St Joseph and St Bede RC Primary School
Design and Technology

		EYFS		KS1		LKS2		UKS2	
		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

National Curriculum Links:

In Ks1, When designing and making, pupils should be taught to:
- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, draw, templates, mock-ups and, where appropriate, information and communication technology

In Ks2, When designing and making, pupils should be taught to:
- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Designing

Structures

EYFS:
- Test out stacking and building with different blocks and explore balancing them on top of each other.
- Think and talk about what I am going to make before I do it and carry it out.
- Plan what I am going to make by drawing it first.
- Use a tick list to say what resources I am going to need.

KS1:
- Learn the importance of a clear design criteria
- Include individual preferences and requirements in a design
- Generate and communicate ideas use sketching and modelling
- Learn about different types of structures, found in the natural world and in everyday objects

LKS2:
- Design a castle with key features to appeal to a specific person/purpose
- Draw and label a castle design use 2D shapes, labelling:
  - the 3D shapes that will create the features
  - materials needed and colours
- Design and/or decorate a castle tower on CAD software
- Design a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect
- Build frame structures designed to support weight

UKS2:
- Design a stable structure that is able to support weight
- Create frame structure with focus on triangulation
- Design a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs

Mechanisms/ Mechanical systems

KS1:
- Explain how to adapt mechanisms, use bridges or guides to control the movement
- Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move
- Create clearly labelled draws which illustrate movement
- Select a suitable linkage system to produce the desired motions
- Design a wheel, selecting appropriate materials based on their properties

LKS2:
- Design a toy which uses a pneumatic system
- Develop design criteria from a design brief
- Generate ideas use thumbnail sketches and exploded diagrams
- Learn that different types of draws are used in design to explain ideas clearly
- Design a shape that reduces air resistance
- Draw a net to create a structure from
- Choose shapes that increase or decrease speed as a result of air resistance
- Personalise a design

UKS2:
- Design a pop-up book which uses a mixture of structures and mechanisms
- Name each mechanism, input and output accurately
- Storyboard ideas for a book
- Experiment with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement
- Understand how linkages change the direction of a force
- Make things move at the same time
- Understand and draw cross-sectional diagrams to show the inner-workings of the automata

Electrical systems

LKS2:
- Design a game that works use static electricity, including the instructions for playing the game
- Identify a design criteria and a target audience
- Design a torch, giving consideration to the target audience and creating both design and success criteria focuse on features of individual design ideas

UKS2:
- Design an electronic greetings card with a copper track circuit and components
- Create a labelled circuit diagram showing positive and negative parts in relation to the LED and the battery
- Write design criteria for an electronic greeting card
- Compile a moodboard relevant to my chosen theme, purpose and recipient
- Design a steady hand game - identify and naming the components required
- Draw a design from three different perspectives
- Generate ideas through sketching and discussion
- Model ideas through prototypes
- Understand the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'

Cooking and nutrition			• Design a smoothie carton packaging by-hand or on ICT software • Design a healthy wrap based on a food combination which work well together	• Create a healthy and nutritious recipe for a savoury tart use seasonal ingredients, considering the taste, texture, smell and appearance of the dish • Design a biscuit within a given budget, draw upon previous taste test	• Adapt a traditional recipe, understand that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • Write an amended method for a recipe to incorporate the relevant changes to ingredients • Design appealing packaging to reflect a recipe • Write a recipe, explain the key steps, method and ingredients • Include facts and draws from research undertaken
Textiles			• Use a template to create a design for a puppet • Design a pouch	• Design and make a template from an existing • cushion and apply individual design criteria • Write design criteria for a product, articulate decisions made • Design a personalised book sleeve	• Design a stuffed toy considering the main component shapes required and create an appropriate template • Consider the proportions of individual components • Design a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme • Annotate designs
Digital world				• Problem solve by suggesting potential features on a Micro: bit and justify ideas • Develop design ideas for a technology pouch • Draw and manipulate 2D shapes, use computer-aided design, to produce a point of sale badge • Writing design criteria for a programmed timer (Micro:bit) • Explore different mindfulness strategies • Apply the results of my research to further inform my design criteria • Developing a prototype case for my mindful moment timer • Use and manipulating shapes and clipart, use computer-aided design (CAD), to produce a logo • Following a list of design requirements	• Researching (books, internet) for a particular (user's) animal's needs • Developing design criteria based on research • Generating multiple house ideas use build bricks • Understand what a virtual model is and the pros and cons of traditional and CAD modelling • Placing and manoeuvring 3D objects, use CAD • Changing the properties of, or combine one or more 3D objects, use CAD • 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, use CAD • Changing the properties of, or combine one or more 3D objects, use CAD

National Curriculum Links:

In Ks1, When designing and making, pupils should be taught to:
- select from and use a range of tools and equipment to perform practical tasks
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

In Ks2, When designing and making, pupils should be taught to:
- select from and use a wider range of tools and equipment to perform practical tasks accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Making

Structures	• Make simple models using construction toys. • Use various construction materials. • Choose the resources I need for my activity. • Handle tools and equipment effectively. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Use blocks to build structures with balance, symmetry and with smaller detailed features. • Push smaller beads on to a string. • Weave string in and out on a threading card. • Thread with wool.	• Make stable structures from card, tape and glue • Follow instructions to cut and assemble the supporting structure of a windmill • Make functioning turbines and axles which are assembled into a main supporting structure • Make a structure according to design criteria • Create joints and structures from paper/card and tape	• Construct a range of 3D geometric shapes use nets • Create special features for individual designs • Make facades from a range of recycled materials • Create a range of different shaped frame structures • Make a variety of free standing frame structures of different shapes and sizes • Select appropriate materials to build a strong structure and for the cladding • Reinforce corners to strengthen a structure • Create a design in accordance with a plan • Learn to create different textural effects with materials	• Make a range of different shaped beam bridges • Use triangles to create truss bridges that span a given distance and supports a load • Build a wooden bridge structure • Independently measure and mark wood accurately • Select appropriate tools and equipment for particular tasks • Use the correct techniques to saw safely • Identify where a structure needs reinforcement and use card corners for support • Explain why selecting appropriating materials is an important part of the design process • Understand basic wood functional properties • Build a range of play apparatus structures draw upon new and prior knowledge of structures • Measure, mark and cut wood to create a range of structures • Use a range of materials to reinforce and add decoration to structures

Mechanisms/ Mechanical systems	• Use various construction materials, to create moving creations. • Ball dough, roll it out and spiral it and squeeze dough in between the back of my fingers and shake the dough. • Use a knife to spread. • Talk about putting some ingredients together to make food • Stir to mix ingredients together. • Use biscuit cutters.	• Follow a design to create moving models that use levers and sliders • Adapt mechanisms • Make linkages use card for levers and split pins for pivots • Experiment with linkages, adjusting the • widths, lengths and thicknesses of card used • Cut and assemble components neatly • Select materials according to their characteristics • Follow a design brief	• Create a pneumatic system to create a desired motion • Build secure house for a pneumatic system • Use syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy • Select materials due to their functional and aesthetic characteristics • Manipulate materials to create different effects by cutting, creasing, folding, weaving • Measure, mark, cut and assemble with increasing accuracy • Make a model based on a chosen design	• Follow a design brief to make a pop up book, neatly and with focus on accuracy • Make mechanisms and/or structures use sliders, pivots and folds to produce movement • Use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result • Measure, mark and check the accuracy of the jelutong and dowel pieces required • Measure, mark and cut components accurately use a ruler and scissors • Assemble components accurately to make a stable frame • Understand that for the frame to function effectively the components must be cut ccurately and the joints of the frame secured at right angles • Select appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set
Electrical systems			• Make an electrostatic game, referring to the design criteria • Use a wider range of materials and equipment safely • Use electrostatic energy to move objects in isolation as well as in part of a system • Make a torch with a working electrical circuit and switch • Use appropriate equipment to cut and attach materials • Assemble a torch according to the design and success criteria	• Make a functional series circuit • Create an electronics greeting card, referring to a design criteria • Map out where different components of the circuit will go • Construct a stable base for a game • Accurately cut, fold and assemble a net • Decorate the base of the game to a high quality finish • Make and test a circuit • Incorporate a circuit into a base
Cooking and nutrition		• Chop fruit and vegetables safely to make a smoothie • Identify if a food is a fruit or a vegetable • Learn where and how fruits and vegetables grow • Slice food safely use the bridge or claw grip • Construct a wrap that meets a design brief	• Know how to prepare themselves and a work space to cook safely in, learn the basic rules to avoid food contamination • Follow the instructions within a recipe • Follow a baking recipe • Cook safely, following basic hygiene rules • Adapt a recipe	• Cut and prepare vegetables safely • Use equipment safely, including knives, hot pans and hobs • Know how to avoid cross-contamination • Follow a step by step method carefully to make a recipe • Follow a recipe, including use the correct quantities of each ingredient • Adapt a recipe based on research • Work to a given timescale • Work safely and hygienically with independence
Textiles		• Cut fabric neatly with scissors • Use joining methods to decorate a puppet • Sequence steps for construction • Select and cut fabrics for sew • Decorate a pouch use fabric glue or running stitch	• Follow design criteria to create a cushion • Select and cut fabrics with ease use fabric scissors • Sew cross stitch to join fabric • Decorate fabric use appliqué • Complete design ideas with stuffing and sew the edges • Make and test a paper template with accuracy and in keeping with the design criteria • Measure, mark and cut fabric use a paper template • Selecta stitch style to join fabric, working neatly sew small neat stitches • Incorporate fastening to a design	• Create a 3D stuffed toy from a 2D design • Measure, mark and cut fabric accurately and independently • Create strong and secure blanket stitches when joining fabric • Use applique to attach pieces of fabric decoration • Use a template when pinning panels onto fabric • Mark and cut fabric accurately, in accordance with a design • Sew a strong running stitch, making small, neat stitches and following the edge • Tie strong knots • Decorate a waistcoat -attaching objects use thread and adding a secure fastening

Digital world				• Use a template when cut and assemble the pouch • Follow a list of design requirements • Select and use the appropriate tools and equipment for cutting, joining, shape and decorate a foam pouch • Apply functional features such as use foam to create soft buttons • Develop a prototype case for a mindful moment timer • Create a 3D structure use a net	• Understand the functional and aesthetic properties of plastics • Consider materials and their functional properties, especially those that are sustainable and recyclable • Explain material choices and why they were chosen as part of a product concept

Evaluating	**Structures**	• Explore and test out materials. • Test out stacking and building with different blocks and explore balancing them on top of each other. • Test my models fit their purpose. • Say if something I have made is good or not or if I like it. • Say what I like about a creation when asked and if it works. • Make alterations to a creation to make it fit a purpose.	• Evaluate a windmill according to the design criteria, test whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements • Explore the features of structures • Compare the stability of different shapes • Test the strength of own structures • Identify the weakest part of a structure • Evaluate the strength, stiffness and stability of own structure	• Evaluate own work and the work of others based on the aesthetic of the finished product and in comparison to the original design • Suggest points for modification of the individual designs • Evaluate structures made by the class • Describe what characteristics • of a design and construction made it the most effective • Consider effective and ineffective designs	• Adapt and improve own bridge structure by identify points of weakness and reinforcing them as necessary • Suggest points for improvements for own bridges and those designed by others • Improve a design plan based on peer evaluation • Test and adapt a design to improve it as it is developed • Identify what makes a successful structure
	Mechanisms/ Mechanical systems		• Test a finished product, seeing whether it moves as planned and if not, explain why and how it can be fixed • Review the success of a product by test it with its intended audience • Test mechanisms, identify what stops • wheels from turning, know that a wheel needs an axle in order to move • Evaluate own designs against design criteria • Use peer feedback to modify a final design • Evaluate different designs • Test and adapt a design	• Use the views of others to improve designs • Test and modify the outcome, suggesting improvements • Understand the purpose of exploded-diagrams through the eyes of a designer and their client • Evaluate the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance	• Evaluate the work of others and receiving feedback on own work • Suggest points for improvement • Evaluate the work of others and receivefeedback on own work • Apply points of improvements • Describe changes they would make/do if they were to do the project again
	Electrical systems			• Learn to give constructive criticism on own work and the work of others • Test the success of a product against the original design • criteria and justify opinions • Evaluate electrical products • Test and evaluate the success of a final product and take inspiration from the work of peers	• Evaluate a peer's product against design criteria and suggest modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of circuit component • State what Sir Rowland Hill invented and why it was important for greeting cards • Analyse and evaluate a range of existing greeting cards. • Test own and others finished games, identify what went well and making suggestions for improvement • Gather images and information about existing children's toys • Analyse a selection of existing children's toys

Cooking and nutrition			• Taste and evaluate different food combinations • Describe appearance, smell and taste • Suggest information to be included on packaging • Describe the taste, texture and smell of fruit and vegetables • Taste test food combinations and final products • Describe the information that should be included on a label • Evaluate which grip was most effective	• Establish and use design criteria to help test and review dishes • Describe the benefits of seasonal fruits and vegetables and the impact on the environment • Suggest points for improvementwhen making a seasonal tart • Evaluate a recipe, considering: taste, smell, texture and appearance • Describe the impact of the budget on the selection of ingredients • Evaluate and compare a range of products • Suggest modifications	• Identify the nutritional differences between different products and recipes • Identify and describe healthy benefits of food groups • Evaluate a recipe, considering: taste, smell, texture and origin of the food group • Taste test and score final products • Suggest and write up points of improvements in productions • Evaluate health and safety in production to minimise cross contamination
Textiles			• Reflect on a finished product, explain likes and dislikes • Troubleshoot scenarios posed by teacher • Evaluate the quality of the stitching on others' work • Discuss as a class, the success of their stitching against the success criteria • Identify aspects of their peers' work that they particularly like and why	• Evaluate an end product and think of other ways in which to create similar items • Test and evaluate an end product against the original design criteria • Decide how many of the criteria should be met for the product to be considered successful • Suggest modifications for improvement	• Test and evaluating an end product and giving point for further improvements • Evaluate work continually as it is created
Digital world				• Analyse and evaluate an existing product • Identify the key features of a pouch • Investigate and analysing a range of timers by identify and compare their advantages and disadvantages • Evaluate a micro:bit program against points on the design criteria and amending them to include any changes made • Document and evaluate a project • Understand what a logo is and why they are important in the world of design and business	• State an event or fact from the last 100 years of plastic history • Explain how plastic is affecting planet Earth and suggest ways to make more sustainable choices • Explain how a program fits the • design criteria and how it would be useful as part of a navigation tool • Develop an awareness of sustainable design • Identify key industries that utilise 3D CAD modelling and explain why • Describe how the product concept fits the client's request and how it will benefit the customers

Technical Knowledge

National Curriculum Links:

In Ks1, When designing and making, pupils should be taught to:
- build structures, explore how they can be made stronger, stiffer and more stable
- explore and use mechanisms in their products.

In Ks2, When designing and making, pupils should be taught to:
- apply their understand of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products
- understand and use electrical systems in their products
- apply their understand of computing to program, monitor and control their products.

Structures	• Know that some blocks need to be put in a certain way when building in order to balance them. • Know the properties of materials and their suitability for a particular purpose. • Know that some materials can change. • Know the names of some materials and talk about textures. • Know the properties of materials and their suitability for a particular purpose. • Know I need to use equipment to weigh/measure ingredients. • Know there are different flavours of food and can describe some of these. • Show some understanding about good practices with regard to eating and hygiene. • Know the importance for good health, a healthy diet, and talk about ways to keep healthy.	• Describe the purpose of structures, including windmills • Learn how to turn 2D nets into 3D structures • Learn that the shape of materials can be changed to improve the strength and stiffness of structures • Understand that cylinders are a strong type of structure that are often used for windmills and lighthouses • Understand that windmill turbines use wind to turn and make the machines inside work • Understand that axles are used in structures and mechanisms to make parts turn in a circle • Develop awareness of different structures for different purposes • Identify natural and man-made structures • Identify when a structure is more or less stable than another • Know that shapes and structures with wide, flat bases or legs are the most stable • Understand that the shape of a structure affects its strength • Know that materials can be manipulated to improve strength and stiffness • Build a strong and stiff structure by folding paper	• Identify features of a castle • Identify suitable materials to be selected and used for a castle, considering weight, compression, tension • Extend the knowledge of wide and flat based objects are more stable • Understand the terminology of strut, tie, span, beam • Understand the difference between frame and shell structure • Learn what pavilions are and their purpose • Build on prior knowledge of net structures and broaden knowledge of frame structures • Learn that architects consider light, shadow and patterns when designing • Implement frame and shell structure knowledge • Consider effective and ineffective designs	• Explore how to create a strong beam • Identify arch and beam bridges and understand the terms: compression and tension • Identify stronger and weaker structures • Find different ways to reinforce structures • Understand how triangles can be used to reinforce bridges • Articulate the difference between beam, arch, truss and suspension bridges • Know that structures can be strengthened by manipulating materials and shapes • Identify the shell structure in everyday life (cars, aeroplanes, tins, cans) • Understand man made and natural structures
Mechanisms/ Mechanical systems		• Learn that levers and sliders are mechanisms and can make things move • Identify whether a mechanism is a lever or slider and determine what movement the mechanism will make • Identify what mechanism makes a toy or vehicle roll forwards • Learn that for a wheel to move it must be attached to an axle • Learn that mechanisms are a collection of moving parts that work together in a machine • Learn that there is an input and output in a mechanism • Identify mechanisms in everyday objects • Learn that a lever is something that turns on a pivot • Learn that a linkage is a system of levers that are connected by pivots • Explore wheel mechanisms • Learn how axles help wheels to move a vehicle	• Understand how pneumatic systems work • Learn that mechanisms are a system of parts that work together to create motion • Understand that pneumatic systems can be used as part of a mechanism • Learn that pneumatic systems force air over a distance to create movement • Learn that products change and evolve over time • Learn that all moving things have kinetic energy • Understand that kinetic energy is the energy that something (object person) has by being in motion	• Know that an input is the motion used to start a mechanism • Know that output is the motion that happens as a result of starting the input • Know that mechanisms control movement • Describe mechanisms that can be used to change one kind of motion into another • Use a bench hook to saw safely and effectively • Explore cams, learn that different shaped cams produce different follower movements • Explore types of motions and direction of a motion
Electrical systems			• Understand what static electricity is and how it moves objects through attraction or repulsion • Generating static electricity independently • Use static electricity to make objects move in a desired way • Learn how electrical items work • Identify electrical products • Learn what electrical conductors and insulators are • Understand that a battery contains stored electricity and can be used to power products • Identify the features of a torch • Understand how a torch works • Articulate the positives and negatives about different torches	• Learn the key components used to create a functioning circuit • Learn that copper is a conductor and can be used as part of a circuit • Understand that breaks in a circuit will stop it from working • Explain how a series circuit will work in my card • Identify the negative and positive leg of an LED • Draw a series circuit diagram and symbols • Learn that batteries contain acid, which can be dangerous if they leak • Identify and naming the circuit components in a steady hand game

	Cooking and nutrition			• Understand the difference between fruits and vegetables • Describe and group fruits by texture and taste • Understand what makes a balanced diet • Know where to find the nutritional information on packaging • Know the five food groups	• Learn that climate affects food growth Working with cooking equipment safely and hygienically • Learn that imported foods travel from far away and this can negatively impact the environment • Learn that vegetables and fruit grow in certain seasons • Learn that each fruit and vegetable gives us nutritional benefits • Learn to use, store and clean a knife safely • Understand the impact of the cost and importance of budgeting while planning ingredients for biscuits • Understand the environmental impact on future product and cost of production	• Understandwhere food comes from - learn that beef is from cattle and how beef is reared and processed • Understand what constitutes a balanced diet • Learn to adapt a recipe to make it healthier • Compare two adapted recipes, use a nutritional calculator and then identify the healthier option • Learn how to research a recipe by ingredient • Record the relevant ingredients and equipment needed for a recipe • Understand the combinations of food that will complement one another • Understand where food comes from, describe the process of 'Farm to Fork' for a given ingredient
	Textiles			• Learn different ways in which to join fabrics together: pinning, stapling, gluing • Join items use fabric glue or stitching • Identify benefits of these techniques • Thread a needle • Sew a running stitch, with evenly spaced, neat, even stitches to join fabric • Neatly pin and cut fabric use a template	• Thread needles with greater independence • Tie knots with greater independence • Sew cross stitch and appliqué • Understand the need to count the thread on a piece of evenweave fabric in each direction to create uniform size and appearance • Understand that fabrics can be layered for affect • Understand that here are different types of fastenings and what they are • Articulate the benefits and disadvantages of different fastening types	• Learn to sew blanket stitch to join fabric • Apply blanket stitch so the space between the stitches are even and regular • Thread needles independently • Learn different decorative stitches • Sew accurately with even regularity of stitches
	Digital world				• Identify key product developments that occurred as a result of the digital revolution • Write a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm • Understand what a loop is in programming • Explain the basic functionality of a eCharm program • Understand what is meant by 'point of sale display' • Write design criteria for a programmed timer (Micro:bit) • Program a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press • Test a program for bugs (errors in the code) • Find and fix the bugs (debug) in a code	• Describe key developments in thermometer history • Program to monitor the ambient temperature and code an (audible or visual) alert when the temperature rises above or falls below a specified range • Explain key functions in a program (audible alert, visuals) • Explain how my product would be useful for an animal carer including programmed features • Program an N,E, S,W cardinal compass • Explain the key functions in a program, including any additions • Explain how a program fits the design criteria and how it would be useful as part of a navigation tool • Explain the key functions and features of a navigation tool to the client as part of a product concept pitch • Demonsrate a functional program as part of a product concept

			EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two

Language — **Vocabulary**

EYFS

Designing: create, experiment, colours, draw, marks, stacking, building, explore, balance, plan, design, implement, draw, tick list, resources, explore

Making: construct, stack, balance, push, model, build, materials, push, pull, construct, tools, equipment, safely, techniques, join, structure, thread, weave, squash, pinch, roll, pour, fill, measure, weigh, stir, mix, surface, cutter

Evaluating: creation, thought, good, bad, improve, different, change, like, dislike, alteration, evaluate, test

Technical Knowledge: strong, weak, texture, symmetry, detail, healthy, balance, materials, weigh, measure, flavour, sweet, savoury

Key Stage One

Year A
- **Mechanisms: Moving Monsters** - evaluation, input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, rotary motion, survey
- **Textiles: Pouches** - accurate, fabric, knot, pouch, running-stitch, sew, shapes. Stencil. Template, thimble
- **Mechanisms: Wheels and Axles** - axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel
- **Structures: Windmills** - client, design, evaluation, net, stable, strong, test, weak, windmill
- **Cooking & Nutrition: Fruits and Vegetables** - blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable

Year B
- **Mechanisms: Moving Story Book** - assemble, design, evaluation, mechanism, model, slider, stencil, target audience, template, test
- **Textiles: Puppets** - decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template
- **Mechanisms: Fairground Wheel** - axle, decorate, evaluation, ferris wheel, mechnisms, stable, strong, test, waterproof, weak
- **Structures: Baby Bear's Chair** - function, man-made, mould, natural, stable, stiff, strng, structure, test, weak
- **Cooking & Nutrition: A Balanced Diet** - alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refridgerator, sugar, substitute

Lower Key Stage Two

Year A
- **Textiles: Fastenings** - aesthetic, assemble, book sleeve, design criteria, evaluation, fabric, fastening, mock-up, net, running-stitch, stencil, target audience, target customer, template
- **Electrical Systems: Static Electricity** - attract, component, constructive criticism, design criteria, electrostatic, evaluation, feedabck, motion, repel, target audience, test
- **Mechanisms: Slingshot Cars** - aesthetic, air resistance, chassis, design, design criteria, function, graphiscs, kinetic energy, mechanism, net, structure
- **Digital World: Electronic Charm** - smart wearables, product design, analogue, digital, micro: bit, program, loops, simulator, monitor, user, computer-aided-design, point of sale
- **Structures: Castles** - 2D shapes, 3D shapes, castle, design criteria, evaluate, façade, feature, flag, net, recyclable, scoring, stable, strong, structure, tab, weak
- **Cooking & Nutrition: Eating Seasonally** - climate, dry climate, exported, imported, mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate

Year B
- **Textiles: Cushions** - acccurate, applique, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template
- **Structures: Pavilions** - aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme.
- **Mechanisms: Pneumatic Toys** - exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch
- **Digital World: Mindfulness Moments Timer** – research, advantage, disadvantage, ergonomic, timer, program, loop, coding, block, variable, pause, bug, debug, net, template, prototype, branding, logo, sketchpad, computer-aided -design
- **Electrical Systems: Torches** - battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electricity, electrical item, function, insulator, series circuit, switch, test, torch, wire
- **Cooking & Nutrition: Adapting a Recipe** - adapt, budget, equipment, evaluation, flavour, ingredients, method, net, packaging, prototype, quantity, recipe, target audience, unit of measurement, utilities

Upper Key Stage Two

Year A
- **Structures: Bridges** - abutment, accurate, arched bridge, beam bridge, compression, coping saw, evaluation, file, forces, mark out, measure, predict, reinforce, research, right-angle, sandpaper, set square, shapes, strong structure, suspension bridge, tenon saw, tension, test, truss bridge, weak
- **Mechanisms: Automata Toys** - accurate, assembly-diagram, automata, 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
- **Digital World: Monitoring Devices** – monitor, electronic, sensor, thermoscope, thermometer, inventor, vivarium, programming loop, programming comment, ambient, alert, boolean, duplicate, microplastics, synthetic, molecules, versatile, water-resistent, durable, consumerables, CAD, replica, manoevre, manipulate, workplace, group, ungroup
- **Electrical Systems: Electrical Greetings Cards** – battery, buzzer, circuit, component, conductor, copper, design, design criteria, function, graphite, innovative, insulator, LED, modify, parallel circuit, series circuit, switch, target audience, test, wire
- **Textiles: Stuffed Toys** – accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template
- **Cooking & Nutrition: What could be healthier?** – beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare

Year B
- **Textiles: Waistcoats** – accurate, adapt, annotate, design, design criteria, detail, fabric, fastening, knot, properties, running-stitch, seam, sew, shape, target audience, target customer, template, thread, unique, waistcoat, waterproof
- **Structures: Playgrounds** – adapt, apparatus, bench hook, cladding, coping saw, design, dowel, evaluation, feedback, idea, jelutong, landscape, mark out, measure, modify, natural materials, plan view, playground, prototype, reinforce, skecth, strong, structure, tenon saw, texture, user, vice, weak
- **Electrical Systems: Steady Hand Games** – assemble, battery battery pack, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, function, insulator, LED, megnatic field, net, perspective drawing, plan, pliers, prototype, series circuit, side view, steady hand game, switch, symmetrical, target audience, test, top view, wire cutters
- Mechanisms: Pop-Up Books – aesthetic, computer-aided-design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template
- **Digital World: Navigating the World** – compass, pedometer, GPS tracker, navigation, cardinal compass, duplicate, program, loop, variable, boolean, corrode, mouldable, lightweight, sustainable, biodegradable, finite, infinite, product lifecycle, product lifespan, CAD, CGI, 3D, replica, manoeuvre, workplane, transparent, opaque, pitch, investment, client, concept, manufacture
- **Cooking & Nutrition: Come Dine with Me** – accompanient, adjective, caption, collaboration, cookbook, cross-contamination, equipment, farm, flavour, flavour, illustration, imperative-verb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, target audience, top-tips, unit of measurement