

DT Progression Framework

EYFS

UNIT	AUTUMN TERM – Junk Modelling	SPRING TERM – Boat Building	SUMMER TERM – Textile Bookmarks
DISCIPLINARY KNOWLEDGE	<ul style="list-style-type: none"> - Making verbal plans and material choices - Developing a junk model - Improving fine motor/scissor skills with a variety of materials - Joining different materials together - Describing their junk model and how they intend to put it together. - Evaluate – Giving verbal evaluation of their own and other' junk models with 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. 	<ul style="list-style-type: none"> - Designing a junk model boat. - Using knowledge from exploration to inform design. - Making a boat that floats and is waterproof, considering material choices. - 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. 	<ul style="list-style-type: none"> - Discussing what a good design needs. - Designing a simple pattern with paper - Designing a bookmark. - Choosing from available materials - Making – developing fine motor/cutting skills with scissors - Exploring fine motor/threading and weaving (under/over technique) with a variety if different materials - Using prepared needle and wool to practise threading. - Evaluating – reflecting on a finished product and comparing to their design.
SUBSTANTIVE KNOWLEDGE	<ul style="list-style-type: none"> - Technical – to know that there are a range of different materials that can be used to make a model and that they are all slightly different. 	<ul style="list-style-type: none"> - To know that 'waterproof' materials are those which do not absorb water. 	<ul style="list-style-type: none"> - 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.

KS1 – Year 1/2 - Year A

UNIT OF WORK	AUTUMN TERM – Windmills	SPRING TERM – Moving Story Book	SUMMER TERM - Puppets
DISCIPLINARY KNOWLEDGE Design	<ul style="list-style-type: none"> - Learn the importance of clear design criteria. - Include visual preferences and requirements in a design. 	<ul style="list-style-type: none"> - Designing a moving storybook for a given audience. - Explaining how to adapt mechanisms, using bridges or guides to control the movements. 	<ul style="list-style-type: none"> - Use a template to create a design for a puppet.
Make	<ul style="list-style-type: none"> - Making stable structures from card tape and glue. - Following instructions to turn 2D nets into 3D structures. - Making functioning axles which are assembled into a main supporting structure. 	<ul style="list-style-type: none"> - Make – following a design to create moving models that use levers and sliders. 	<ul style="list-style-type: none"> - Make – cut fabric neatly with scissors. - Using joining methods to decorate a puppet. - Sequencing the steps taken during a construction
Evaluate	<ul style="list-style-type: none"> - Evaluating a windmill according to the design criteria, testing whether the structure is strong stable and altering it if it isn't. - Suggest points for improvements. 	<ul style="list-style-type: none"> - Evaluate – Testing a finished product, if it moves as planned and if not considering why and how it can be fixed. - Reviewing the success of the interested audience. 	<ul style="list-style-type: none"> - Evaluate – reflect on a finished product, explaining likes and dislikes.
SUBSTANTIVE KNOWLEDGE	<ul style="list-style-type: none"> - To understand that the shape of materials can be changed to improve the strength and stiffness of structures. - To understand the cylinders are a strong type of structure. - 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 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 wants and needs 	<ul style="list-style-type: none"> - Technical Knowledge – To know that a mechanism is the parts of an object that move together. - To know that a slider mechanism moves an object from side to side. - To know that a slider mechanism has a slot, slider, guides, and an object. - To know that bridges are guides and are bits of card which limit the movement of the slider. - To know that in DT we call a plan 'a design' 	<ul style="list-style-type: none"> - 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 for a fabric pattern is used to cut out the same shape multiples of times. - To know that drawing a design idea is useful to see how an idea will look.

LKS2 – Year 3/4 – Year A

UNIT OF WORK	AUTUMN TERM – Constructing a Castle	SPRING TERM – Pneumatic Toys	SUMMER TERM – Electronic Charm
DISCIPLINARY KNOWLEDGE			
Design	<ul style="list-style-type: none"> - Design a castle with clear features to appeal to a specific person or purpose. - Drawing and labelling a castle design by 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. 	<ul style="list-style-type: none"> - Designing a toy which uses a pneumatic system. - Developing design criteria from a brief - Generating ideas using thumbnail sketches and exploded diagrams. - Learning that different types of drawings are used to explain ideas clearly. 	<ul style="list-style-type: none"> - Problem solving by suggesting potential features on a micro bit, justifying new ideas. - Developing design ideas for a technology pouch - Drawing and manipulating 2D shapes using CAD to produce a point-of-sale badge.
Make	<ul style="list-style-type: none"> - Make – construct a range of geometric shapes using nets. - Creating special features for individual designs - Making facades from a range of recycled materials, 	<ul style="list-style-type: none"> - Make – create a pneumatic system to locate a desired motion. - Build a secure housing for a pneumatic system. - Using syringes and balloons to create different types of pneumatic system to make a functional and appealing toy. - Selecting materials for their functional and aesthetic characteristics - Manipulating materials to create effects by cutting creasing curling and folding. 	<ul style="list-style-type: none"> - Make – use 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. - Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.
Evaluate	<ul style="list-style-type: none"> - Evaluating own work and the work of others based on the original design. - Suggesting points for modification of the individual designs. 	<ul style="list-style-type: none"> - Using the views of others to improve designs. - Testing and modifying the outcome suggesting improvements - Understanding the purpose of exploded diagrams through the eyes of a designer and their client. 	<ul style="list-style-type: none"> - Analyse and evaluate an existing product. - Identifying the key features of a pouch.
SUBSTANTIVE KNOWLEDGE	<ul style="list-style-type: none"> - To understand that a wide flat based object is more stable. - To understand the importance of strength and stiffness in structures. - To know the different features of a castle and their purpose - To know that a net is a 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. 	<ul style="list-style-type: none"> - To understand how pneumatic systems work - To understand that pneumatic systems can be part of a mechanism. - To know that pneumatic systems operate by drawing in releasing and compressing air. - To understand how sketches drawings and diagrams can be used to communicate ideas. - To know that exploded diagrams are used to show different parts of a product fit together. - To know that thumbnail sketches are small drawings to get ideas down quickly 	<ul style="list-style-type: none"> - To understand that in programming, a 'loop' is code that repeats something again and again until it is stopped. - To know that a Micro bit is a pocket sized codable computer - To know what the 'Digital Revolution' is and features of some products that evolved - To know that in DT 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 is computer aided design.

UKS2 – Year 5/6 – Year A

UNIT OF WORK	AUTUMN TERM – What could be healthier?	SPRING TERM – Playground Structures	SUMMER TERM – Pop up Books
<p>DISCIPLINARY KNOWLEDGE</p> <p>Design</p> <p>Make</p> <p>Evaluate</p>	<ul style="list-style-type: none"> - 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 the 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 step by step method carefully to make a recipe. - Evaluate – to identify the nutritional differences between different products and recipes. - Identifying and describing healthy benefits of food groups. 	<ul style="list-style-type: none"> - Designing a playground featuring a variety of different structures, considering how the structures will be used, considering effective and ineffective designs. - Making – building a range of play structures drawing upon new and prior knowledge of structures - Measuring and marking and cutting wood to create a range of structures. - Using a range of materials to reinforce and add decoration to structures. - Evaluating – 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. 	<ul style="list-style-type: none"> - 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. - Making – following a design brief to make a pop-up book, neatly and with focus on accuracy. - Making mechanisms and/or structures using sliders, pivots, and folds to produce movement. - Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. - Evaluating the work of other and receiving feedback on own work. - Suggesting points for improvement.
<p>SUBTANTIVE KNOWLEDGE</p>	<ul style="list-style-type: none"> - 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 use nutritional calculators 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. 	<ul style="list-style-type: none"> - To know that structures can be strengthened by manipulating materials and shapes. - To understand what a footprint plan is. - To understand that unit the real world, design can impact users in positive and negative ways, - To know that a prototype is a chap model to test a design idea. 	<ul style="list-style-type: none"> - To know that mechanisms control movement - To understand the mechanisms can be used to change one kind of motion into another. - To understand how to use sliders, pivots, and folds to create paper-based mechanisms. - To know that a design brief is a description of what I am going to design and make. - To know that designers often want to hide mechanisms to make a product aesthetically pleasing.

KS1 – Year 1/2 - Year B

UNIT OF WORK	AUTUMN TERM – Baby Bear’s Chair	SPRING TERM – Smoothie Design	SUMMER TERM – Wheels and Axels
<p>DISCIPLINARY KNOWLEDGE</p> <p>Design</p> <p>Make</p> <p>Evaluate</p>	<ul style="list-style-type: none"> • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. • Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper. • Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure. 	<p>Designing smoothie carton packaging by-hand or on ICT software.</p> <p>Chopping fruit and vegetables safely to make a smoothie.</p> <ul style="list-style-type: none"> • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow. <ul style="list-style-type: none"> • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. 	<ul style="list-style-type: none"> • Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. • Creating clearly labelled drawings that <ul style="list-style-type: none"> - illustrate movement. • Adapting mechanisms, when: <ul style="list-style-type: none"> • they do not work as they should. • to fit their vehicle design. • to improve how they work after testing their vehicle. • Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.
<p>SUBTANTIVE KNOWLEDGE</p>	<ul style="list-style-type: none"> • 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. • To know that natural structures are those found in nature. • To know that man-made structures are those made by people. 	<ul style="list-style-type: none"> • 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). 	<ul style="list-style-type: none"> • To know that wheels need to be round to rotate and move. • To understand that for a wheel to move it must be attached to a rotating axle. • To know that an axle moves within an axle holder which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced. • To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.

LKS2 – Year 3/4 – Year B

UNIT OF WORK	AUTUMN TERM – Seasonal food	SPRING TERM – Pavilions	SUMMER TERM – Electronic Charm
<p>DISCIPLINARY KNOWLEDGE</p> <p>Design</p> <p>Make</p> <p>Evaluate</p>	<ul style="list-style-type: none"> • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish • 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. • 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. 	<ul style="list-style-type: none"> • Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight • 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 • Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs. 	<ul style="list-style-type: none"> • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. • Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria. • Evaluating electrical products. • Testing and evaluating the success of a final product.
<p>SUBTANTIVE KNOWLEDGE</p>	<ul style="list-style-type: none"> • 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 understand that imported foods travel from far away and this can negatively impact the environment. • 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. 	<ul style="list-style-type: none"> • To understand what a frame structure is • To know that a 'free-standing' structure is one which can stand on its own • To know that a pavilion is 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. 	<ul style="list-style-type: none"> • 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 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.

UKS2 – Year 5/6 – Year B

UNIT OF WORK	AUTUMN TERM – Structures: Playgrounds	SPRING TERM – Doodlers	SUMMER TERM – Waistcoats
<p>DISCIPLINARY KNOWLEDGE</p> <p>Design</p>	<ul style="list-style-type: none"> • Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs 	<ul style="list-style-type: none"> • 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. • Altering a product's form and function by tinkering with its configuration. 	<ul style="list-style-type: none"> • Designing a waistcoat in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.
<p>Make</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
<p>Evaluate</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
<p>SUBTANTIVE KNOWLEDGE</p>	<ul style="list-style-type: none"> • To know that structures can be strengthened by manipulating materials and shapes. • 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. 	<ul style="list-style-type: none"> • 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 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 	<ul style="list-style-type: none"> • 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.