

## Subject Curriculum Overview for Academic Year 2022/2023

Subject: Design Technology / Cooking & Nutrition		Subject Leader: Mrs Fox	Year Group: 8	TERMLY ROTATION
Topic	Key Learning Points		Key Vocabulary	Assessments
<p><b>Rotation 'A'</b></p> <p><b>Traditional woodwork</b></p>	<p><b>END POINT: Learn about basic mechanisms by manufacturing a working sweet dispenser</b></p> <p><i>Sweet Dispenser</i></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>• Learn to recognise sources of materials, understand sustainability, and make informed choices, e.g. where materials come from, raw state to manageable forms (wood, plastic, glass).</li> <li>• Learn about the 6 R's of sustainability and how these impact upon their choices as designers &amp; manufacturers; re-use, recycle, rethink, reduce, repair and refuse.</li> <li>• Learn and understand the four types of motion; rotary, linear, reciprocating and oscillating.</li> <li>• Understand the importance of grain orientation &amp; adhesives with regard to structural integrity and durability.</li> <li>• Learn to refine their marking out skills with millimetres, using a ruler and try square.</li> <li>• Learn to independently use hand &amp; power tools in a safe and precise manner to produce successful outcomes.</li> <li>• Learn to identify five different drill bits and understand why we use them (twist bit, spade bit, Forstner bit, auger but, hole saw).</li> <li>• Learn how to use templates to improve the accuracy of their work and understand that templates reduce time in mass production.</li> <li>• Revisit the application of suitable finishes to their work, e.g. varnish or wax.</li> <li>• Learn about the essential components of packaging (nets, tabs and inserts), and incorporate these into their own designs.</li> <li>• Learn the importance of marketing and promotion. Create personalised sweet company logos (using CAD Serif DrawPlus) to accompany the sweet dispenser.</li> <li>• Learn to devise tests to analyse and evaluate their own finished products against set criteria, as well as peer evaluating completed outcomes.</li> </ul>		<p>Sustainable, reduce, reuse, recycle, rethink, repair, refuse, thermoplastic, thermosetting plastic, softwood, orientation, motion, linear, rotating, reciprocating, oscillating, tenon saw, file, abrasive, pillar drill, drill bit, Forstner bit, template, PPE, adhesive, finish, packaging.</p>	<p>Formative assessment, checking understanding &amp; progress during each lesson.</p> <p>'Forms' Summative assessment used half termly to assess understanding of key learning points.</p>

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<p><b>Rotation 'B'</b></p> <p><b>Electronics / Programmable Systems</b></p>	<p><b>END POINT: Understand and explain electrical component functions and confidently solder a PCB (printed circuit board)</b></p> <p><i>The Steady Hand Game</i></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>• Learn how to explore the design brief and adapt to their own context/design direction.</li> <li>• Learn to choose and justify an appropriate target market and research existing solutions in correspondence with this.</li> <li>• Learn about the work of Andy Warhol within the Pop Art design movement and be able to describe key features of this work (bright vibrant colours, black outline, cartoon style, humour, onomatopoeia).</li> <li>• Learn to draw a variety of design ideas appropriately aimed at a chosen target market and be able to justify this by annotating the designs.</li> <li>• Learn to manufacture a butt joint with precision, using millimetres.</li> <li>• Learn the key material properties (aesthetics, durability, cost, purpose) of pine, MDF and acrylic, and justify these as chosen materials for the steady hand game manufacture.</li> <li>• Learn the functions of each electrical component (capacitor, thyristor, resistor, LED, buzzer, reset switch) within the steady hand game circuit, and be able to explain how together, the components make the game work.</li> <li>• Understand the functions of an input, output and power within a circuit.</li> <li>• Learn how to independently solder a circuit board with an operational functioning output (LED &amp; buzzer).</li> <li>• Programme an IC chip (integrated circuit chip) using Picaxe software, to make the input and output components function correctly within the circuit.</li> <li>• Use the IC chip based on the programme from Picaxe.</li> <li>• Learn about electrical conductivity of certain materials.</li> <li>• Learn about types of fixings; temporary &amp; permanent (adhesives, nails &amp; screws).</li> <li>• Revisit how to use 2D Design and the laser cutter to create their steady hand game design and integrate this into traditional woodwork practises.</li> <li>• Learn to reflect, evaluate and develop, throughout the design and manufacturing process.</li> </ul>	<p>Joinery, housing, butt joint, pine, MDF (medium density fibreboard), Acrylic, electronics, solder, soldering iron, flux, circuit, dry joint, component, conductor, programming, chip, resistor, capacitor, input, output, side cutters, strippers, finger joint, coping saw, tenon saw, scroll saw, strain relief, light emitting diode (LED).</p>	<p>Formative assessment, checking understanding &amp; progress during each lesson.</p> <p>'Forms' Summative assessment used half termly to assess understanding of key learning points.</p>
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<p><b>Rotation 'C'</b></p> <p><b>Food Preparation &amp; Nutrition</b></p>	<p><b>END POINT: To know the nutritional value in different ingredients and to safely prepare and cook healthy food dishes</b></p> <p><i>An introduction to Cooking &amp; Nutrition</i></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>• Know the key characteristics of a staple diet within different cultures, and the importance of this within the human diet.</li> <li>• Master practical skills in bread making – including dough preparation, kneading, shaping, flavouring proving and baking.</li> <li>• Understand how the commercial production of wheat filters to create different flour types; plain, self-raising, whole-wheat, bread flour.</li> <li>• Understand there are alternative raising agents to yeast / characteristics compared to yeast (baking powder, baking soda, eggs) and use this knowledge to bake sour dough.</li> <li>• Build on prior knowledge of sensory testing and comparisons, by tasting, comparing and analysing three different bread types.</li> <li>• Be able to make pasta from raw ingredients using a manual pasta maker, and understand how this is commercially produced.</li> <li>• Demonstrate key literacy skills, use of adjectives and adverbs, to write a bespoke menu.</li> <li>• Master the use of the cooker hob on high heat, by designing, preparing and cooking a stir fry.</li> <li>• Understand the importance of local and seasonal foods and explain the advantages and disadvantages of seasonal ingredients.</li> <li>• Understand and be able to describe organic foods, and explain the advantages and disadvantages of buying and eating organic produce.</li> </ul>	<p>Allergy, analyse, antibacterial, calcium, carbohydrate, Celsius, centigrade, chilling, colander, consistency, contamination, creaming, fibre, food poisoning, glazing, gram, iron, kilogram, kneading, liquidise, litre, millilitre, mineral, nutrition, obesity, pathogen (ic), protein, proving, running-in, seasoning, simmering, spatula, toxin, vitamin.</p>	<p>Formative assessment, checking understanding &amp; progress during each lesson.</p> <p>Hand written summative assessment used half termly to assess understanding of key learning points.</p>
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### How parents can support learning in the subject this academic year

- Support independent practical skills by practising recipes / encouraging cooking dinner.
- Support independent practical skills by helping with household DIY / using tools to manufacture ideas within the home.
- Practise using subject specific vocabulary in a sentence.
- Watch cooking, design and manufacturing programmes to encourage enthusiasm and motivation within these subjects.
- Acknowledge and discuss the benefits of these subjects within the wider careers industry, supporting future aspirations.
- Encourage excellent page presentation and explore / research during homework tasks.

### Recommended Reading

- You Can Draw – Tom Gates with Liz Pichon
- 100 Things to Know About Inventions – Clive Gifford
- The Book of Inventions – Tim Cook
- Engineering for Teens – Dr Pamela McCauley
- KS3 Design & Technology Study Guide – CJP
- Foundations KS3 Food Technology – Oxford
- The Complete Cookbook for Young Chefs – America’s Test Kitchen Kids

### Points to note

This is the second year of the KS3 curriculum - Years 7 & 8 study a different Technology specialism each term. There are approximately 12 weeks of study for traditional woodwork, product design or electronics, and cooking & nutrition. We welcome students taking their products home with them at the end of the rotation, and food at the end of each practical lesson. Whilst we supply all materials for manufacture, batteries may need to be purchased by yourselves for products requiring them. Cooking ingredients should be purchased by yourselves, and will be uploaded to epraise a minimum of 2 days before they are needed in school.