

Structures – Substantive Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
	<ul style="list-style-type: none"> I know that materials can be manipulated to improve strength and stiffness. I will investigate that cylinders are a strong type of structure (rather than cuboids etc) 	<ul style="list-style-type: none"> I understand what a frame structure is. I know that cladding can be applied to structures for different effects. I know that architects consider light, shadow and patterns when designing. 	<ul style="list-style-type: none"> I know some different ways to reinforce structures. I know how triangles can be used to reinforce bridges. I know the material (functional and aesthetic) properties of wood and explain why this is may be an appropriate material.
Structures – Disciplinary Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<ul style="list-style-type: none"> I can make models with meaning. I can use a range of materials to construct with. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can create joints and structures with card and tape, according to design criteria I can build a strong structure by folding paper I can test and evaluate the strength, stiffness and stability of my design 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can plan and design (including annotated sketches of different shapes and sizes) a stable frame structure that is aesthetically pleasing using materials for textural effects. I can select appropriate materials to build a strong structure and cladding, reinforcing corners to strengthen a structure. . I can describe and consider effective and ineffective designs. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can design a stable structure that is able to support weight by creating a frame structure with focus on triangulation. I can independently measure and mark wood accurately to create a range of wooden beams. I can use the correct techniques to saw safely. I can adapt and improve my own bridge structure by identifying points of weakness and reinforcing them as necessary.
Mechanisms – Substantive Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
	<ul style="list-style-type: none"> I recognise and explore everyday objects that have mechanisms, using them to influence ideas. I know that wheels need to be round to rotate and move. I understand that for a wheel to move it must be attached to a rotating axle. I know that an axle moves within an axle holder which is fixed to the vehicle or toy. I know a mechanism is the parts of an object that move together. I know a slider mechanism moves an object from side to side or up and down. 	<ul style="list-style-type: none"> I know how a pneumatic system works by drawing in, releasing and compressing air. I know that pneumatic systems can be used as part of a mechanism. I know a combination of mechanisms can improve a product. I know that mechanisms have housing to make them ascertically pleasing. 	<ul style="list-style-type: none"> I know that mechanisms control movement, with an input and output. 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.

	<ul style="list-style-type: none"> I know bridges and guides purposefully restrict the movement of the slider. 		
Mechanisms – Disciplinary Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<ul style="list-style-type: none"> I can independently explore how things work. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can attach wheels and axels successfully, so they move. I can join objects together securely. I can design a moving picture for a given audience. I can test a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. I can review the success of a product by testing it with its intended audience 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can generate ideas using thumbnail sketches and exploded diagrams which influence a final design. I can select and manipulate (crease, fold, weave) materials to make a functional and appealing pneumatic toy. I can manipulate materials for effects by cutting, creasing, folding or weaving. I can use the views of others to improve my design. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can design a pop-up book which uses a mixture of structures and mechanisms. I can make a pop-up book, neatly and with focus on accuracy. I can use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. I can evaluate the work of others as well as my own, suggest improvements and receive feedback on own work.
Cooking and Nutrition – Substantive Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<ul style="list-style-type: none"> I know foods can be cooked. I know ice will melt in the sun. I know it is important to wash my hands. 	<ul style="list-style-type: none"> I know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. (and that these make a balanced diet) I know a fruit has seeds and a vegetable does not. I know fruits grow on trees or vines and vegetables can grow either above or below ground. I know vegetables are any edible part of a plant. 	<ul style="list-style-type: none"> To know that safety and hygiene rules are important to follow when cooking. To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping. To know the importance of budgeting while planning ingredients for a recipe. I know some seasonal foods that grow in the UK and what season they grow in. I know that eating seasonal foods can have a positive impact on the environment. I know that similar coloured fruits and vegetables often have similar nutritional benefits. I know climate impacts food growth. 	<ul style="list-style-type: none"> 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 some foods before it appears on the supermarket shelf (farm to fork). I know that nutrition information for products can be found on the label. I know that coloured chopping boards can prevent cross-contamination.
Cooking and Nutrition – Disciplinary Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2

<ul style="list-style-type: none"> I can make my own decisions about healthy foods. 	<ul style="list-style-type: none"> I can design, prepare and cook variety of savoury dishes using a range of cooking techniques. I can design two or more ideas that meet a design brief. I can chop, grate, spread and snip (smaller) foods safely. I can taste and evaluate personal opinions on different food combinations describing appearance, smell and taste. I can chop or juice fruit and vegetables safely. I can taste and evaluate different foods, describing appearance, smell and taste. 	<ul style="list-style-type: none"> I can design, prepare and cook variety of savoury dishes using a range of cooking techniques. I can design a biscuit within a given budget, after conducting market research. I can follow a baking recipe. I can adapt and evaluate a recipe, suggesting appropriate modifications. I can cut and peel safely either by hand or with a peeler. I can choose ingredients based on a design brief. I can follow instructions in a recipe. 	<ul style="list-style-type: none"> I can prepare and cook variety of savoury dishes using a range of cooking techniques. I can adapt or write my own recipe after using facts and research - explaining the key steps, method, ingredients and quantities. I can evaluate a recipe, considering taste, smell, texture and origin of the food group. I can evaluate health and safety in production to minimise cross contamination. I can research existing recipes to then suggest and write alternative recipes to make the nutritional content adapted for a particular audience.(eg: health conditions, allergies, age).
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Textiles – Substantive Knowledge

EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> I know that there are various temporary methods of joining fabric by using staples, glue or pins – each useful for a different purpose. I know that a template (or fabric pattern) is used to cut out the same shape multiple times. 	<ul style="list-style-type: none"> To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. To know that different fastening types are useful for different purposes and investigate the advantages and disadvantages. To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions. 	<ul style="list-style-type: none"> I know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric I know that soft toys are often made by creating appendages separately and then attaching them to the main body. I know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.

Textiles – Disciplinary Knowledge

EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<ul style="list-style-type: none"> I can use one handed tools e.g.: scissors to make snips. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can cut fabric neatly with scissors. I can decorate closely to my design. I can reflect on a finished product, explaining likes and dislikes. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can write a design criteria for a product, articulating decisions made. I can measure, mark and cut fabric using a paper template. I can work neatly by sewing small, straight stitches. 	<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can design a stuffed toy considering the main component shapes/proportions required and create an appropriate template for individual components.

		<ul style="list-style-type: none"> I will consider how successful a product is, by testing and evaluating, in relation to a criteria and suggest modifications for improvement. 	<ul style="list-style-type: none"> I can create a 3D stuffed toy from a 2D design by measuring, marking and cutting fabric accurately and independently. I can create strong and secure blanket stitches when joining fabric, with even and regular spacing. I can use appliqué to attach pieces of fabric decoration. I can test and evaluate the end product and give points for further improvements.
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Digital World – Substantive Knowledge

EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
		<ul style="list-style-type: none"> I know in programming, a ‘loop’ is code that repeats something again and again until stopped. I know that a micro:bit is a pocket-sized, codeable computer. I know that a simulator can replicate the functions of an existing piece of technology. 	

Digital World – Disciplinary Knowledge

EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
		<ul style="list-style-type: none"> I can follow a cycle of design, make and evaluate. I can suggest features from a micro:bit that are beneficial to a given user, justifying ideas from analysing and evaluating existing products. I can develop design ideas, from a set brief, through annotated sketches to create a product concept. I can draw and manipulate 2D shapes, using computer-aided design, to produce a point-of-sale badge. I can write a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. I can reflect and use feedback from peers to improve a design. 	

Electrical Systems - Substantive Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
			<ul style="list-style-type: none"> • I know the difference between 'form' and 'function'. • I understand the terms 'fit for purpose' and 'form over purpose'. • I know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.
Electrical Systems - Disciplinary Knowledge			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
			<ul style="list-style-type: none"> • I can follow a cycle of design, make and evaluate. • I can design a steady hand game with a stable base, identifying and naming the components required, after research from existing children's toys. • I can draw a design from three different perspectives - 'top view, side view and back'. • I can model ideas through prototypes. • I can accurately cut, fold and assemble a net. • I can make and test a circuit. • I can test my own and others' finished games, identifying what went well and making suggestions for improvement.