



UKS2 Cycle A Phase Overview

Design and Technology UKS2 Cycle A			
<p>Cooking and nutrition What could be healthier?</p>	<p>Textiles Stuffed toys Mechanisms/Mechanical systems: Automata toys</p>	<p>Electrical systems Doodlers Digital World: Navigating world</p>	<p>Structures Playgrounds</p>
<p style="text-align: center;">Cooking and nutrition <u>Composite piece</u> To adapt a traditional recipe and complete a food product.</p>	<p style="text-align: center;">Textiles/Mechanisms <u>Composite piece</u> To design, create and decorate a stuffed toy, using blanket stitch, for a refuge.</p>	<p style="text-align: center;">Electrical Systems/Digital world <u>Composite pieces</u> To design and construct a product that considers a target audience. To write a design brief and criteria based on a client request (multifunctional, electronic compact device).</p>	<p style="text-align: center;">Structures <u>Composite piece</u> To design and build structures for a new playground.</p>
Subject Specific Vocabulary			
<p><u>Cooking and nutrition: What could be healthier?</u> Beef, Cross-contamination, Diet, Ethical issues, Farm, Healthy, Ingredients, Method, Nutrients, Packaging, Reared, Recipe, Research, Substitute, Supermarket, Vegan, Vegetarian, Welfare.</p> <p><u>Textiles: Stuffed toys</u> Accurate, Annotate, Appendage, Blanket-stitch, Design criteria, Detail, Evaluation, Fabric, Sew, Shape, Stuffed toy, Stuffing, Template.</p> <p><u>Mechanisms and Mechanical systems: Automata toys</u> Accurate, Assembly-diagram, Automata, Axle, Bench hook, Cam, Clamp, Component, Cutting list, Diagram, Dowel, Drill bits, Exploded-diagram, Finish, Follower, Frame, Function, Hand drill, Jelutong, Linkage, Mark out, Measure, Mechanism, Model, Research, Right-angle, Set square, Tenon saw.</p>			



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Electrical systems: Doodlers

Circuit component, Configuration, Current, Develop, DIY, Investigate, Motor, Motorised, Problem solve, Product analysis, Series circuit, Stable, Target user.

Digital World: Navigating World

3D CAD, Application (apps), Biodegradable, Boolean, Cardinal compass, Client, Concept, Convince, Corrode, Duplicate, Environmentally-friendly, Equipment, Feature, Finite, Function, Functional, GPS tracker, If statement, Infinite, Investment, Lightweight, Loop, Manufacture, Materials (wood, metal, plastic), Mouldable, Navigation, Non-recyclable, Product lifecycle, Product lifespan, Program, Recyclable, Smart, Sustainable, Sustainable design, Unsustainable design, Variable, Work-plane.

Structures

Adapt, Apparatus, Bench hook, Cladding, Coping saw, Design, Dowel, Evaluation, Feedback, Idea, Jelutong, Landscape, Mark out, Measure, Modify, Natural materials, Plan view, Playground, Prototype, Reinforce, Sketch, Strong, Structure, Tenon saw, Texture, User, Vice, Weak

Skills

Design	Make	Evaluate
<p><u>Cooking and nutrition</u> I can adapt a traditional recipe, understand that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. I can write an amended method for a recipe to incorporate the relevant changes to ingredients. I can design appealing packaging to reflect a recipe.</p> <p><u>Textiles</u> I can design a stuffed toy, considering the main component shapes required and creating an appropriate template. I can consider the proportions of individual components.</p> <p><u>Mechanisms/Mechanical systems:</u> I can experiment with a range of cams, creating a design for an automata toy based on a choice of cam</p>	<p><u>Cooking and nutrition</u> I can cut and prepare vegetables safely. I can use equipment safely, including knives, hot pans and hobs. I know how to avoid cross-contamination. I can follow a step-by-step method carefully to make a recipe.</p> <p><u>Textiles</u> I can create a 3D stuffed toy from a 2D design. I can measure, mark and cut fabric accurately and independently. I can create strong and secure blanket stitches when joining fabric. I can thread needles independently. I can use applique to attach pieces of fabric decoration.</p>	<p><u>Cooking and nutrition</u> I can identify the nutritional differences between different products and recipes. I can identify and describe healthy benefits of food groups.</p> <p><u>Textiles</u> I can test and evaluate an end product. I can give points for further improvement.</p> <p><u>Mechanisms/Mechanical systems:</u> I can evaluate the work of others. I can receive feedback on my own work. I can apply points of improvement to my own and others work. I can describe the changes I would make/do if I were to repeat the project again.</p>



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<p>to create a desired movement. I can understand how linkages change the direction of a force. I can make things move at the same time. I can understand and draw cross-sectional diagrams to show the inner-workings of my design.</p> <p><u>Electrical systems</u> I can identify factors that could be changed on existing products and explain how these would alter the form and function of the product. I can develop design criteria based on findings from investigating existing products. I can develop design criteria that clarifies the target user.</p> <p><u>Digital world</u> I can write a design brief from information submitted by a client. I can develop design criteria to fulfil the clients request. I can consider and suggest additional functions for my navigation tool. I can develop a product idea through annotated sketches. I can place and manoeuvre 3D objects, using CAD. I can change the properties of, or combining one or more 3D objects, using CAD.</p> <p><u>Structures</u> I can design a playground featuring a variety of different structures, giving careful consideration to how the structure will be used. I can consider effective and ineffective designs.</p>	<p>I can sew a blanket stitch to join fabric. I can apply blanket stitching so the spaces between the stitches are even and regular.</p> <p><u>Mechanisms/Mechanical systems:</u> I can measure, mark and check the accuracy of the jelutong and dowel pieces required. I can measure, mark and cut components accurately using a ruler and scissors. I can assemble components accurately to make a stable frame.</p> <p><u>Electrical systems</u> I can alter a products form and function by tinkering with its configuration. I can make a functional series circuit, incorporating a motor. I can construct a product with consideration for the design criteria. I can break down the construction process into steps so that others can make the product.</p> <p><u>Digital world</u> I can consider materials and their functional properties, especially those that are sustainable and recyclable (for example cork and bamboo). I can explain materials choices and why they were chosen as part of a product concept. I can program a N,E,S,W cardinal compass.</p> <p><u>Structures</u> I can build a range of play apparatus structures drawing upon a new and prior knowledge of structures. I can measure, mark and cut wood to create a range of structures. I can use a range of materials to reinforce and add decoration to structures.</p>	<p><u>Electrical systems</u> I can carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. I can determine which parts of a product affect its function and which parts affect its form. I can analyse whether changes in configuration positively or negatively affect an existing product. I can peer evaluate a set of instructions to build a product.</p> <p><u>Digital world</u> I can explain how my program fits the design criteria and how it would be useful as part of a navigation tool. I can develop an awareness of sustainable design. I can identify key industries that utilize 3D CAD modelling and explain why. I can describe how the product concept fits the clients request and how it will benefit the customers. I can explain the key functions in my program, including any additions. I can explain how my program fits the design criteria and how it would be useful as part of a product concept pitch. I can demonstrate a functional program as part of a product concept pitch.</p> <p><u>Structures</u> I can improve a design plan based on peer evaluation. I can test and adapt a design to improve it, as it is developed. I can identify what makes a successful structure.</p>
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Knowledge (I will know...)	
Technical	Additional
<p><u>Cooking and nutrition</u> I understand where meat comes from. I know that beef is from cattle and how beef is reared and processed. I understand key welfare issues. I know that I can adapt a recipe to make it healthier by substituting ingredients. I know that I can use a nutrition calculator to see how healthy a food option is. I understand that 'cross-contamination' means bacteria and germs have been passed onto 'ready to eat' foods. I know that it happens when these foods mix with raw meat or unclean objects.</p> <p><u>Textiles</u> I know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. I know that it is easier to finish simpler designs to a high standard. I know that soft toys are often made by creating appendages separately and then attach 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.</p> <p><u>Mechanisms/mechanical systems:</u> I know that the mechanism in an automata uses a system of cams, axles and followers. I know that different shapes cams produce different outputs.</p> <p><u>Electrical systems</u> I know that series circuits only have one direction for the electricity to flow. I know when there is a break in a series circuit, all components turn off. I know that an electric motor converts electrical energy into rotational movement, causing the motors axle to spin. I know a motorized product is one which uses a motor to function.</p>	<p><u>Mechanisms/mechanical systems:</u> To know that an automata is a hand powered mechanical toy. To know that a cross-sectional diagram shows the inner workings of a product. To understand how to use a bench hook and saw safely. To know that a set square can be used to help mark 90 degree angles.</p> <p><u>Electrical systems</u> To know that a product analysis is critiquing the strengths and the weaknesses of a product. To know that 'configuration' means how the parts of a product are arranged.</p> <p><u>Digital world</u> To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. To know that 'multifunctional' means an object or product has more than one function. To know that magnetometers are devices that measure the Earths magnetic field to determine which direction you are facing.</p> <p><u>Structures</u> 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.</p>



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Digital world

I know that accelerometers can detect movement.

I know that sensors can be useful in products as they mean the product can function without human input.

Structures

I know that structures can be strengthened by manipulating materials and shapes.