	Rotation 1	Rotation 2	Rotation 3
Substantive Knowledge– what will pupils to be able to know by the time they finish this rotation?	By the end of the unit, pupils will: • Know the principles of healthy eating and the purpose of the Eatwell Guide. • Know the functions of nutrients and how they contribute to a balanced diet. • Know how textile artists and designers use embroidery techniques in their work. • Know the properties and characteristics of fabrics, threads and resistant materials. • Know how designers use research and inspiration to develop products. • Know the stages of the design process, from investigation through to evaluation. • Know key British product and lighting designers (e.g. Tom Dixon, Ron Arad, Jasper Morrison) and the materials, forms and processes associated with their work. • Know the function and safe use of basic electronic components, including LEDs, resistors and switches, and how to read a circuit diagram. • Know timber joining methods and how to prepare and finish timber for accurate assembly.		
Disciplinary Knowledge – what will pupils be able to do by the end of the rotation?	Pupils will be able to: ▪ Prepare healthy dishes using safe and hygienic food preparation techniques. ▪ Apply a range of hand embroidery stitches to create a textile outcome. ▪ Analyse and evaluate the work of designers to inform their own ideas. ▪ Design and manufacture a functional lamp using appropriate tools, materials and processes. ▪ Evaluate their work and suggest improvements using technical vocabulary. ▪ Design to a brief and specification, developing ideas iteratively using CAD/CAM.		
Year 7	**Food**	**Textiles**	**Resistant Materials**

DT **12/13 weeks in each subject**	**Food Safety:** Students will be introduced to the food room routines and how to work safely and hygienically. **Food, Nutrition and Health:** Develop an understanding of the healthy eating guidelines and the Eatwell guide. **Food Provenance:** Understand food origins, production/processing and the journey from 'farm to fork' **Food Choice**: Understand factors that affect peoples' food choices **Practical Skills/Food Science:** Learn a *life skill*: Select and prepare a range of healthy ingredients and dishes and understand the science of yeast/bread making: 1 Cous Cous Salad 2 Focaccia 3 Pizza Scones 4 Pasta and Ragu 5 Yakisoba Noodles 6 Seasonal Bake: Xmas/Easter/Summer: Carrot and Orange Muffins	**Investigate** Investigate the role of textiles in society and how artists, including Victoria Villasana, use textiles to communicate identity and tell stories. Explore portrait photography and embroidery techniques. **Design** Develop ideas through photography, mood boards and colour choices to create a textile portrait that communicates personal identity and interests. **Make** Use sublimation printer and heat press to transfer a photographic image onto fabric and apply hand embroidery techniques to create a mixed-media stitched portrait. **Evaluate** Evaluate the effectiveness of stitches, colours and composition in communicating identity and reflect on the success of the outcome.	**Investigate** Investigate the work of key British product and lighting designers (e.g. Tom Dixon, Ron Arad, Jasper Morrison) to gather inspiration for a USB-powered lamp. **Design** Generate and develop design ideas in the style of a chosen designer, using 2D Design (CAD) to create an isometric lamp top ready for laser cutting. **Make** Use CAM to cut and finish the acrylic lamp top, wire a simple LED circuit, and accurately cut, join and assemble the timber base using hand tools and the pillar drill. **Evaluate** Evaluate the finished lamp against the design brief and specification, and consider how it could be marketed and sold.
Key Vocabulary:	Bridge hold and Claw grip, method, ingredients, knife skills, grams, millilitres, tsp/tbsp, hygiene, hazards, cross-contamination, bacteria, micro-organism, success criteria, carbohydrates, proteins, dairy and	Materials, Interior, Natural, Synthetic Fibres,Properties,Function,Communication, Culture, Religion, Identity, Profession Status, Trends, Symbolism, Decorative Functional, Contemporary, Texture Expression, Portrait, Composition	British design, iconic, iterative, sustainability, aesthetic, form, function Brief, specification, design ideas, annotation, isometric, crating

	alternatives, oils and spreads, fruit and vegetables, knead, prove,	Expression, Exposure , Aperture, Palette Personality, Identity, Mood board, Running stitch, Back stitch, Embroidery, Needle, Thread	Computer aided design, 2D Design, vector, rotate, CAM, engrave, cut line, edge finish, laser cutter LED, resistor, passive component, circuit diagram, soldering iron, solder Wasting, bench hook, tenon saw, coping saw, file, pillar drill, vertical sander, assembly Evaluation, specification, target market, target user, marketing, branding, logo, slogan, persuasive, USP, improvement, feedback

	Rotation 1	**Rotation 2**	**Rotation 3**
Substantive Knowledge– what will pupils to be able to know by the time they finish this rotation?	By the end of the unit, pupils will: • Know the functions of nutrients and the impact of excess and deficiency in the diet. • Know the impact of food provenance on the food choices we make. • Know how to prepare and cook a range of more complex practical dishes. • Know how textile artists and designers use surface decoration techniques in their work. • Know the properties and characteristics of fabrics, threads and resistant materials. • Know how designers use research and inspiration to develop products. • Know natural timbers (hardwoods and softwoods) and manufactured boards (plywood, MDF, chipboard) and their properties and uses. • Know the types of cam and follower and the motion each produces. • Know the finger/box joint and the tools used to mark out, cut and finish it. • Know workshop hazards, safety signage and the PPE required to work safely.		
Disciplinary Knowledge – what will pupils be able to do by the end of the rotation?	Pupils will be able to: ▪ Prepare a range healthy dishes using safe and hygienic food preparation techniques. ▪ Apply a range of surface decoration techniques to create a textile outcome. ▪ Investigate and research existing products to influence their own design ideas. ▪ Generate and annotate design ideas for a mechanical toy incorporating a cam mechanism and a pencil case. ▪ Mark out, cut, join and finish timber components accurately, including a finger/box joint.		

	▪ Test and refine a prototype, and evaluate the finished product against a specification.		
Year 8 DT 12/13 weeks in each subject	**Food**	**Textiles**	**Resistant Materials**
	Food Safety: Students will understand key temperatures and safe storage of food of high-risk foods **Food, Nutrition and Health and Food Choice:** Understand the functions of macronutrients and macronutrients and effects of deficiency and excess. How to interpret food and nutrition labels. **Food Provenance and Food Choice:** Understand the impact of seasonality, importing and food miles on the environment. How to make informed consumer choices. **Practical Skills/Food Science:** Develop and refine knife skills and heat control. Selecting and preparing a range of more complex, healthy dishes. Understand the science of sauce thickening, bread making and 'shortening' for pastry. 1. Pizza (bread science, kneading, proving, shaping) 2. Jollof Rice (recall knife skills, ratios, starch, independence) 3. 'Green' Mac n Cheese (Roux sauce making, gelatinisation/thickening, al dente) 4. Falafel and tzatziki (shaping, grilling, knife skills) 5. Mini tartlets - (rubbing in, shortcrust pastry, shortening effect)	**Investigate** Investigate existing textile products, user needs and the work of designers who use surface decoration and smart materials. Explore the properties of fabrics and decorative techniques. **Design** Develop ideas and produce a design specification for a pencil case that meets the needs and preferences of a specific user. **Make** Apply surface decoration techniques and machine sewing skills to construct a functional and aesthetically pleasing pencil case. **Evaluate** Evaluate the product against the design specification and user needs, identifying strengths and areas for improvement.	**Investigate** Investigate natural timbers and manufactured boards, and research existing mechanical toys and automatons to identify a design theme. **Design** Generate and annotate design ideas for a mechanical toy incorporating a chosen cam and follower mechanism. **Make** Accurately mark out, cut and join timber using a finger/box joint, then assemble the toy's body and mechanism, working safely throughout. **Evaluate** Evaluate the finished mechanical toy against the design specification, testing that the mechanism works as intended and identifying improvements.

	6. Chelsea buns (enriched dough, weighing, rolling, shaping, independence)		
Key Vocabulary:	Bacteria, danger zone, high risk food Macronutrients, micronutrients, excess, deficiency, traffic-light labelling, reference intake, sensory analysis/evaluation, roux, gelatinisation, consumer, shortening, rubbing in method, sauté, simmer, food miles, importing, caramelisation	User, client, design specification Function, aesthetics, ergonomics Properties, durable ,seam allowance Applique, embroidery Smart materials, thermochromic Reflective, prototype, evaluate fit for purpose	Automaton, mechanical toy, mechanical energy, mechanism, scales of production, motion Hardwood, softwood, coniferous, deciduous, sustainability, FSC, conversion Manufactured board, plywood, MDF, chipboard, veneer, composite Research, theme, inspiration, annotate, aesthetic Cam, follower, reciprocating motion, dwell, eccentric, pear cam, snail cam, heart cam Design idea, development, hazard, risk, PPE, safety signage, golden rules Finger joint, box joint, cutting list, tri-square, mark out, tolerance, tenon saw, coping saw, waste, file, precision, finish Assembly, fit, function, evaluation, specification, improvement, feedback

	Rotation 1	Rotation 2	Rotation 3
Substantive Knowledge– what will pupils to be able to know by the time they finish this rotation?	By the end of the unit, pupils will: • Know how dietary needs change throughout different life stages. • Know how global food challenges are impacting food security and food poverty. • Know how fast fashion is impacting the environment and how designers can work sustainably with textiles. • Know what a prosthetic is and the difference between cosmetic, body-powered and myoelectric devices, and basic hand anatomy (fingers, joints as pivots, tendons as cables in tension). • Know the five forces and stresses (tension, compression, torsion, bending, shear), levers, linkages and mechanical advantage. • Know reinforcing and stiffening techniques (lamination, triangulation, folding) and the working properties of card, timber, modelling foam, mod roc, acrylic and wire. • Know anthropometrics and ergonomics, and how CAD modelling and 3D printing constraints apply to small-scale prototypes.		
Disciplinary Knowledge – what will pupils be able to do by the end of the rotation?	Pupils will be able to: • Cook a range of GCSE standard food dishes. • Apply a range of cooking methods independently. • Use the sewing machine and digital textiles with confidence. • Interrogate a brief and client profile, separating wants, needs and likes, and gather research to inform design decisions. • Model a biological system as a mechanical one, predicting where forces will act and justifying material choices. • Design for manufacture in CAD, feeding evidence forward into the next iteration. • Evaluate critically with evidence, communicating a full design story.		
Year 9	**Food**	**Textiles**	**Resistant Materials**

DT **12/13 weeks in each subject**	**Food Safety:** Students will understand the different types of food poisoning, sources and onset time, applying their knowledge to real life scenarios. **Food, Nutrition and Health and Food Choice:** Understand how nutritional needs change throughout the life stages, recalling macro and micronutrient functions etc. **Food Provenance and Food Choice:** Global food challenges: food security and food poverty Sustainable diets and ethical and environmental food choices **Practical Skills/Food Science:** Adapt and work independently to make a range of complex healthy dishes with some elements of choice. Understand cooking methods and heat transfer methods and the science behind how raising agents work (mechanical and chemical for Swiss Roll) All of the year 9 practical dishes increase in demand/complexity and are classed as GCSE standard dishes. We embed food science knowledge and include sensory evaluations: 1 Garlic bread plaits/knots (bread science and complex shaping) 2 Cheesy bean Mexican burritos (knife skills, sauteing, seasoning, dry frying) 3 Homemade tagliatelle and ragu (using a pasta machine, kneading, gluten development, shaping, knife skills, simmering)	**Investigate** Investigate sustainability in the textile industry, the environmental impact of fast fashion and the use of food imagery and repeat patterns in commercial textile design. **Design** Create food-inspired motifs and use digital technologies to develop a repeat pattern and tote bag design for a specific sustainable context. **Make** Use CAD and digital textile printing alongside machine construction techniques to manufacture a reusable tote bag. **Evaluate** Evaluate the environmental impact, functionality and aesthetic qualities of the final product and consider how it promotes sustainable consumer choices.	**Investigate** Investigate a chosen client's wants, needs and likes, existing prosthetic devices, and the forces and stresses acting on materials and mechanisms. **Design** Communicate design ideas through annotated hand drawings and dimensioned working drawings sized using anthropometric data, and model a prototype component in CAD. **Make** Build and test a cardboard prototype with tendon-driven digits, then manufacture a final mixed-material outcome combining a laser-cut base structure, fabric hinge joints and a working tendon mechanism. **Evaluate** Test and refine the design through fair testing and failure analysis, and evaluate the final outcome against the specification and the client's needs.

	4 Chickpea and potato curry (chicken thighs optional) 5 Sweet and sour chicken (raw meat safety) 6 Swiss Roll with homemade Jam (Rolling, shaping, raising agents, whisking method)		
Key Vocabulary:	Food poisoning, pathogenic bacteria salmonella, e-coli, gluten elasticity, life stage, dietary/nutritional needs, obesity, type 2 diabetes, cardiovascular disease, nutritional analysis, food security, food poverty, sustainability, caramelisation, starch gelatinisation, protein denaturation, aeration, mechanical raising agent, conduction, convection, radiation	Sustainability, consumer, fast fashion, ethical, reusable, carbon footprint Branding, pattern repeat, motif CAD, surface pattern, digital printing Prototype, evaluate, environmental impact	Prosthetic, body-powered, client, brief, specification, want, need, constraint Pivot, tendon, tension, actuation, socket, ACCESS FM Compression, torsion, bending, shear, lever, linkage, mechanical advantage, triangulation Annotation, exploded view, crating, orthographic, concept, iteration Working drawing, dimension, tolerance, anthropometrics, ergonomics, percentile, scale, parts list, effort, load Prototype, laminate, corrugation, hinge, actuate, design diary Fair test, variable, failure analysis, evidence, refine, iterate CAD, workplane, wall thickness, clearance, overhang, layer line, STL, slicer, infill, shell, support, kerf, sign-off Rigidity, armature, reinforcement, flexible joint, fabric hinge, wasting, forming, friction,

			return spring, mod roc, curing, sanding, abrasive grades, dry brushing, embellishment, primer, sealant, finish, client fitness, modification, design story