St Christopher's CE High School, Technology: Key stage 3 Programmes of Study

2025 - 26	Induction Modules – Year 7 13/14 lessons covering basic principles All 5 modules done in a mixed ability rotation					Progression Modules – Year 8 13/14 lessons progressing learning All 5 modules done in a mixed ability rotation					Specialism Modules – Year 9 13/14 lessons going deeper 4 pupil choice modules, mixed ability				
Modules of Study	**Design Technology** Toy car	**Food** Healthy nursery snack foods	**Graphics** Air Freshener	**Textiles** Animal Wall-hanging	**DTe** Buzz-bots	**Design Technology** Bug Hotel	**Food** Healthy multicultural school meals	**Graphics** Cereal Box	**Textiles** Soft Sculptures – Food	**DTe** Bauhaus inspired Phone Stand	**Design Technology** Dyson Inspired Product	**Food** Picnic in the Park task	**Graphics** Chocolate box	**Textiles** Portrait Cushion for Life	**DTe** Neo Futurism inspired LED lamp
Design															
Use research and exploration, such as the study of different cultures, to identify and understand user needs	**Pupils research ' user needs' exploring age difference in design including size, safety, colour. Challenge & play value.**		**Pupils research into fruit inspiration. Explore existing products.**	**Pupils research the British mixed media designer Clare Youngs and explore her Scandinavian, mixed media style.**	**Pupils investigate leg performance (speed vs stability) and sketch biomimetic/analogous ideas; spec review informs design intent; form/identity considered in shell planning.**	**Pupils research sustainability and how to work within the specifics of a sustainable design.**	**Pupils are encouraged to explore ingredients and recipes from a wide variety of cultures to create healthy balanced main meals.**	**Pupils use inspiration from the work of Jon Burgerman. Explore existing products.**	**Pupils research popular food & drink products and work of three British textile designers Holly Levell, Lucy Sparrow & Kate Talbot, who work in a Pop art style.**	**Analyse existing phone stand designs, apply ergonomic principles; research Bauhaus design language to inform sketches.**	**Pupils research the Dyson brand ' DNA' .**		**Pupils use inspiration from the work of a geometric artist. Pupils choose a target audience.**	**Chilean artist Edo Morales is researched and analysed. Pupils select a customer who would use their cushion for life.**	**User needs identified through ergonomic analysis, ACCESS-FM and PMI of lamp designs, and specification writing.**
Identify and solve their own design problems and understand how to reformulate problems given to them	**Pupils design an ' age appropriate' design.**		**Pupils design and make an air freshener based on a theme of fruit.**	**Pupils design and make a wall hanging based on an animal of their choice.**	**Build v1, test, analyse data, plan iteration, prototype v2, re-test; final tuning and evaluation against spec.**	**Introduce the 6 R' s of sustainability: Rethink, refuses, repair, reduce, reuse, recycle.**		**Pupils design and make a mini cereal box for Kelloggs. Design included a character based on the style of Jon Burgerman.**	**Pupils design a soft sculpture of a food product. This may have an additional function such as a case or toy.**	**Iterative build: CAD → laser cut → bend → assemble → debug circuit → evaluate → refine; reflective improvement planning in L12 & 14.**	**Redesign household products to improve them with a Dyson approach. Create a new design for a vacuum using their research into Dyson.**	**Pupils design and make food products for a " Party in the Park" music event (picnic or afternoon tea).**	**Pupils design and make a rebranded chocolate box from an existing chocolate bar for a customer of their choice.**	**Pupils design and make a bag for life with a portrait decoration for a customer of their choice.**	**Specification-led design iteration, prototype testing, feedback incorporation, refinement of CAD, evaluation against spec.**

Make	Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools	Use a variety of approaches *[for example, biomimicry and user-centred design]*, to generate creative ideas and avoid stereotypical responses	Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
	Introduce and teach orthographic and isometric drawing. Car designs (orthographic 1:1 scale).	Pupils develop a moodboard to inspire initial ideas around a user centred design.	Using ACCESSFM explore individual specification criteria with peer review.
	Pupils use CAD to develop a range of colour and patterned ideas.	Pupils use their moodboards to inspire initial ideas.	
	Pupils have to make a paper pattern of their animal and work out the size and shape of their wall hanging.	Pupils look at the work of their designer and carry out a number of media experiments in her style to generate design ideas.	
	Annotated sketches & plans; data tables/graphs; 3D-printing theory pipeline; peer presentations/commentary on race day.	Biomimicry & analogy study (animals, sleds, robotics context); annotated leg plans derived from inspiration.	Explicit specification review in planning; spec checklist in L12; evaluation against spec in L13.
	Isometric drawing (re-cap). Developed isometric drawing and 3D plans.	Pupils develop a moodboard to inspire initial ideas around a user centred design.	Using ACCESSFM explore individual specification criteria with peer review.
	pupiled look at layout and scale to form ideas.	Pupils look at the artist work of the artist to inspire creative ideas.	
	Pupils produce a detailed, annotated design sketch of their soft sculpture from different viewpoints. They make a paper pattern including pattern markings. These can be complex e.g. drinks can is cylindrical – numeracy.		
	Annotated sketches, dimensioned CAD files, nesting strategies, oral presentations at end of project.	Ergonomics and Bauhaus analysis drive idea generation; mood boards and sketches developed into CAD profiles.	Design spec implied via ergonomic criteria, LED integration, aesthetic intent; milestone assessments check against spec.
	3D and orthographic designs for vacuum cleaner product/model.	Creative ideas for new vacuum cleaner product using Dyson research.	Use ACCESSFM to evaluate four different vacuum cleaners.
	Recipes including amounts, ingredients, equipment, process, timing, and special points.		
	Pupils use measurements to formulate their chocolate box surface development.	Pupils base ideas for geometric shapes to respond to artist ideas.	Pupils adapt the specification through analysis to fit their end user needs.
	Pupils produce a detailed design plan of the cushion and how they will decorate it with their textile portrait.	Pupils select a person (someone who they know or a celebrity) to create a portrait from. They use the work of Edo Morales to inspire their design.	
	Annotated sketches, ACCESS-FM presentations, CAD models (Fusion 360), DXF nesting, slicing, evaluation presentations.	Ergonomic/user-centred analysis, ACCESS-FM, PMI, Neo-Futurist style research.	Explicit spec creation (L5), client/user focus, peer review checklists; drives design decisions in later CAD and prototyping.

Investigate new and emerging technologies	Analyse the work of past and present professionals and others to develop and broaden their understanding	**Evaluate**	Select from and use a wider, more complex range of materials, components and ingredients, considering their properties	Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
	Case study of toy manufacturer Fisher Price. Pupils to explore and analysis their products aimed at young children.		Select different materials to get different outcomes for the car. (Metal. paper, fabric, polymers and timbers.)	Car: Wasting by hand and machine. Workshop hand tool techniques and processes.
			Exploration of the variety of ingredients available and the specific functions of ingredients in a baked muffin.	Basic kitchen equipment including knives and safe cutting techniques. All parts of the cooker – hob, grill, oven. Weighing and measuring.
				Pupils learn basic use of 2D design, they produce an air freshener with cutting, stick, modelling card.
	Pupils research British mixed media designer Clare Youngs and create a designer profile page.		Pupils select a variety of fabrics for their animal applique. They learn the names of the fabrics and simple properties, e.g. felt is bonded, does not fray and is suitable for applique.	Pupils use a variety of tools for mark-making, they learn how to use the sewing machine, use fabric scissors, pins, upicker and the safe use of the iron.
Contemporary robotics context; 3D-printing pipeline (CAD → slicer → G-code → print) introduced.	Robotics case context (e.g., Boston Dynamics video) used to analyse movement strategies and inspire design.		Properties of PLA, card and wire; material choice affects traction/clearance; component selection (motor, switch, battery).	Safe soldering; accurate wire-leg forming & assembly; CAM is demonstrated via 3D printing theory; precise shell construction/fitting.
			Sustainable materials explored as part of the brief. Recycled materials and found, natural materials.	Workshop hand tool techniques and basic construction techniques and processes.
			Pupils encouraged to adapt and extend recipes and explore alternative ingredients from different cultures.	Using: the hob, weighing scales, measuring jugs and spoons and basic kitchen equipment and processes such as cutting, frying, boiling and simmering.
	Pupils study the work of Jon Burgerman.			Pupils learn to create their 2D net into 3D packaging using card modelling tools.
Sublimation printing will be incorporated into their soft sculpture designs.	Three British designers studied are Holly Level , Lucy Sparrow and Kate Talbot.		Pupils have to choose the most appropriate fabric for their sculpture considering the properties.	Pupils revise how to use the sewing machine, hand embroidery techniques, the use of the computerised embroidery machine, sublimation printer and heat press.
Capacitive-touch technology and LED integration explored; TinkerCAD used for circuit simulation.	Bauhaus designers and products analysed for form, function, and aesthetic principles.		Acrylic selection based on transparency and thermoplastic properties; LED strip and capacitive-touch switch integration.	Laser cutting (CAM), line bending, soldering LED circuit, mechanical fixings, finishing processes.
	James Dyson research. Homework task to look at the work of Phillippe Starck.			Prototyping/modelling techniques: Craft knives, safety rulers, cutting mats, glue guns used safely to model with cardboard.
			Considering: Types of flour, biological and chemical raising agents, different types of fat and alternative protein foods such as TVP, Quorn and Tofu.	Using: bread (gluten development / conditions for yeast), pastry (rubbing in / shortening), reformed products (binding / coagulation) & pancake batters (coagulation and gelatinisation).
	Pupils research into a chosen designer from a list.		Pupils have to choose the most appropriate fabric for their portrait considering the properties.	Pupils develop their surface development into a 3D chocolate box. Card model and with a understanding of 3D construction.
	Study the work of the Chilean contemporary Textile designer; Edo Morales . Pupils also research British Textile designer Sue Stone.			Pupils revise how to use the sewing machine, iron, hand embroidery techniques, tie and dye, fabric paints, sublimation printer and heat press.
Arduino programmable electronics (theory & simulation), LED lighting systems, 3D printing processes.	Study of Neo-Futurist designers and lamp forms; use of labelled exemplars to inspire ideas.		Selection between cork/card/plastics for shades, pine for arms, PLA for printing, LED strips and sensors for circuits.	CAD, DXF export, laser cutting, slicing & 3D printing, soldering, finishing.

Understand how more advanced mechanical systems used in their products enable changes in movement and force	Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions	**Technical knowledge**	Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists	Test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups
	The use of appropriate softwood/hardwood timbers and polymer-based items to produce the model car.		Pupils will understand the developments of age specific technology and materials.	Pupils evaluate their final prototype against their developed specification.
	General functions and properties of ingredients and the specific functions of ingredients in a muffin (aeration, coagulation, sensory etc).		Understanding the responsibility of a nursery to provide children with a healthy balanced diet.	Pupils are introduced to sensory evaluation using sensory profiles and sensory description.
	Pupils produce an air freshener after watching demonstrations and understanding material limitations.			Pupils create an evaluation of their final product against the design specification Self-assess the practical skills.
	Construction of the wall hanging. Discuss the function of the dowel/stick for support and rigidity. The properties of calico cotton.			Pupils evaluate their experiments with decorative techniques and the finished wall hanging.
	Leg geometry vs traction/speed; structural stability of six-leg layout; shell clearance and robustness.		Tech developments (robotics, 3D printing) and safe working are explicit; environmental/6R' s not explicitly taught in this SOL.	Structured timed tests, graphs, iteration planning, spec checklists, final evaluation and peer feedback.
	The use of appropriate softwood/hardwood timbers and use recycled and reused materials. Also use natural, found materials.		Sustainability focus. Looking at the 6 R' s; Rething, refuse, repair, reduce, reuse, recycle.	Pupils evaluate their final prototype against their developed specification.
	General functions and properties of ingredients and the specific sensory adjustments to recipes. Reduced and gelatinised sauces.		Critical differences between homemade and ready-made food products and their potential effects on long term health.	Food products are critically evaluated.
	Pupils produce a cereal box understanding correct processes for card modelling.			Pupils create an evaluation of their final product. Self-assess the practical skills.
	Careful selection of materials is required for their soft sculpture. Pupils need to justify their choice of materials.			Pupils experiment with ideas in 2D and 3D. They test out various decorative techniques to find the most suitable for their product (hand embroidery, applique, comp. embroidery, sub. Printing)
	Acrylic' s rigidity and thermoplastic bending exploited; structural stability considered in assembly and finish.		Ergonomic & aesthetic developments and emerging tech covered; environmental/lifecycle not a focus in this SOL.	Debugging circuits, ergonomic evaluation rubric, peer presentations, improvement planning.
	Use of appropriate modelling materials, mainly cardboards.		Dyson case study. Ergonomics and anthropometrics.	Evaluation and Iteration of Design ideas. Testing the prototype/model.
	Gluten development, the conditions for yeast growth, rubbing in and shortening, binding, coagulation, and gelatinisation.		The use of alternative protein sources to reduce food poverty and the carbon footprint.	Potential recipes are trialled and evaluated and reviewed.
	Pupils produce a chocolate box understanding correct processes for card modelling and accurately of measurements.			Pupils test and evaluate their product by using feedback from their target audience
	Pupils are taught how to create a strong and neat overlocked seam and how to attached fastening such as a zip.		Environment is considered at every stage of the design and make process. The end product is a functional, usable cushion for life. Using recycled fabrics and components and stuffing.	Samples of hand embroidery, tie-dye and raw edge applique are trialled and fully evaluated. Final evaluation of the finished bag.
Design, prototype and fabricate pivot/lever mechanisms; measure and test adjustability and mechanical advantage.	Pivot/lever joints for adjustability, material choices for structure, joining methods, 3D print settings.		Sustainability principles (6Rs), programmable systems theory, discussion of adjustability and energy efficiency.	Prototyping and testing (L8), CAD refinement (L9), QC checks (L13), peer surveys and evaluations (L14).

Understand how more advanced electrical and electronic systems can be powered and used in their products *[for example, circuits with heat, light, sound and movement as inputs and outputs]* KS3 IT					**Simple low DC circuit with switch movement vibration via output motor: - no sensors used.**					**Capacitive-touch circuit with LED strip; simulation, soldering, debugging and integration covered.**					**LED strip with capacitive touch; Arduino night-light simulation; wiring diagrams and troubleshooting.**
Apply computing and use electronics to embed intelligence in products that respond to inputs *[for example, sensors]*, and control outputs *[for example, actuators]*, using programmable components *[for example, microcontrollers].* KS3 IT															**Pupils learn how Arduino + LDR can automate lighting; TinkerCAD simulation activity; live demo.**

Cooking and Nutrition															
Understand and apply the principles of nutrition and health		**Analysis of pupils' own diets against the Eatwell Guide. 5-a-day. Adapting recipes for health. Dangers of sugar and salt. Extension – nutrient groups.**					**Comparing home-made and bought meals (sugar and salt). Analysis of rice dish against the Eatwell Guide. Adapting recipes for health. Nutritional labelling. Life stages.**					**Energy balance and portion size. Special diets, allergies, intolerances, vegetarians etc. Adapting recipes for health.**				

Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet		**Dippy Divers / Fruit Fusion, Soups, Pizza, Healthier Muffins (sweet or savoury).**					**Multi- cultural meals - Ragu / Ratatouille, Curries, Savoury rice / Risotto, Pasta Bake**					**Pizza / Savoury bread products, Pies or pasties, Savoury reformed foods, pancakes and own product.**			
Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]		**Cutting methods: Bridge, Claw, and Chopping. Boiling, simmering, grilling, and baking. Sensory testing. Adapting recipes.**					**Selecting and preparing staple foods, herbs and spices. Handling raw meat. Frying. Sensory evaluation and adapting recipes. Reduction and Gelatinisation.**					**Bread making, pastry making, and savoury reformed products. Gluten development, shortening, binding, coating, coagulation, gelatinisation and raising agents.**			
Understand the source, seasonality and characteristics of a broad range of ingredients		**Seasonality and sourcing of vegetables, fruits and herbs.** **Characteristics of fruit and veg, cheeses and breads.**					**Staple foods from different cultures, herbs and spices. Traditional recipes. Protein foods and storage of high-risk foods.**					**Local ingredient, air miles, seasonality, environmental issues around meat eating.**			