

Year 7 Design Technology Curriculum Overview

| 8 Week Rotation – 2 lessons per week– 16 x 1-hour lessons in total | |
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| Theory and Practical Project/Theme Orientated | Detail of what pupils are expected to know / learn. Design/Making/Evaluating/ Technical Knowledge |
| Workshop – Design & Make | |
| Week 1-3 Project 1 – ‘Surfboard’ Keyring | Workshop Safety – 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 and laser cutter (engraving). Evaluating making - diary of manufacture. Quality control and quality assurance. |
| Week 4-8 Project 2 – ‘Desk Tidy’ | 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. Making a prototype – Marking out, using tools –wood files, pillar drill, assembly of parts (included 3d printed parts). Evaluating finished product against final design and specification. |
| Electronic Systems & Control | |
| Week 1-3 Introduction to Electronic Principles. Circuit Design ‘Circuit Wizard’ design software | Basic Components – Circuit symbols and real life. Units of Voltage (Volts), Current (Amps), Resistance (Ohms) and Power (Watts) CAD - Circuit Simulation using ‘Circuit Wizard’ Power supplies – Batteries, Mains, Sustainable(wind/solar) INPUT devices – switches (SPST/ SPDT/ PTM/ PTB/ REED/ TILT/ POTENTIOMETER) sensors (LIGHT, TEMPERATURE) Process Components – Resistor, diode, thyristor, transistor OUTPUT devices – Bulb, LED, Relay, Motor, Solenoid Test equipment- Voltmeter, Ammeter. |
| Week 4-8 Circuit Assembly | Assembling circuits on prototyping boards. |

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| <p>#1 – Light Sensor #2- Dark Sensor</p> <p>#3- Thyristor Latch</p> <p>Additional Learning</p> | <p>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.</p> <p>Building and testing a transistor based ‘light sensor’ circuit. Learning about ‘Lux’ values of light. Potentiometer Rearranging the circuit and building a ‘dark sensor’ circuit.</p> <p>Building and testing a thyristor based ‘latching’ circuit.</p> <p>Managing Electronic Waste. The 6 x R’s (Recycle, Repair, Refuse, Reduce, Rethink, Re-use)</p> |
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| Food & Nutrition | |
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| <p>Theory – Knowledge</p> <p>Practical Pupils to bring in ingredients and make in lessons.</p> | <p>Hygiene and safety in the kitchen – Utensils and cooking / baking equipment. Handling of sharps. Managing the kitchen workspace. Clean working in a kitchen. Working as team. Raw and cooked ingredients. Reducing spread of bacteria and cleaning up.</p> <p>The Eat Well Guide – Food planning, eating a healthy balanced diet. Choosing and selection of ingredients from the main food groups.</p> <p>Fruits and vegetables – 5 a day - Types and how to recognise. Benefits of eating food types: - Vitamins and nutrients. Evaluating their own diet. Types of Diets and considerations of different dietary needs e.g. food intolerances (allergies), ethical/moral/religious considerations.</p> <p>Using the cooker safely. Main parts of the cooker. Cooking using the hob, grill and oven. Setting the oven temperature (Fahrenheit and Celsius) and timers.</p> <p><u>Layered salad</u> - Peeling, Grating, chopping and food presentation Fruit crumble – Peeling, chopping, stewing, weighing, rubbing in, baking <u>Pizza toasts</u> – Grilling, chopping, spreading, grating, testing for doneness. <u>Tomato soup</u> – chopping, frying, boiling and simmering, blending. <u>Chicken nuggets</u> – Handling raw meat, shaping, coating, greasing, baking, checking for doneness.</p> |
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