Playgrounds	Waistcoats	Steady hand games	Navigating the world

The four strands (below) of the Design and technology curriculum run through each unit; with Cooking and nutrition as the focus of one Food unit per year

D Design M Make E Evaluate TK Technical knowledge

Early years outcomes in units:

Early Years Foundation Stage (Reception) Kapow Primary's units	Early years outcomes: Prime Areas Development Matters 2021 statements Early Learning Goals	Early years outcomes: Specific Areas Development Matters 2021 statements Early Learning Goals	Characteristics of effective learning
Structures: Junk modelling	**Physical development** -Develop small motor skills so that they can use a range of tools competently, safely and confidently. -ELG: Fine Motor Skills> Use a range of small tools, including scissors, paint brushes and cutlery.	**Expressive Arts and Design** -Explore, use and refine a variety of artistic effects to express 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: Creating with materials> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. -ELG: Creating with materials> Share their creations, explaining the process they have used.	✓ Playing and exploring ✓ Active learning ✓ Creating and thinking critically
Food: Soup	**Communication and language** -Learn new vocabulary. -Use new vocabulary throughout the day. -ELG: Speaking> Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. **Personal, social and emotional development** -Know and talk about the different factors that support their overall health and wellbeing: healthy eating. -ELG: Managing self> Manage their own basic hygiene and personal needs, including… understanding the importance of healthy food choices. **Physical development** -Develop small motor skills so that they can use a range of tools competently, safely and confidently. -ELG: Use a range of small tools, including scissors, paint brushes and cutlery.	**Understanding the world** -Explore the natural world around them. -ELG: The Natural World>Explore the natural world around them, making observations and drawing pictures of animals and plants. **Expressive Arts and Design** -Explore, use and refine a variety of artistic effects to express ideas and feelings. -ELG: Creating with materials> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	✓ Playing and exploring ✓ Active learning

Early Years Foundation Stage (Reception) Kapow Primary's units	Early years outcomes: Prime Areas Development Matters 2021 statements Early Learning Goals	Early years outcomes: Specific Areas Development Matters 2021 statements Early Learning Goals	Characteristics of effective learning
Textiles: Bookmarks	**Physical development** -Develop small motor skills so that they can use a range of tools competently, safely and confidently. -ELG: Fine Motor Skills> Use a range of small tools, including scissors, paint brushes and cutlery.	**Expressive Arts and Design** -Explore, use and refine a variety of artistic effects to express ideas and feelings. -Return to and build on their previous learning, refining ideas and developing their ability to represent them. -ELG: Creating with materials> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. -ELG: Creating with materials> Share their creations, explaining the process they have used.	✓ Playing and exploring ✓ Active learning ✓ Creating and thinking critically
Structures: Boats	**Communication and language** -Articulate their ideas and thoughts in well-formed sentences. -Connect one idea or action to another using a range of connectives. -Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. -ELG: Speaking> Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. -ELG: Speaking> Offer explanations for why things might happen.	**Understanding the world** -Explore the natural world around them. -ELG: The Natural World>Explore the natural world around them, making observations and drawing pictures of animals and plants. **Expressive Arts and Design** -Explore, use and refine a variety of artistic effects to express ideas and feelings. -ELG: Creating with materials> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. -ELG: Creating with materials> Share their creations, explaining the process they have used.	✓ Playing and exploring ✓ Active learning ✓ Creating and thinking critically

National Curriculum by All Saints' themes and topics:

Key Stage 1 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Key stage 1 - Year 1				
		*Moving story books	*Windmills	*Puppets	*Wheels and axles	*Fruit and vegetable smoothies
Design purposeful, functional, appealing products for themselves and other users based on design criteria.	Design	✔	✔	✔	✔	
Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology.	Design	✔	✔	✔	✔	✔
Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].	Make	✔	✔	✔	✔	✔
Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	Make	✔	✔	✔	✔	✔
Explore and evaluate a range of existing products.	Evaluate	✔	✔		✔	
Evaluate their ideas and products against design criteria.	Evaluate	✔	✔	✔	✔	✔

Key Stage 1 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Key stage 1 - **Year 1**				
		*Moving story books	*Windmills	*Puppets	*Wheels and axles	*Fruit and vegetable smoothies
Build structures, exploring how they can be made stronger, stiffer and more stable.	Technical knowledge		✔			
Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Technical knowledge	✔	✔		✔	
Use basic principles of a healthy and varied diet to prepare dishes.	D M E					
Understand where food comes from.	D M E					✔

Key Stage 1 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Key stage 1 - **Year 2**				
		*Moving monsters	*Baby bear's chair	*Pouches	*Ferris wheels	*A balanced diet
Design purposeful, functional, appealing products for themselves and other users based on design criteria.	Design	✔	✔	✔	✔	✔
Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology.	Design	✔	✔	✔	✔	
Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].	Make	✔	✔	✔	✔	
Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	Make	✔	✔	✔	✔	
Explore and evaluate a range of existing products.	Evaluate	✔		✔	✔	✔
Evaluate their ideas and products against design criteria.	Evaluate	✔	✔	✔	✔	✔

Key Stage 1 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Key stage 1 - **Year 2**				
		*Moving monsters	*Baby bear's chair	*Pouches	*Ferris wheels	*A balanced diet
Build structures, exploring how they can be made stronger, stiffer and more stable.	Technical knowledge		✔		✔	
Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	Technical knowledge	✔			✔	
Use basic principles of a healthy and varied diet to prepare dishes.	D M E					✔
Understand where food comes from.	D M E					✔

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Lower key stage 2 - **Year 3**					
		*Eating seasonally	*Castles	*Cross stitch and appliqué	*Pneumatic toys	Electric poster	*Electronic charm
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.	Design		✔	✔	✔	✔	✔
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.	Design		✔	✔	✔	✔	✔
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.	Make		✔	✔	✔	✔	
Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	Make		✔	✔	✔	✔	
Investigate and analyse a range of existing products.	Evaluate		✔		✔		✔
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	Evaluate		✔	✔	✔	✔	✔

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Lower key stage 2 - Year 3					
		*Eating seasonally	*Castles	*Cross stitch and appliqué	*Pneumatic toys	Electric poster	*Electronic charm
Understand how key events and individuals in design and technology have helped shape the world.	Evaluate				✔		✔
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	Technical knowledge		✔				
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	Technical knowledge				✔		
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	Technical knowledge					✔	
Apply their understanding of computing to program, monitor and control their products.	Technical knowledge						✔
Understand and apply principles of a healthy and varied diet.	D M E	✔					
Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	D M E	✔					
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	D M E	✔					

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Lower key stage 2 - Year 4					
		*Pavilions	*Adapting a recipe	*Fastenings	*Slingshot cars	*Torches	Mindful timer
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.	Design	✔	✔	✔	✔	✔	✔
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	Design	✔	✔	✔	✔	✔	
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.	Make	✔	✔	✔	✔	✔	✔
Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	Make	✔	✔	✔	✔	✔	
Investigate and analyse a range of existing products.	Evaluate	✔	✔	✔	✔	✔	✔
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	Evaluate	✔	✔	✔	✔	✔	✔

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Lower key stage 2 - **Year 4**					
		*Pavilions	*Adapting a recipe	*Fastenings	*Slingshot cars	*Torches	Mindful timer
Understand how key events and individuals in design and technology have helped shape the world.	Evaluate				✔	✔	
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	Technical knowledge	✔					
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	Technical knowledge				✔		
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	Technical knowledge					✔	
Apply their understanding of computing to program, monitor and control their products.	Technical knowledge						✔
Understand and apply principles of a healthy and varied diet.	D M E						
Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	D M E		✔				
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	D M E						

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Upper key stage 2 - **Year 5**					
		*What could be healthier?	*Pop-up books	Stuffed toys	*Doodlers	*Bridges	*Monitoring devices
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.	Design	✔	✔	✔	✔	✔	✔
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.	Design	✔	✔	✔		✔	✔
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.	Make	✔	✔	✔	✔	✔	
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.	Make		✔	✔		✔	
Investigate and analyse a range of existing products.	Evaluate	✔	✔	✔	✔	✔	
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	Evaluate	✔	✔	✔	✔	✔	✔

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Upper key stage 2 - **Year 5**					
		*What could be healthier?	*Pop-up books	Stuffed toys	*Doodlers	*Bridges	*Monitoring devices
Understand how key events and individuals in design and technology have helped shape the world.	Evaluate	✔					✔
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	Technical knowledge				✔	✔	✔
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	Technical knowledge		✔				
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	Technical knowledge				✔		
Apply their understanding of computing to program, monitor and control their products.	Technical knowledge	✔					✔
Understand and apply principles of a healthy and varied diet.	D M E	✔					
Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	D M E	✔					
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	D M E	✔					

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Upper key stage 2 - **Year 6**					
		*Come dine with me	*Automata toys	*Steady hand game	*Playgrounds	*Navigating the world	Waistcoats
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.	Design	✔	✔	✔	✔	✔	✔
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.	Design	✔	✔	✔	✔	✔	✔
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.	Make	✔	✔	✔	✔	✔	✔
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.	Make	✔		✔	✔		✔
Investigate and analyse a range of existing products.	Evaluate		✔	✔	✔		✔
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	Evaluate	✔	✔	✔	✔	✔	✔

*Units that are included in the condensed curriculum

Key Stage 2 - National curriculum Design and technology content	Kapow Primary's Design and technology strands	Kapow Primary topics Upper key stage 2 - **Year 6**					
		*Come dine with me	*Automata toys	*Steady hand game	*Playgrounds	*Navigating the world	Waistcoats
Understand how key events and individuals in design and technology have helped shape the world.	Evaluate		✔	✔			
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	Technical knowledge				✔		
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	Technical knowledge		✔				
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	Technical knowledge			✔			
Apply their understanding of computing to program, monitor and control their products.	Technical knowledge					✔	
Understand and apply principles of a healthy and varied diet.	D M E	✔					
Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	D M E	✔					
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	D M E	✔					

*Units that are included in the condensed curriculum

Cross-curricular links – year 1

National curriculum subjects	Kapow Primary topics				
	*Fruit and vegetables	*Making a moving story book	*Constructing a windmill	*Puppets	*Wheels and axles
English		**Reading** - appreciating rhymes such as Humpty Dumpty		**Reading** - Listening to and answering questions about the main character's appearance in Little Red Riding Hood (or another story of your choice)	
Maths			Recognising 2D and 3D shapes, beginning to recognise how a net can make a 3D shape		Identifying lengths on their design, considering how wheels work
Science	**Thinking scientifically** - classifying fruit and vegetables **Animals, including humans** - learning about the importance of fruit and vegetables in the diet and food hygiene				
Art and design		Drawing the background of their design along with the moving parts			
Computing					Digitally painting a flag for their car (extension activity)
Geography			Learning about how windmills are used today to generate electricity (wind turbines)		

Cross-curricular links – year 2

National curriculum subjects	Kapow Primary topics				
	*Fairground wheel	*A balanced diet	*Making a moving monster	*Baby bear's chair	*Pouches
English		**Reading** - reading a letter and summarising the key points		**Reading** - discussing the events from 'Goldilocks and the three bears'	
Maths	Talking about 3d shapes and naming them correctly	Using inequalities signs (<>) to compare sugar in drinks, using grams (g) to give weights	Recording a tally survey	Creating 3D shapes from playdough, Recording totals on a tally chart	
Science	Discussing the properties of materials when choosing materials for their fairground wheel	Discussing the senses that humans have, having an awareness of food hygiene		Interpreting the results of the tip-test	
Art and design			Sketching design ideas		Decorating the pouch using a range of materials
Computing	Practising drag and drop skills by creating an inspiration board (extension activity)				
Geography				Identifying natural and man-made structures	

Cross-curricular links – year 3

National curriculum subjects	Kapow Primary topics					
	*Cross-stitch and appliqué Cushions or Egyptian collars	Electric poster	*Pneumatic toys	*Electronic charm	*Eating seasonally	*Castles
English				**Reading** - considering language on sales displays and how it persuades us to buy the product	**Reading** - following the instructions in a recipe	
Maths	Choosing a 2D shape for their cushion, using knowledge of length to leave correct space for stuffing, seam and running stitch length			Drawing and manipulating 2D shapes, working with nets of 3D shapes (extension activity)		Identifying and naming 2D and 3D shapes in castle structures, drawing 2D shapes, constructing nets to make 3D shapes
Science		**Electricity (Y4)** - building a simple circuit and identifying components of a circuit				
Art and design	Designing a theme for their applique shapes (maybe around another topic)		Decorating their pneumatic toys with embellishments			
Computing				Learning about the history of Computers and how they have developed over time into smart wearables today, writing a programme to enable an LED to flash on a button press, using CAD software to design		Using powerpoint to create their own net (extension activity)
Geography			Discussing how electricity can be made using wind and sea power		Knowing what climate is and that it affects food growth, reading information from a map of the world, knowing the environmental impact of importing food	
History	Learning about Egyptian collars (If you choose the Egyptian collars theme for this unit)	Creating posters that give information about Ancient Rome		Learning about the Digital revolution and the history of computers		Learning about the features of castles and their purpose
RSE/PSHE					Considering food hygiene, knowing that fruit and vegetables give us nutritional benefits	

Cross-curricular links – year 4

National curriculum subjects	Kapow Primary topics					
	*Torches	*Making a slingshot car	Mindful moments timer	*Adapting a recipe	*Pavilions	*Fastenings
English				**Spoken language** - giving a brief pitch for their biscuit recipe		
Maths		Using nets to create 3D shapes, measuring accurately	Creating a 3D structure using a net	Completing a budget, considering profit margins, using nets to create 3D packages	Building 3D shapes to test the strength of different structures	
Science	**Electricity** - Identifying electrical products, conductors and insulators, building a simple series circuit with a switch	**Forces** - understanding the concept of air resistance (Y5) when designing their car				
Art and design		Decorating the panels of the chassis	Decorating their mindful moments timer case		Creating textural effects with materials to clad their structure	
Computing			Programming a micro:bit to function as a timer, debugging code, using software to create logos			Taking photographs of fastenings they find
Geography		Considering eco-friendly ways of powering cars				
History	Learning about life before electricity	Considering life before the motor car				
RSE/PSHE	Identifying electrical hazards		Sharing ways to be mindful and how this helps us to look after our mental health	Following basic food hygiene		

Cross-curricular links – year 5

National curriculum subjects	Kapow Primary topics					
	*Pop-up books	*Doodlers	*Monitoring devices	*What could be healthier?	*Bridges	Stuffed toys
English	Adding captions to their pop-up books to suit the audience	**Writing** - writing instructions on how to make a Doodler				
Maths					Measuring wood accurately to the nearest mm, draw 45° angles	
Science		**Electricity** -Exploring electrical circuit, identifying and naming components, working investigatively and drawing conclusions	**Animals, including humans** - finding out about the needs of animals		Using investigative methods to test the strength of a range of bridges, considering properties of materials	
Art and design	Drawing components for their pop-up books			Designing a label for their bolognaise		
Computing			Using search engines to research animals, programming and debugging an animal monitor, using CAD skills to create virtual models	Using search engines to research variations of a recipe		
Geography			Considering how we can use the six Rs of sustainability to develop more sustainable habits			
History			Learning about how thermometers have developed, learning about the history behind plastic use			
RSE/PSHE			Considering our shared responsibilities for protecting the environment	Considering the rights of animals and the ethical issues behind cattle farming, understanding what makes a balanced diet, reading nutritional values and deciding which recipe is healthier		

Cross-curricular links – year 6

National curriculum subjects	Kapow Primary topics					
	*Navigating the world	*Come dine with me	*Playgrounds	Waistcoats	*Steady hand game	*Automata toys
English	**Reading** - finding key points in a clients letter to create design criteria **Spoken language** - presenting a pitch about their product					
Maths			Measuring accurately to the nearest mm		Using net templates to create the base of their game	Measuring accurately to the nearest mm
Science	Considering materials and their functional properties	Recognising the impact of diet on our bodies			Drawing circuit diagrams, naming components and their functions	
Art and design			Creating textural effects with materials to clad their structure		Exploring one line drawings	
Computing	Programming a compass (all), pedometer and a light/thermometer (extension), using CAD skills to produce a virtual model				Recapping rules for safe online searching	
Geography	Considering sustainability in design					
History						Learning about Victorian toys
RSE/PSHE		Considering different dishes from other cultures, developing awareness of healthy eating, following basic food hygiene				

KS1 (Year 1 & Year 2)

	Autumn	Spring	Summer
Cycle A **2023/24** **2025/26** **2027/28**	**Structures: Baby bear's chair (4 lessons)** Using the tale of Goldilocks and the Three Bears as inspiration, children help Baby Bear by making him a brand new chair. When designing the chair, they consider his needs and what he likes and explore ways of building it so that it is strong.	**Textiles: Puppets (4 lessons)** Exploring different ways of joining fabrics before creating their own hand puppets based upon characters from a well-known fairytale. Children work to develop their technical skills of cutting, glueing, stapling and pinning.	**Food: Fruit and vegetables (4 lessons)** Handling and exploring fruits and vegetables and learning how to identify which category they fall into, before undertaking taste testing to establish their chosen ingredients for the smoothie they will make a design packaging for.

	Autumn	Spring	Summer
Cycle B **2024/25** **2026/27** **2028/29**	**Structures: Constructing windmills (4 lessons)** Designing, decorating and building a windmill for their mouse client to live in, developing an understanding of different types of windmill, how they work and their key features.	**Mechanisms: Fairground wheel (4 lessons)** Designing and creating their own Ferris wheels, considering how the different components fit together so that the wheels rotate and the structures stand freely. Pupils select appropriate materials and develop their cutting and joining skills	**Mechanisms: Making a moving monster (4 lessons)** After learning the terms; pivot, lever and linkage, children design a monster which will move using a linkage mechanism. Children practise making linkages of different types and varying the materials they use to bring their monsters to life.

Lower KS2 (Year 3 & Year 4)

	Autumn	Spring	Summer
Cycle A **2023/24** **2025/26** **2027/28**	**Food: Eating seasonally** **(4 lessons)** Discovering when and where fruits and vegetables are grown. Learning about seasonality in the UK and the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.	**Digital world: Electronic charm** **(4 lessons)** Designing, coding, making and promoting a Micro:bit electronic charm to use in low-light conditions. Children develop their understanding of programming to monitor and control their products.	**Structures: Constructing a castle** **(4 lessons)** Learning about the features of a castle, children design and make one of their own. Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a base to secure them.

	Autumn	Spring	Summer
Cycle B **2024/25** **2026/27** **2028/29**	**Structure: Pavilions** **(4 lessons)** Exploring pavilion structures, children learn about what they are used for and investigate how to create strong and stable structures before designing and creating their own pavilions, complete with cladding.	**Mechanical systems: Making a slingshot car** **(4 lessons)** Transforming lollipop sticks, wheels, dowels and straws into a moving car. Using a glue gun to, making a launch mechanism, designing and making the body of the vehicle using nets and assembling these to the chassis.	**Electrical systems: Torches** **(4 lessons)** Applying their scientific understanding of electrical circuits, children create a torch, designing and evaluating their product against set design criteria.

Upper KS2 (Year 5 & Year 6)

	Autumn	Spring	Summer
Cycle A **2023/24** **2025/26** **2027/28**	**Electrical systems: Doodlers (4 lessons)** Explore series circuits further and introduce motors. Investigating an existing product, which uses a motor, to encourage pupils to problem-solve and work out how the product has been constructed, ready to develop their own.	**Mechanical systems: Making a pop-up book (4 lessons)** Creating a four-page pop-up storybook design incorporating a range of mechanisms and decorative features, including: structures, levers, sliders, layers and spacers.	**Food: What could be healthier? (4 lessons)** Researching and modifying a traditional bolognese sauce recipe to make it healthier. Children cook their healthier versions, making appropriate packaging and learn about farming cattle.

	Autumn	Spring	Summer
Cycle B **2024/25** **2026/27** **2028/29**	**Textiles: Waistcoats (4 lessons)** Selecting suitable fabrics, using templates, pinning, decorating and stitching to create a waistcoat for a person or purpose of their choice.	**Structure: Playgrounds (4 lessons)** Designing and creating a model of a new playground featuring five apparatus, made from three different structures. Creating a footprint as the base, pupils visualise objects in plan view and get creative with their use of natural features.	**Digital world: Navigating the world (4 lessons)** Programming a navigation tool to produce a multifunctional device for trekkers. Combining 3D objects to form a complete product in CAD 3D modelling software and presenting a pitch to 'sell' their product.