Burwell Village College Primary

DT Curriculum Progression Statements

He/She can work confidently within a range of relevant contexts.
He/She understands how key events and individuals in design and technology have helped shaped the world.

	Reception	KS1	LKS2	UPK2
Ideas	He/She understands that products are made for someone.	He/She knows who they are trying to help and why this person/group need help.	He/she knows who their target market is and the problem they have.	He/she knows who their target market is and the problem they have.
	He/She can work collaboratively with others to achieve a common goal.	He/She can discuss and draw hazy ideas in an attempt to solve a person/characters problem.	He/She can draw and label hazy ideas in an attempt to solve the target market's problem.	He/She can draw and annotate hazy ideas in an attempt to solve the target market's problem.
Research		He/She can explore existing products and identify the materials and components they are made of.	He/She can investigate existing products, suggesting why materials have been chosen and what methods of construction have been used.	He/She can investigate existing products, identifying how sustainable the materials in the product are and what impact this has on the wider world.
			He/She can conduct a range of research, including questionnaires, in order to understand their target market's preferences.	He/She can conduct a range of research, including questionnaires and/or interviews, in order to understand their target market's wants and needs.
Design	He/She can communicate their ideas through drawings and verbally explain their ideas to their peers/an adult.	He/She can discuss and communicate their ideas through drawing, use of ICT and mock-ups. ***(ICT Structures: e. g Freeform, Tinkercad)***	He/She can discuss and communicate their ideas through labelled sketches, simple exploded diagrams, computer aided design, pattern pieces, prototypes and mock-ups. ***(Computer aided design: structures using Tinkercad)***	He/She can discuss and communicate their ideas through annotated sketches, cross-sectional diagrams, computer aided design, pattern pieces, prototypes and mock-ups. ***(Computer aided design: electrical systems)***
	He/She can begin to think of solutions to problems.	He/She can design purposeful and functional products for others based on design criteria provided by the teacher.	He/She can design functional and appealing products based on design criteria developed as a class. *(Guided by the teacher)* ***(Computer aided design: textiles using Freeform/Paint 3D/other for design/colour)***	He/She can design functional and appealing products based on design criteria developed independently. ***(Computer aided design: textiles using Freeform/Paint 3D/other for design/colour)***
		He/She can develop design ideas, drawing on given product examples.	He/She can use findings of research based on preferences to inform design ideas.	He/She can use findings of research based on wants and needs to inform design ideas.
Create		He/She knows that a product is what you end up with after performing an action/at the end of a process.	He/She knows that a prototype is a first or preliminary version of a product that can be evaluated before making the final product (mock-up).	He/She knows that a prototype is followed by a mock-up, which depicts what the final product will look and feel like.
	He/She can identify the resources that they would like to use.	He/she can from and use a wide range of materials and components: building blocks, paper, card, recycled materials, straws, string, wool, variety of wheels, dowels, cocktail sticks, wooden pegs, washers, ingredients according to their characteristics	He/she can from and use a wide range of materials and components: wire mess, hessian, fabric, cotton, thread, wool, square section wood, dowel, lollystick, cocktail sticks, straws, split pins and ingredients according to their functional properties and aesthetic qualities.	He/she can from and use a wide range of materials and components: fabric, cotton, thread, wool, buzzers, switches, bulbs, crocodile clips, wire, plastic, cardboard and coding blocks according to their functional properties and aesthetic qualities.
	He/She can choose the materials that he/she wants to use from a small selection.	He/She can select from and use a range to tools and **equipment to cut:** scissors, hole punches, cooking cutters, butter knives	He/She can select from and use a range to tools and **equipment to cut:** scissors including fabric, needles, saws, vice, chopping knives, peelers	He/She can select from and use a range to tools and **equipment to cut:** scissors including fabric, needles, wire cutters, chopping knives, garlic press, graters, peelers
		He/She can select from and use a range to tools and **equipment to shape**: rulers, scissors including aesthetic, hole punches, cooking cutters, rolling pin, templates, cake cases	He/She can select from and use a range to tools and **equipment to shape:** rulers, scissors including fabric, sandpaper, templates	He/She can select from and use a range to tools and **equipment to shape:** rulers, compass, scissors including fabric, templates, pliers, wire, hammer, wool, thread, fabric, sequins, buttons
	He/She can begin to assemble and join materials using L braces.	He/She can select from and use a range to tools and **equipment to join:** card, paper, masking tape, Blutac, sellotape, glue stick, split pins, wool, string, ingredients, dowels, foam washers, different types of wheel ~ cardboard, bottle top and cotton reels	He/She can select from and use a range to tools and **equipment to join**: PVA glue, glue gun, double-sided tape, card triangles, clamps/vice, lollysticks, wood, dowel, split pins, cotton, thread, fabric, drawing pins, hammers	He/She can select from and use a range to tools and **equipment to join:** coding blocks, wire, crocodile clips, wool, cotton, thread, fabric, buttons, ingredients
		He/She can select from and use a range to tools and **equipment to finish**: scissors including aesthetic, ingredients, wool, string, printed images/graphics	He/She can select from and use a range to tools and **equipment to finish:** sandpaper, wool, thread, string, fabric, sequins, lollysticks, cocktail stick, ingredients, printed images/graphics, aluminium wire mesh, hessian	He/She can select from and use a range to tools and **equipment to finish:** wool, thread, fabric, sequins, buttons, ingredients, computing - sound, light

Skills		He/She can draw around a template with confidence and control.	He/She can measure out templates and patterns with some accuracy.	He/She can accurately measure out templates and patterns.
	He/She can hold a pair of scissors safely and in preparation to cut.	He/She can use scissors to cut and shape materials, turning the material to cut out on the lines.	He/She can accurately mark out, cut and shape materials and components.	He/She can accurately mark out, cut and shape a wide range of materials and components with good technique and dexterity.
Evaluate		He/She can identify whether their ideas/product meet basic design criteria.	He/She can explain why their ideas/product do or do not meet the design criteria.	He/She can explain why their ideas/product do or do not meet the design criteria using technical vocabulary.
	He/she can describe what they like about a product.	He/She can describe what they like and dislike about their product using technical vocabulary.	He/She can offer peers feedback using technical vocabulary.	He/She can refer to the design brief, design criteria and skills developed in order to offer feedback using technical vocabulary.
		He/she can suggest complete changes or alterations to improve their work (prompted by the teacher).	He/She can identify and make complete changes or alterations to improve their work.	He/She can identify and make complete changes or alterations to improve their work.

Food and Nutrition				
	Reception	KS1	LKS2	UPK2
Knowledge	He/She knows that food comes from plants or animals.	He/She can sort a number of foods into plant or animal groups.	He/She knows that food has to be farmed, grown elsewhere or caught.	He/She can take into account cost, seasonality and sustainability when selecting ingredients.
	He/She can recognise and identify a variety of fruits and vegetables as healthy food choices.	He/She understands the concept of a balanced diet and identify the different food groups. *(ICT - Eat Well Challenge sorting game)*	He/She understands basic nutritional values and learn to make informed choices about healthy foods.	He/She can develop the ability to plan and prepare a balanced, nutritious meal, understanding its impact on overall health and wellbeing.
Skills	He/She can follow procedures for safety and hygiene.	He/She can follow procedures for safety and hygiene.	He/she can identify some procedures for safety and hygiene and follow these.	He/she can identify many procedures for safety and hygiene and follow these.
	He/She can count the quantity of ingredients needed using whole numbers (eg 6 grapes, 2 carrots).	He/She can measure and weigh ingredients using measuring spoons.	He/She can begin to use a jug to measure liquids.	He/She can accurately use a jug to measure liquids.
			He/She can begin to use weighing scales.	He/She can accurately use weighing scales.
		He/She can use the claw grip to cut soft foods with a serrated knife (*With adult support)*	He/She can begin to use the claw grip to cut harder foods using a serrated vegetable knife.	He/She can use multiple techniques to cut, eg grating, peeling.
		He/She can cut food into evenly sized pieces (*With adult support)* .	He/She can cut foods into evenly sized strips or cubes.	He/She can dice foods and cut them into evenly sized, fine pieces.
	He/She can mix, stir and combine a small amount of ingredients.	He/She can combine a number of ingredients using a range of techniques, e.g. mixing, beating.	He/She can combine a number of ingredients using a range of techniques, e.g. mixing, rubbing with hands, beating, whisking.	He/She can combine a number of ingredients using a range of tools, e.g. electric hand mixer, blender, sieve.

Structures				
	Reception	KS1	LKS2	UPK2
Knowledge	He/she know that castles are examples of structures.	He/She knows that a structure is a combination of materials to create a 3D shape for a specific purpose.	He/She knows that a frame structure is a skeleton that gives support, shape and can be a framework for outer coverings.	
	He/She know that structures with a small/thin base are unstable.	He/She knows that if a structure is stable, it is steady and strong it is unlikely to fall over or collapse.	He/She knows that the strength of a frame structure is dependent on the materials used for the members and the formation of those members.	
		He/She knows that structures that include triangles are stronger.	He/She know that trusses are structures made up of triangles.	
		He/she know that using thicker, more rigid materials can increase a stucture's strength and stability.	He/She knows that different elements of a frame are called members and that members include columns, beams and trusses.	
Skills	He/She can explore joins that require holding, pushing together, e.g. LEGO.	He/She can explore and explain how different materials affect the strength of a structure.	He/She can explore how frame size and shape affects structural stability.	
	He/she can explore and effect of a structure's base on its stability.	He/She can explore and explain the effect of the base shape and size on structural stability.	He/She can explore and explain the effects of pillars, beams and trusses/triagulation on the structural stability.	
	He/She can begin to assemble and join materials using L braces.	He/She can join materials, including using the cut and slot technique, flanges, tabs and folds.	He/She can join materials with some accuracy, including butt joints and/or mitre joints reinforced with cardboard triangles.	

Mechanisms						
	Reception	KS1		LKS2		UPK2
	Sliders	Levers and Linkages	Wheels and Axles	Cams	Levers and Linkages	
Knowledge	He/She know that a bolt on a door is an example of a slider.	He/she knows that a mechanism is a set of moving parts which work together to create movement.		He/she knows that a mechanism controls motion and/or transfers power.		
	He/She know that a slider is a bar that moves backwards and forwards in a straight line.	He/she knows that a lever is a bar/long arm that pivots or rotates around a fixed point called a fulcrum.	He/She know that an axle is rod on which one or more wheels can rotate.	He/She knows that cam mechanisms are linkage systems that turn rotary motion into linear motion.	He/She know that the object lifted by a lever is called the load and the force applied to that load through the arm is called the effort.	
	He/she know that a guide is used to keep sliders in place and control movements.	He/she knows that a fulcrum is the point where the lever turns or is supported.	He/she knows that the pivot point of a wheel needs be central otherwise the vehicle will not turn smoothly.	He/She knows that the object that moved up and down as it tracks the cam's movement is called the follower.	He/She knows that the relationship between force and load changes with the position of the fulcrum. The closer the fulcrum is to the load, the less force is needed.	
		He/She know that levers can be joined together to create linkages.	He /she know that axles can be free (through the chassis or through a hollow cylinder beneath the classis) with tightly fixed wheels that rotate with the axle or through the chassis.	He/She knows that the size, shape and centre rotation of the cam will affect the linear (up and down) motion of the follower.	He/she knows there are three different types of levers and that a catapult has a first-class lever mechanism.	
Skills	He/She can explore different bar length and select one to suit the product's movement.	He/She can explore and explain the placement and effect of single or multiple levers on the product's movement.	He/She can explore and explain the effect of wheel size, shape and pivot point on the product's movement.	He/She can explore and explain how cam size, shape and point of rotation affect the linear movement of the follower.	He/She can explore and explain how different placements of the fulcrum and load affect the effort.	
		He/She can make considered choices around lever/fulcrum position(s) as appropriate to the product's function.	He/She can make considered choices around wheel size, how wheels are attached to the axles, and where axles are positioned, as appropriate to the product's	He/She can make considered choices around cam size, shape and point of rotation as appropriate to the product's function.	He/She can make considered choices around placement of the fulcrum versus the load as appropriate to the product's function.	

Textiles				
	Reception	KS1	LKS2	UPK2
Knowledge			He/she know that a pattern is a shape drawn to the exact shape and size used to assist cutting.	He/She knows that upcyclying is the activity of making new products from used or waste materials.
			He/she know that appliques means 'applied', a method of stitching/gluing patches onto fabric to provide decoration.	He/She knows that sustainable materials refer to fabrics that come from eco-friendly resources, like sustainably grown fibre crops and recycled materials.
			He/she knows that a seam is a line of stitching that joins pieces of fabric together and that allowances need to be made for this (1.5 cm).	He/She know that a hem is the edge of a piece of cloth or clothing that has been turned under and sewn and that allowances need to be made for this (1.5 cm).
Skills			He/She can knot the cotton/thread on a double threaded needle. https://www.youtube.com/watch?v=PowkA9Bojlo	He/she can use press studs and/or buttons for fastening purposes.
			He/She can tie off stitching. https://www.youtube.com/watch?v=FdJ8rmuV3_Y	He/She can secure handles and/or pockets.
			He/She can place and use a pattern to cut around without wasting the material.	He/She can draw and use a pattern to cut around having secured it with pins.
			He/She can use running stitch and over stitch to join materials.	He/She can use back stitch and blanket stitch to join materials.
			He/She can secure patches, sequins and/or buttons for aesthetic purposes.	He/She can secure trims, tassles, bows etc for aesthetic purposes.

Electrical Systems

	Reception	KS1	LKS2	UPK2
Knowledge				He/she understands that a switch is an interruption in a circuit.
				He/she understands that a series circuit contains one path of electricity to pass through.
				He/she understands that a parallel circuit contains more than one path for electricity to pass through.
				He/She understands that the use of more components will reduce the current as a results adaptations to the voltage may need to be made.
Skills				He/she can make and draw different types of circuits.
				He/she can select the type of circuit (series or parallel) to suit the purpose of the design.
				He/she can select electrical components to suit the purpose of the design.

Computing to Program, Monitor and Control				
	Reception	KS1	LKS2	UPK2
Knowledge				He/She knows that a Micro:bit is a small, codable computer.
				He/She understands that, in programming, a 'loop' is code that repeats something until stopped.
				He/She understands that conditional statements are a set of rules which are followed if certain conditions are met.
Skills				He/She can write a program to control and/or monitor.
				He/She can develop a program to use inputs and outputs on a controllable device.
				He/She can explain why a variable is used in a program.