LKS2 Cycle B Phase Overview

Design and Technology LKS2 Cycle B			
Cooking and nutrition Adapting a recipe	**Mechanisms/Mechanical systems** Making a slingshot car **Structures** Pavilions	**Textiles** Fastenings **Electrical Systems** Torches	**Digital world:** Mindful moments timer
Cooking and nutrition **Composite piece** To design and bake a biscuit within a given budget.	**Mechanisms/Mechanical systems/Structures** **Composite pieces** To design and build a functioning car with a chassis and the completed product. To design and build a free-standing structure and add cladding to create different effects.	**Textiles/Electrical systems** **Composite pieces** To design a personalised book sleeve. To create a functioning torch with a switch according to a design criteria.	**Digital World** **Composite piece** To create a design criteria for a functioning mindful timer, including programming a Micro:bit timer and designing and developing a prototype case.
Subject Specific Vocabulary			
Cooking and nutrition: Adapting a recipe Adapt, Budget, Cooling rack, Creaming, Equipment, Evaluation, Flavour, Ingredients, Method, Net, Packaging, Prototype, Quantity, Recipe, Rubbing, Sieving, Target audience, Unit of measurement, Utilities. **Mechanisms/Mechanical systems: Making a slingshot car** Aesthetic, Air resistance, Chassis, Design, Design criteria, Function, Graphics, Kinetic energy, Mechanism, Net, Structure. **Structures: Pavillions** Aesthetic, Cladding, Design criteria, Evaluation, Frame structure, Function, Inspiration, Pavillion, Reinforce, Stable, Structure, Target audience, Target customer, Texture, Theme. **Textiles: Fastenings**			

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Aesthetic, Assemble, Book sleeve, Design criteria, Evaluation, Fabric, Fastening, Mock up, Net, Running-stitch, Stencil, Target audience, Target customer, Template.

Electrical systems: Torches

Battery, bulb, Buzzer, Cell, Component, Conductor, Copper, Design criteria, Electronic item, Function, Insulator, Series circuit, Switch, Test, Torch, Wire.

Digital world: Mindful moments timer

2D, Advantage, Assemble, Block, Brand identity, Branding, Bug, CAD, Cheap, Clipart, Debug, Design, Develop, Disadvantage, Ergonomic, Evaluate, Form, Function, instructions, Join, Logo, Loop, Mindfulness, Model, Net, Pause, Process, Program, Prototype, Research, Sketchpad, Template, Test, Timer, User, Variable

Skills		
Design	**Make**	**Evaluate**
Cooking and nutrition I can design a biscuit within a given budget. I can use taste testing to form my judgements. **Mechanisms/Mechanical systems** I can design a shape that reduces air resistance. I can draw a net to create a structure form. I can choose shapes that increase speed as a result of air resistance. I can choose shapes that decrease speed as a result of air resistance. I can personalize a design. **Structures** I can design a stable pavilion structure that is aesthetically pleasing. I can select materials to create a desired effect. I can build frame structures designed to support weight. **Textiles**	**Cooking and nutrition** I can follow a baking recipe, from start to finish. I can prepare ingredients safely. I can follow basic hygiene rules. I can cook following safety rules. I can adapt a recipe to improve it or change it to meet a new criteria (e.g. from savoury to sweet). **Mechanisms/Mechanical systems** I can measure, mark, cut and assemble with increasing accuracy. I can make a model based on a chosen design. **Structures** I can create a range of different shaped frame structures I can make a variety of free-standing frame structures of different shapes and sizes. I can select appropriate materials to build a strong structure and cladding.	**Cooking and nutrition** I can evaluate a recipe, considering taste, smell, texture and appearance. I can describe the impact of the budget on the selection of ingredients. I can evaluate and compare a range of products. I can suggest modifications to a recipe. **Mechanisms/Mechanical systems** I can evaluate the speed of a final product based on the effect of: • Shape on speed • Workmanship on performance **Structures** I can evaluate structures made by the class. I can describe what characteristics of a design made it the most effective. I can describe which construction of a design made it the most effective.

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I can write design criteria for a product, explaining my decisions. I can design a personalized book sleeve. **Electrical systems** I can design a torch, giving consideration to the target audience. I can create both design and success criteria focusing on features of individual design ideas. **Digital World** I can write design criteria for a programmed timer (Micro:bit) I can explore different mindfulness strategies. I can apply the results of my research to further inform my design criteria. I can develop a prototype case for my mindful moment timer. I can produce a logo, using computer-aided design (clip art and manipulating shapes). I can follow a list of design requirements.	I can reinforce corners to strengthen a structure. I can create a design in accordance with a plan. I can create different textural effects with materials. **Textiles** I can make and test a paper template with accuracy and in keeping with the design criteria. I can measure, mark and cut fabric, using a paper template. I can select a stitch style to join fabric. I can work neatly by sewing, small, straight stitches. I can incorporate a fastening to a design. **Electrical systems** I can make a torch with a working electrical circuit and switch. I can use appropriate equipment to cut and attach materials. I can assemble a torch according o the design and success criteria. **Digital World** I can develop a prototype case for my mindful moment timer. I can create a 3D structure, using a net. I can program a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.	I can consider effective and ineffective designs. **Textiles** I can test and evaluate an end product against the original design criteria. I can decide how many of the criteria should be met for the product to be considered successful. **Electrical systems** I can evaluate electrical products. I can test the success of a final product. I can evaluate the success of a final product. **Digital World** I can investigate a range of timers. I can analyse them by identifying and comparing advantages and disadvantages. I can evaluate my Micro:bit program against my design criteria and amend to include any changes I made. I can document and evaluate my project. I can understand what a logo is and why they are important. I can test my program for bugs (errors in the code). I can find and fix the bugs (debug) in my code.

Knowledge (I will know…)

Technical	Additional
Cooking and nutrition I know that the amount of an ingredient in a recipe is known as the 'quantity'.	**Mechanisms and mechanical systems:** I understand that projects change and evolve over time.

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I know that it is important to use oven gloves when removing hot food from an oven. I know the following cooking techniques; sieving, creaming, rubbing method and cooling. I understand the importance of budgeting while planning ingredients for biscuits. **Mechanisms and mechanical systems:** I know that all moving things have kinetic energy. I know that kinetic energy is the energy that something (object/person) has by being in motion. I know that air resistance is the level of drag on an object as it is forced through the air. I understand that the shape of a moving object will affect how it moves due to air resistance. **Structures:** I know what a frame structure is. I know that a 'free-standing' structure is one which can stand on its own. **Textiles:** I know that a fastening is something which holds two pieces of materials together, for example, a zipper, toggle, button, press stud and Velcro. I know that different fastening types are useful for different purposes. I know that creating a mock up (prototype) of a design is useful for checking ideas and proportions. **Electrical systems:** I know that electrical conductors are materials are materials which electricity can pass through. I understand that electrical insulators are materials which electricity cannot pass through. I know that a battery contains stored electricity that can be used to power products. I know that an electrical circuit must be complete for electricity to flow.	I know that aesthetics means how an object or product looks in design and technology. I know that a template is a stencil you can use to help you draw the same shape accurately. I know that a birds-eye view means a view from a high angle (as if a bird in flight). I know that graphics are images which are designed to explain or advertise something. I know that it is important to assess and evaluate design ideas and models against a list of design criteria. **Structures:** I know that a pavilion is a decorative building or structure for leisure activities. I know that cladding can be applied to structures for different effects. I know that aesthetics are how a product looks. I know that a products function means its purpose. I know that the target audience means the person or group of people that a product is designed for. I know that architects consider light, shadow and patterns when designing. **Electrical systems:** I know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. I know facts from the history and invention of the electrical light bulbs by Sir Joseph Swan and Thomas Edison. **Digital world:** I know the terms 'ergonomic' and 'aesthetic' I know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials.

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I know that a switch can be used to complete and break an electrical circuit. **Digital world:** I know what variables are, in programming. I know some of the features of a Micro:bit. I know that an algorithm is a set of instructions to be followed by the computer. I know that it is important to check my code for errors (bugs). I know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.	