Year 8 *Design Technology* Curriculum Overview

8 Week Rotation – 2 lessons per week– 16 x 1-hour lessons in total	
Theory and Practical Project/Theme Orientated	Detail of what pupils are expected to know / learn. Design/Making/Evaluating/ Technical Knowledge
Workshop – Design & Make	
Week 1-8 **Project – 'Door Knocker'**	Introducing 'designing for a client' around the theme 'working from home'. Design situations, project brief, iterative design process, Analysis of the problem, Research into existing products and materials, producing a range of sketched design ideas leading to a final design. Writing a simple specification and a manufacturing plan. Learning about a mechanism – Used in the door knocker. Examples of other mechanisms, levers and mechanical systems. Workshop Safety – Recall- PPE types and safe working practises, hazards and prevention and reporting of accidents. Identifying materials- classification (wood/metal/plastic) main types and understanding of their need for selection. Selection of measuring equipment, hand tools, machines and processes. Planning of making / sequences of stages of manufacture. Handling materials. Marking out using templates. Cutting of wood using a coping saw, use of a vice, using an engineer's file on wood, abrasives including sandpaper for improving surface finish. Using a machine tool – pillar drill Finishing techniques – Painting/ use of markers. Evaluating making - diary of manufacture. Quality control and quality assurance. Making a prototype – Marking out, using tools –wood files, pillar drill, assembly of parts. Evaluating finished product against final design and specification.
Electronic Systems & Control	
Theme of unit – 'Timers & Counters' **Week 1-3**	Timer/Counter Components – Circuit symbols and real life. Units of Voltage (Volts), Current (Amps), Resistance (Ohms) and Power (Watts). Using a Potential Divider. RC Timing Constant (T=RxC). 555 Timer 'integrated circuit' used as a 'monostable and astable'

Introduction and research/investigation	Designing products in electronics for clients – 'wants/needs' Existing products and improved versions (examples taught are hand-driers, toasters, microwaves – all include timers) – past and present.
Circuit Design **'Circuit Wizard' design software**	CAD - Circuit Simulation using 'Circuit Wizard' –available at home download from teams-files. Power supplies – Batteries types and selection of voltages. INPUT devices – switches (SPST/ SPDT /POTENTIOMETER) sensors (LIGHT, TEMPERATURE) Process Components – Resistor, capacitor, diode, 555 timer I.C, decade counter I.C. OUTPUT devices – LED's- colours/sizes/types, Relays, Motor, Solenoid Test equipment- Voltmeter, Ammeter.
Week 4-8 **Circuit Assembly**	Assembling circuits on prototyping boards. Handling and learning about the features of components. Using bench power supplies, cutting and stripping wires. Testing of circuits - measuring and recording values from a Multimeter.
#1 – 555 Monostable Timer	Building and testing a '555 Monostable timer' circuit. Learning about the pin arrangement and wiring of components. Charging and discharging of a capacitor to make a time delay. Using LED's to show timer is 'on' and then has 'ended'.
#2- 555 Astable 'Pulse generator'	Building and testing a '555 Astable' pulse generator circuit. Rearranging and rebuilding the circuit. Learning about 'voltage-time' graphs to show the OUTPUT is a 'square wave' graph that switches on and off at a set 'frequency'.
#3- 4017 Decade Counter	Building and testing a '4017 Decade Counter' circuit. Using 6 x LED's to count up each time a switch is pressed.
Additional Learning	Some pupils extend to combine the 'astable and decade counter' together. Further examples of timing and counting circuits using '7-segment displays' and 'up/down' digital counters.
Food & Nutrition	
Theory – Knowledge	**Recall on Hygiene and safety in the kitchen – Utensils and cooking / baking equipment. Handling of sharps. Managing the kitchen workspace. Clean working in a kitchen. Raw and cooked ingredients. Reducing spread of bacteria and cleaning up.** **Recall - The Eat Well Plate – Food planning, eating a healthy balanced diet. Choosing and selection of ingredients from the main food groups.**

Practical **Pupils to bring in ingredients and make in lessons.**	Fruits and vegetables – Types and how to recognise. Benefits of eating food types. Vitamins and nutrients. Calorific content. Energy stored in food. Design of food products – to meet needs/clients Labelling of food products – packaging design / law / types of labelling including ingredients and 'graphical' green/amber/red charts. Ethical and environmental issues - Types of Diets and considerations of food intolerances (allergies), religious considerations. Evaluating dishes made in class to the specified requirement. Using the cooker safely. Main parts of the cooker. Cooking using the hob, grill and oven. Setting the oven temperature (Farenheight and Celsius) and timers. • Cajun chicken skewers • Fajitas / Chilli con carne • Tomato and herb pasta pots • Rocky road.