Year 9 Curriculum Implementation: Design and Technology

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Knowledge & Skills	• Key food safety temperatures • Food poisoning • Storing, preparing and cooking chicken • Making and shaping an enriched bread dough • Function and sources of protein • Function and sources of carbohydrates	• Shortcrust pastry – making, rolling and filling a dough • Function and sources of fats • Roux sauce – science of gelatinisation • Layering a dessert – use of hand mixer • UK dairy industry – farming, primary and secondary processing	Programmable electronics using Tinker CAD • Create a new circuit in Tinker CAD • Build a basic LED circuit in Tinker CAD • Add an Arduino and Breadboard to circuit • Blink an LED • Add a second LED • Create a light show • Learn how to use Registers	Design Communication • Oblique drawing • Isometric drawing • Exploded drawings • 3rd Angle Orthographic drawing • Modelling • Understanding 3D printing	• Product Analysis • Client, Brief and Specification • Initial Ideas • Developing design ideas • Modelling design proposal	• Final proposal presentation and cutting list • Metals and Alloys – theory • Production Planning • Production • Feedback and finish production
Links to prior learning	• 4Cs discussed in Y7 and Y8 • Bread made in Y8 • Healthy eating taught in Y7 and Y8	• Rubbing in method taught in scone making in Y7 • Meat sauce made in Y8	• Micro bits in computing Yr7 • Electricity and Insulators in Yr8 science • Builds on earlier LED Lamp and electronics projects, extending knowledge of circuits and components • Develops further CAD/CAM experience, now applied to programmable electronics • Reinforces problem-solving, sequencing, and debugging skills from previous practical DT work	• Pupils have followed the design process to make products • They have used CAD & CAM • They have followed plans to produce whole or part products • Extends understanding of materials, measurement, and marking out from practical projects like storage boxes and LED lamps • Reinforces problem-solving, planning, and visualisation skills	• These lessons build on prior projects by developing pupils' ability to communicate and refine their ideas through accurate drawing, modelling and CAD, supporting design, prototyping, production and evaluation	
Assessment	• Evaluation of fajitas	• Making skills	• LED light show with multiple LED's	• Completion of drawing techniques	• Generating and modelling ideas	• Product
Home learning	• Organise ingredients/ money for practical • Sensory evaluation of fajitas	• Organise ingredients for practicals • Spellings of key words	• Complete reading activity and test on BBC bitesize • Spellings • Understanding circuits worksheet	• 3D printing worksheet • Spellings	• The work of others research • Existing product research	• Metals and Alloys worksheet • Spellings • Maths questions
Cultural Capital and extra-curricular opportunities	• Considering how meals are suitable for different groups of people • Learning about plant sources of protein	• Pastry products around the world – making South American empanadas	• Understand electronics, coding, and registers in real-world technology • Develop creativity and problem-solving through LED circuit design • Build practical skills relevant to engineering and robotics • Appreciate the role of programmable electronics in modern life	• Develop skills used in engineering, architecture, and 3D printing • Enhance visual literacy through technical drawings and models • Encourage creativity and problem-solving in design • Build transferable skills for CAD, modelling, and manufacturing • Appreciate how design underpins real-world products and structures	Pupils gain insight into how real products are designed and made, developing creativity, technical knowledge, and skills for future careers	
Literacy	• Expanding use of sensory vocabulary to describe food • Reading and following recipes	• Practising spellings of tier 3 vocabulary eg salmonella	• Use key terms: circuit, LED, Arduino, breadboard, register, code • Read and follow instructions accurately • Annotate and explain programming choices • Communicate technical ideas through diagrams and notes	• Use key terms: oblique, isometric, exploded, orthographic, modelling, 3D printing • Read and interpret technical drawings and instructions • Communicate design concepts through diagrams and notes	• Use key terms: prototype, CAD, CAM, metals, alloys, specifications, cutting list • Read and interpret technical drawings and instructions • Annotate sketches and CAD models to explain ideas • Write evaluations and reflections on design choices and processes • Communicate ideas clearly using diagrams and structured notes	
Numeracy	• Accurate measurement • Drawing a star diagram • Dividing dough into 9 equal parts	• Accurate measurements – ml, g	• Position components accurately • Apply basic calculations for voltage, current, and resistance • Use spacing when designing circuits in Tinker CAD • Plan and sequence steps logically for multi-LED setups • Interpret numerical data when testing and debugging circuits	• Measure accurately in sketches • Use scaling and proportion in drawings • Calculate dimensions for components and assemblies • Understand spatial relationships in different projections	• Measure and mark materials accurately • Calculate dimensions, scaling, and tolerances • Apply proportion in sketches, CAD models, and prototypes • Interpret numerical data from materials and design plans • Use sequencing and timing for production planning	
Careers Information, Education, Advice and Guidance (CEIAG)	• Nutritionists • Roles in hospitality and catering	• Farming, food processing industry in Lancashire	• Electronics & Electrical: Electronics engineer, electrical technician, PCB assembler, lighting technician • Design & Engineering: Product designer, industrial designer • Creative & Technical: 3D CAD designer, maker/entrepreneur	• Design & Engineering: Product designer, industrial designer, CAD technician, mechanical/structural engineer • Creative & Technical: Architect, 3D modeler/animator, prototype/model maker	• Product/industrial designer, CAD technician • Prototype/model maker, 3D modeller • Production planner, quality control inspector, CAM technician	

			• Manufacturing & Future Tech: CAM technician, smart lighting engineer	• Manufacturing & Technology: CAM technician, 3D printing specialist	
Spirituality	• Joy of making food for oneself and others • Appreciate the impact of excess and deficiency of nutrients on our bodies	• Appreciate the work of others when making food for us to enjoy • Consider how different cultures enjoy ingredients in different ways	• Reflect on creativity, problem-solving, and perseverance • Consider how circuits and lighting solutions can serve or benefit others. • Appreciate human ingenuity and the possibilities of technology	• Reflect on creativity, precision, and problem-solving • Consider how designs and models can serve or benefit others • Appreciate human ingenuity and technological innovation	• Reflect on creativity, precision, and problem-solving • Consider how products can serve or benefit others • Appreciate human ingenuity and innovation in turning ideas into functional objects
How can parents support the curriculum?	• Ensure home learning tasks are completed • Check when ingredients are needed • Encourage eating and discussing the food made in school	• Ensure home learning tasks are completed • Check when ingredients are needed • Encourage practising dishes at home	• Ensure home learning tasks are completed • Look out for LED light patterns • Explore real-world applications of electronics in your daily lives • Celebrate creativity, problem-solving, and persistence	• Ensure home learning tasks are completed • Encourage sketching and drawing to communicate. • Look at technical drawings e.g. Lego instructions, flatpack furniture etc. • Celebrate creativity, problem-solving, and effort	• Ensure home learning tasks are completed • Explore CAD, CAM, and modelling software together if available. • Celebrate creativity, problem-solving, and perseverance