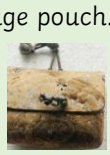
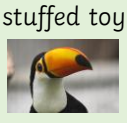
Nurturing Knowledge, Learning for Life

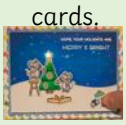
Courtwood
Primary School

DT Curriculum

DT Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception		**Cooking and Nutrition** Autumn soup 		**Textiles** Can we join materials to make a minibeast? 	**Structures** Can we build a stable structure for a home for the Gruffalo? 	**Mechanisms** Can we follow a design to create a split pin moving puppet? 
Year 1			**Textiles** Can we design and make a hat for Teddy? 		**Mechanisms** How do wheels move? Design and make a moving vehicle. 	
Year 2		**Structures** Which buildings survived the Great Fire of London? 			**Cooking and Nutrition** Healthy fruit – what fruit would you choose for your fruit salad? 	
Year 3		**Textiles** Design and make a stone age pouch. 		**Mechanisms** How can we make a book pop up or have moving parts? 		
Year 4		**Cooking and Nutrition** How can we make our pizzas healthier? 		**Structures** How will we bridge that gap? 		**Electrical systems** Design and make a torch 
Year 5		**Structures** Constructing a catapult 			**Mechanisms** Automata Toys – design and make a toy with moving parts & mechanisms 	**Textiles** Rainforest Animals – design and make a stuffed toy 
Year 6		**Electrical systems** Electronic greetings cards 			**Mechanisms** Victorian toys – design and make a mechanical toy 	**Cooking and Nutrition** Can we grow our own salad? 

DT Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Tree House KS1 (Y1 of 2)		**Cooking and nutrition** What can we put in our vegetable soup? 	**Mechanisms** How do wheels move? Design and make a moving vehicle. 	**Textiles** Can we join fabrics to make a minibeast? 		**Structures** How can we build a rocket to fly to the moon? 
Tree House KS1 (Y2 of 2)		**Textiles** Design and make your own superhero clothes. 		**Structures** Can we build a stable den? 	**Mechanisms** Can we follow a design to make a split pin moving puppet? 	**Cooking and Nutrition** Edible Playground – what foods can we make with our crops? 
Tree House KS2 (Y1 of 4)		**Electrical Systems** Electronic greetings cards.  **Cooking and Nutrition** what meal can you make with no electricity?	**Mechanisms** Make a slingshot car – how far can it travel? 			
Tree House KS2 (Y2 of 4)			**Textiles** Can we design & make a Roman sash or tunic? 			**Structures** How will we bridge that gap? 
Tree House KS2 (Y3 of 4)	**Electrical systems** Design and make a steady hand game 			**Mechanisms** How can we make a book pop up or have moving parts? 		**Textiles** Comfy cushions – design and make a cushion 
Tree House KS2 (Y4 of 4)			**Structures** Greek ruins! Explore what makes a building stable and strong 		**Cooking and Nutrition** Eating seasonally 	

DT Progression

Textiles

Reception	KS1	Lower KS2	Upper KS2
Project Make a paper/card minibeast hand puppet using a template, selecting a suitable joining method.	**Project** Design and make a felt hat for teddy using two 2D shapes and a basic running stitch.	**Project** Design and make a small pouch, select a basic running stitch or an over stitch, and select a type of fastening.	**Project** Design and make a stuffed toy – rainforest animal - using a blanket stitch to join the edges of the material.
Design Skills • use a template to create a design for a minibeast hand puppet	**Design Skills** • explore different types of hats and draw own designs based on the hat type teddy needs	**Design Skills** • design and make a template for a small pouch, applying individual design criteria – what object does it need to hold? • evaluate template and make changes before final design	**Design Skills** • design a stuffed toy considering the main component shapes required and create an appropriate template. • consider proportions of individual components • annotate designs
Make Skills • cut materials using scissors with adult support • follow a sequence of instructions to make a product	**Make Skills** • cut materials using scissors with more independence • practice a basic running stitch on binca • decorate a hat for teddy using fabric glue • choose suitable materials and decorations	**Make Skills** • follow a design criteria to create a small pouch – what will it contain? • refresh sewing skills: practice a basic running stitch on binca • use scrap materials to practice an over stitch • measure, mark and cut fabric using a paper template • select a stitch style to join fabric neatly - select a basic running stitch or an over stitch	**Make Skills** • create a 3D stuffed toy from a 2D design • practice stitches on binca – basic running stitch, • measure, mark and cut fabric accurately and independently, pinning a paper template onto the fabric • create strong, secure stitching around the edges of the materials, and to attach the features, e.g. nose, ears, eyes • use applique (sewing) to decorate finished product
Evaluate Skills • explain how I have joined the paper/card to make a product • talk about what I like and dislike about my hand puppet	**Evaluate Skills** • evaluate the quality of their stitching • identify aspects of their peer's final products that they like and why • trouble shoot scenarios posed by the teacher – what material is best for teddy's hat in the rain, snow or sunshine?	**Evaluate Skills** • evaluate and test the final product – does it meet the design criteria? Can it hold the objects it was designed for? Why/why not? • How could the product be improved?	**Evaluate Skills** • evaluate work continually as it is created, make modifications for improvement – note these on your design • evaluate and test the final product – does it meet the design criteria? How could the product be improved?
Technical Knowledge • explore different joining methods: stapling, gluing, taping, hole punching and treasury tags • choose a suitable joining method	**Technical Knowledge** • thread a needle with adult support • learn a basic running stitch • join items using fabric glue and a basic running stitch • identify the 2D fabric shapes to the structure of the hat – use these as a template	**Technical Knowledge** • thread needles with greater independence • learn to tie knots • revise a basic running stitch • learn an over stitch • understand that a 3D textile structure can be made from two identical fabric shapes	**Technical Knowledge** • thread a needle independently • tie knots in thread securely • revise different stitching skills: basic running stitch, over stitch • learn a blanket stitch and understand how the stitch reinforces the joining of the edges of 2 materials • apply the blanket stitch so the space between the stiches are even and regular
Vocabulary join staples glue tape treasury tags puppet minibeast traditional	**Vocabulary** structure design join running stitch fabric milliner needle thread	**Vocabulary** textiles stitch template fabric Neolithic pouch weaving	**Vocabulary** textiles embroidery decoration quilting generation symbolise

DT Progression

Structures

Reception	KS1	Lower KS2	Upper KS2
Project Build a home for the Gruffalo Outdoor Learning Link	**Project** What makes a building stable and strong?	**Project** How will we bridge that gap?	**Project** Constructing a catapult
Design Skills • include individual preferences and requirements in a design	**Design Skills** • generate and communicate design ideas using sketching and modelling • learn the importance of a clear design criteria • include individual preferences and requirements in a design	**Design Skills** • design a bridge to span a specified gap • design a stable structure that is aesthetically pleasing • build a frame to support a weight	**Design Skills** • design a stable structure • create a frame structure with focus on triangulation
Make Skills • make a stable structure using sticks in the woods • create a frame structure – use sticks in the woods to make a lean-to den or a tripod den	**Make Skills** • make a stable structure using card/paper, tape, glue etc. • create a frame structure for support • create a cladding design to improve appearance and meet design criteria	**Make Skills** • create a range of different shaped frame structures • select appropriate materials to build a strong structure • reinforce weaker parts with triangle shapes or folded/rolled paper • create a design in accordance to the design criteria and plan	**Make Skills** • create a range of different catapults to explore launching a missile, e.g. lolly stick catapult, marshmallow catapult with triangle design • select appropriate materials to build a sturdy structure • create a triangular frame structure for support • create a design in accordance to the design criteria and plan
Evaluate Skills • talk about what is good about your structure – what will the Gruffalo like about his home?	**Evaluate Skills** • compare the stability of different 3D shapes • test the strength of own structures • evaluate the strength, stability and stiffness of own structure • suggest improvements to own structure	**Evaluate Skills** • evaluate the different structures made by the class • describe the characteristics of a design and the most effective construction • evaluate the strength of each bridge and identify the weak parts, reinforce where necessary • suggest improvements to peer's bridges	**Evaluate Skills** • adapt and improve own catapult structure • suggest points for improvements to own catapults • describe the characteristics that make the design and construction the most effective
Technical Knowledge • learn about different types of structures	**Technical Knowledge** • learn how to turn 2D nets into 3D structures • learn that the shape of materials can be changed to improve the strength and stiffness • identify when a structure is more or less stable than another • knowing that structures with wide, flat bases are the most stable	**Technical Knowledge** • build on prior knowledge of net structures and broaden knowledge of frame structures • learn about the role of a civil engineer and an architect in bridge design • learn how triangles can reinforce bridges • identify arch and beam bridges	**Technical Knowledge** • develop knowledge of net structures and knowledge of frame structures • learn how triangulation is used in a frame structure to provide strength and support • learn how triangulation can make a structure rigid when a force is applied
Vocabulary structure build material stable frame structure tripod architect construct	**Vocabulary** frame structure reinforce cladding stable structure function architect material	**Vocabulary** suspension bridge arch bridge beam bridge aesthetic civil engineer abutment span evaluate	**Vocabulary** catapult forces elastic energy missile triangulation launch

DT Progression

Mechanisms

Reception	KS1	Lower KS2	Upper KS2
Project Can we follow a design to make a split pin moving puppet?	**Project** How do wheels move? Design and make a moving vehicle	**Project** How can we make a book pop up or have moving parts?	**Project** Make an automata toy(Y5) and Victorian toys – design and make a fairground ride (Ferris wheel or merry go round) (Y6)
Design Skills • use a template to make a product • include individual preferences in design	**Design Skills** • develop design criteria from a design brief • personalise a design • design a vehicle that includes wheels, axles and axle holders, which allow the wheels to move • create clearly labelled drawings	**Design Skills** • design a pop up or moving parts book for a given audience • design a pop up or moving parts book which uses a mixture of structures and mechanisms • name each mechanism input and output • story board ideas for a book	**Design Skills** • design a structure with mechanisms to control movement • generate ideas using sketches and labelled diagrams • design a structure with moving mechanical parts • generate design ideas through discussion with peers, sketches, diagrams, proto-types and computer aided design
Make Skills • follow a sequence of instructions to make a product	**Make Skills** • cut and assemble components accurately • follow a design brief • select materials according to their characteristics	**Make Skills** • follow a design brief to create a book with moving parts that use levers and sliders • follow a design brief to make a pop up book using slider, pivots or folds to create movement • make mechanisms and/or structures • use layers and spacers to hide the workings of mechanical parts	**Make Skills** • select from a range of materials and components for their functional properties • measure, mark and cut components accurately using a ruler, saw & bench hook • assemble components accurately to make a stable frame • create a moving model using a barrel and chain mechanism • create a handle or winch to make the mechanism function
Evaluate Skills • explain how my puppet moves • talk about what I like and dislike	**Evaluate Skills** • test and adapt design • evaluate own design against design criteria • use peer feedback to modify design	**Evaluate Skills** • select an audience to test the finished product, e.g. Reception class • create a short questionnaire to ask the test audience opinions • do the moving parts move and pop up as planned? Discuss ways to fix any issues with peers	**Evaluate Skills** • test and adapt design • evaluate different designs of peers and suggest improvements • identify and describe changes they would make to their own model • evaluate the functionality of the finished product, do the parts move up and down?
Technical Knowledge • learn how to move the parts on their split pin puppet • use the vocabulary: up and down, left and right to describe movement	**Technical Knowledge** • identify wheels and axles in moving vehicles • learn that mechanisms are a collection of moving parts • learn how axles help wheels to move a vehicle	**Technical Knowledge** • learn that an input is the motion used to start a mechanism • learn that an output is the motion that happens as a result of starting the input	**Technical Knowledge** • know that mechanisms control movement • understand and use mechanical systems in their product • apply knowledge of how to strengthen and reinforce more complex structures • explain how a cam mechanisms controls movement through converting a rotary motion into a linear motion
Vocabulary up down left right directions split-pin puppet explain	**Vocabulary** axle wheel design axle holder vehicle friction engine motion	**Vocabulary** mechanism input output motion moveable book pop-up book paper engineer	**Vocabulary** cam components linear movement rotary movement mechanisms

DT Progression

Electrical Systems (KS2 only)

Reception	KS1	Lower KS2	Upper KS2
Project	**Project**	**Project** Design and make a torch – who is it for and what features does it need?	**Project** Electronic greetings cards – can you design and make a light up Christmas card?
Design Skills	**Design Skills**	**Design Skills** • design a torch, considering who it is for – what colours would they like? What hobbies or interests does that person have? • design a torch, considering what it is needed for – e.g. is it needed for camping or going into a cave, is it needed for reading at bedtime or is it needed in case of a power cut • create a labelled design, showing the individual design features, e.g. is the torch small and portable? Is the torch bright and powerful? Does the torch stand freely or need a loop or keyring?	**Design Skills** • design an electronic greetings card – who is it for? What is the occasion? Does the person have any likes or dislikes? • design an electronic greetings card with a simple electrical circuit • consider where the LED's will be positioned to optimise the design of the card and to create a high-quality card • create a labelled design showing positive and negative parts in relation to the LED and the battery
Make Skills	**Make Skills**	**Make Skills** • make a torch with a working electrical circuit and switch • select and use appropriate equipment to cut, assemble and attach materials • assemble a torch according to the design the needs of the user.	**Make Skills** • make a working circuit, select, and use the appropriate materials • create an electronic greetings card, referring to the design criteria • map out where different components will go in the card
Evaluate Skills	**Evaluate Skills**	**Evaluate Skills** • explore, test and evaluate existing torches through questioning, exploration, disassembling, handling, looking and drawing upon existing knowledge and experiences of torches. • test and evaluate the success of the final product – does it meet the design criteria? Why/why not? • How could the product be improved?	**Evaluate Skills** • evaluate work continually as it is created, make modifications for improvement – note these on your design • evaluate the completed product, test the reliability of the circuit. Peers to suggest modifications for improvements. • discuss how to incorporate another type of electronic device, e.g. buzzer
Technical Knowledge	**Technical Knowledge**	**Technical Knowledge** • learn how electrical systems work • identify the features of a torch • understand how a torch works • discuss the positives and negatives of different torches • learn what electrical conductors and insulators are • understand that a battery contains stored electricity and can be used to power products	**Technical Knowledge** • learn the key components used to create a functioning circuit • learn the difference between series and parallel circuits • understand that breaks in a circuit will stop it from working
Vocabulary	**Vocabulary**	**Vocabulary** electrical insulator conductor battery bulb switch series circuit	**Vocabulary** series circuit parallel circuit target audience component LED filament modify

DT Progression

Cooking and Nutrition

Reception	KS1	Lower KS2	Upper KS2
Project Autumn soup – can we chop, peel, and slice the vegetables? *Edible Playground*	**Project** Healthy fruit – what fruit would you choose for your fruit salad or smoothie? *Edible Playground*	**Project** How can we make our pizzas healthier? *Edible Playground*	**Project** Can we grow our own salad? What can we make with our crops? (Design a WW2 vegetable garden) *Edible Playground*
Design Skills • discuss individual preferences - which vegetables do you like or dislike? • taste test to inform design - taste each vegetable individually and discuss which ones would go well together in the vegetable soup	**Design Skills** • discuss individual preferences – which fruits do you like or dislike? • taste test to inform design - taste each fruit individually and discuss which ones would go well together for the fruit salad or smoothie • create a recipe for a healthy fruit salad or smoothie, considering the taste, texture, smell, and appearance.	**Design Skills** • create a healthy and nutritious recipe for a pizza making healthy food choices, and considering the taste, texture, smell, and appearance of the dish. • draw upon knowledge of prior vegetable preferences • design a healthy pizza within a given price budget	**Design Skills** • adapt a recipe, understanding that the nutritional value alters if you remove, substitute, or add additional ingredients • design a salad using ingredients available from the Edible Playground and vegetables that grow in the UK, considering environmental impact • design appealing packaging to reflect a recipe, how can your packaging be environmentally friendly or recyclable?
Make Skills • prepare vegetables safely to make the soup • begin to learn where and how vegetables are grown	**Make Skills** • prepare fruit safely to make the fruit salad or smoothie • slice fruit with a knife using the bridge or claw grip • begin to learn where and how fruit is grown – visit the Edible Playground – what fruits do we have growing? • follow the instructions within a recipe	**Make Skills** • know how to prepare themselves and their workspace safely and hygienically, to avoid food contamination • follow the instructions within a recipe	**Make Skills** • work safely and hygienically with independence • be responsible for own workspace, knowing how to avoid cross contamination • work to a time scale • use equipment safely, including knives, hot pans, and hobs
Evaluate Skills • taste and evaluate cooked vegetables before making the soup • describe appearance, smell, and taste • discuss what we could add to make the soup taste even better	**Evaluate Skills** • taste and evaluate fruit before making the fruit salad or smoothie • taste test final product – talk about improvements • describe the information that should be on a label if this product was to be sold • evaluate which grip was most effective to cut which fruit	**Evaluate Skills** • taste and evaluate different types of pizza toppings • taste and evaluate different types of bread – which is the healthiest option? • describe the benefits of using seasonal vegetables and the impact on the environment • evaluate a recipe, • Describe the impact of the budget on the selection of ingredients • discuss how the recipe would be adapted for different users, e.g. a vegetarian	**Evaluate Skills** • identifying the nutritional differences between different products and recipes • identify and describe healthy benefits of food groups • taste test and score final product • evaluate appealing and attractive packaging to sell a product
Technical Knowledge • describe and group vegetables by texture and taste • begin to learn how to handle kitchen tools safely: use peelers, knives, and graters with adult support	**Technical Knowledge** • use kitchen tools safely with less adult support: peelers, knives, graters, squeezers, and colanders • understand what makes a balanced diet • know where to find the nutritional value on packaging • learn about the five food groups	**Technical Knowledge** • learn that climate affects food growth • use cooking utensils safely and hygienically • learn that vegetables grow in certain seasons • learn that each pizza topping gives us nutritional value: protein, fats, carbohydrate and fibre and select those with the best nutritional benefits for a healthy pizza • explain the five food groups and the benefits of each food group for a healthy and balanced diet	**Technical Knowledge** • understand what constitutes a balanced diet • compare two adapted recipes using a nutritional calculator • record the relevant ingredients and equipment needed for a recipe • understand where food comes from, describing the process of 'Farm to Fork' for a given ingredient • learn that imported foods travel from far away and this can negatively impact the environment

DT Progression

Cooking and Nutrition

Reception	KS1	Lower KS2	Upper KS2
Vocabulary tools grater knife peeler vegetables recipe safely allotment	**Vocabulary** fruit healthy ingredients recipe slice peel blender	**Vocabulary** seasonal nutritional value budget hygiene vegetarian vegan ethical	**Vocabulary** balanced diet imported impact environment sustainable rationing seasonal reared