Design and Technology UKS2 Cycle B			
Structures Bridges	**Mechanisms/Mechanical systems:** Making a pop-up book **Cooking and nutrition** Come dine with me	**Textiles** waistcoats **Electrical systems** Steady hand game	**Digital World:** Monitoring devices
Structures **Composite piece** To design, build and evaluate a truss bridge, using wood.	**Mechanisms/Mechanical systems** **Cooking and nutrition** **Composite pieces** To create and design a pop-up book, according to a design brief for a specific target user. To research, design and prepare a three-course meal, following a recipe.	**Textiles/Electrical systems** **Composite piece** To design, assemble and decorate a waistcoat. To design a steady hand game, assembling electrical components and complete an electronic game.	**Digital World** **Composite piece** To research and develop design criteria for a monitoring device.
Subject Specific Vocabulary			

Structures: Bridges

Abutment, Accurate, Arched bridge, Beam bridge, Coping saw, Evaluation, File, Mark out, Material properties, Measure, Predict, Reinforce, Research, Sandpaper, Set square, Suspension bridge, Tenon saw, Test, Truss bridge, Wood.

Mechanisms/Mechanical systems: Making a 'pop-up' book

Aesthetic, Computer-aided design (CAD), Caption, Design, Design brief, Design criteria, Exploded diagram, Function, Input, Linkage, Mechanism, Motion, Output, Pivot, Prototype, Slider, Structure, Template

Cooking and nutrition: Come dine with me

Accompaniment, Collaboration, Cookbook, Cross-contamination, Equipment, Farm, Flavour, Illustration, Imperative-verb, Ingredients, Method, Nationality, Preparation, Processed, Reared, Recipe, Research, Storyboard, Target audience, Top tips.

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

Electrical systems: Steady hand game

Assemble, Battery, Battery pack, Benefit, Bulb, Bulb holder, Buzzer, Circuit, Circuit symbol, Component, Conductor, Copper, Design, Design criteria, Evaluation, Fine motor skills, Fit for purpose, Form, Function, Gross motor skills, Insulator, LED, User

Digital World:

Alert, Ambient, Boolean, Consumables, Decompose, Development, Device, Duplicate, Durable, Electronic, Inventor, Lightweight, Man-made, Manipulate, Manoeuvre, Microplastics, Model, Monitor, Monitoring device, Moulded, Plastic, Plastic pollution, Programming comment, Programming loop, Reformed, Replica, Research, Sensor, Strong, Sustainability, Synthetic, Thermometer, Thermoscope, Value, Variable, Versatile, Water-resistant, Workplane

Skills		
Design	**Make**	**Evaluate**
Structures I can design a stable structure that is able to support weight. I can create a frame structure with a focus on triangulation. **Mechanisms/Mechanical systems** I can design a pop-up book which uses a mixture of structures and mechanisms. I can name each mechanism, input and output correctly. I can storyboard 'ideas' for a book. **Cooking and nutrition** I can write a recipe, explaining the key steps, methods and ingredients.	**Structures** I can make a range of different beamed bridges. I can use triangles to create truss bridges that span a given distance and support a load. I can build a wooden bridge structure. I can independently measure and mark wood accurately. I can select appropriate tools and equipment for particular tasks. I can use the correct technique to saw safely. I can identify where a structure needs reinforcement and use card corners for support. I can explain why selecting appropriate materials is an important part of the design process.	**Structures** I can adapt and improve my own bridge structure by identifying points of weakness and reinforce them as necessary. I can suggest points for improvement for my own bridges and those designed by others. **Mechanisms/Mechanical systems** I can evaluate the work of others. I can receive feedback on my own work. I can suggest points for improvement **Cooking and nutrition** I can evaluate a recipe. I can consider taste, smell, texture and origin ogf the food group.

I can include facts and drawings from research. **Textiles** I can design a waistcoat to a set of design criteria. I can annotate design to explain my decisions. **Electrical systems** I can design a steady hand game. I can identify and name the components required. I can draw a design from three different perspectives. I can generate ideas through sketching and discussion. I can model ideas through prototypes. I can understand the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. **Digital World** I can research books and the internet for a particular animal's needs. I can develop design criteria based on research. I can generate multiple housing ideas, using building bricks. I can understand what a virtual model is and the pros and cons of traditional and CAD modelling. I can place and manoeuvre 3D objects, using CAD. I can change the properties of, or combine one or more 3D objects using CAD.	I can understand basic wood functional properties. **Mechanisms/Mechanical systems** I can follow a design brief to make a pop-up book. I can focus on accuracy. I can mechanisms and/or structures using sliders, pivots and folds to produce movement. I can use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. **Cooking and nutrition** I can follow a recipe, including the correct quantities of each ingredient. I can adapt a recipe based on research. I can work to a given timescale. I can work safely, independently. I can work hygienically, independently. **Textiles** I can use a template when cutting fabric. I can use pins to secure a template to fabric. I can mark and cut fabric accurately to match my design. I can sew a strong running stitch. I can tie strong knots. I can decorate a waistcoat, attaching features (such as qpplique) using thread. I can finish the waistcoat with a secure fastening, for example, a button. I can learn different decorative stitches. I can sew accurately, with evenly spaced neat stitches. **Electrical systems** I can construct a stable base for a game. I can cut, fold and assemble a net with accuracy. I can decorate the base to a high quality finish. I can make and test a circuit. I can incorporate a circuit into a base.	I can taste test and score the final products. I can suggest and write up points of improvement when scoring other's dishes. I can evaluate my own work through the planning, preparation and cooking process. I can evaluate health and safety to minimize cross contamination. **Textiles** I can reflect on my own work throughout the design, make and evaluate process. **Electrical systems** I can test my own and others finished games. I can identify what went well and make suggestions for improvement. I can gather images and information about existing children's toys. I can analyse a selection of existing children's toys. **Digital World** I can state an event or fact from the last 100 years of plastic history. I can explain how plastic is affecting planet Earth and suggesting ways to make more sustainable choices. I can explain key functions in my program (audible or visual). I can explain how my product would be useful for an animal carer including programmed features.

	Digital World I can understand the functional and aesthetic properties of plastic. I can use programming to monitor temperature. I can use coding as an alert when the temperature rises above or falls below a specified range.	

Knowledge (I will know…)

Technical	**Additional**
Structures I know different ways to reinforce structures. I know how triangles can be used to reinforce bridges. I know that properties are words that describe the form and function of materials. I know why material selection is important based on properties. I know the material (functional and aesthetic) properties of wood. **Mechanisms/Mechanical systems** I know that mechanisms control movement. I know that mechanisms can be used to change one kind of motion into another. I know how to use sliders, pivots and folds to create paper-based mechanisms. **Cooking and nutrition** I know that 'flavour' is how a food or drink tastes. I know that many countries have 'national dishes' which are recipes associated with that country. I know that 'processed food' means food that has been put through multiple changes in a factory. I know that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. I know what happens to a certain food before it appears on the supermarket shelf (Farm to Fork). **Textiles** I know that it is important to design clothing with the client/target customer in mind. I know that using a template (or clothing pattern) helps to accurately amrk out a	**Structures** I know the difference between arch, beam, truss and suspension bridges. I understand how to carry and use a saw safely. **Mechanisms/Mechanical systems** I know that a design brief is a description of what I am going to design and make. I know that designers often want to hide mechanisms to make a product more aesthetically pleasing. **Electrical systems** I know that 'form' means the shape and appearance of an object. I know the difference between 'form' and 'function'. I know that 'fit for purpose' means that a product works how it should and is easy to use. I know that that 'form over purpose' means that a product looks good but does not work very well. I know the importance of 'form follows function' when designing the product must be designed primarily with the function in mind. I know the diagram perspectives 'top view', 'side view' and 'back'. **Digital World** I know key developments in thermometer history. I know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future. I know the 6R's of sustainability. I know what a virtual model is and the pros and cons of traditional vs CAD modelling.

design on fabric. I know the importance of consistently sized stitches. **Electrical systems** I know that batteries contain acid, which can be dangerous if they leak. I know the names of the components in a basic series circuit, including a buzzer. **Digital World** I know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record. I know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose. I know that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met.	