



## KS3 Curriculum Mapping

### Subject: Technology

Within Technology, we aim to inspire students in this practical subject, to be creative and to follow a design process to make products / systems.

Pupils rotate within the technology subjects on a 7 week cycle, covering various aspects within the different subject disciplines.

Rotation	Year 7	Year 8	Year 9
<b>Design &amp; Technology 1</b>	<p style="text-align: center;"><b><u>Nightlight</u></b></p> <p>During this project student's complete theory and practical tasks. They begin theory work by;</p> <ul style="list-style-type: none"> <li>• Researching existing nightlight products</li> <li>• Creating their own themes and designs for the nightlight screen and base.</li> <li>• Rendering techniques and tonal shading</li> <li>• Material properties and characteristics</li> <li>• Learning electronic components</li> <li>• Resistor values</li> <li>• Final evaluation</li> </ul> <p>Students learn valuable practical skills throughout this project such as:</p> <ul style="list-style-type: none"> <li>• Filing techniques- cross and draw filing</li> <li>• Finishing techniques</li> <li>• Using a coping saw</li> <li>• Vacuum forming</li> <li>• Population of pre-manufactured PCB</li> <li>• Identification of electronic components</li> <li>• Soldering</li> <li>• Circuit testing</li> <li>• Assembly</li> </ul>	<p style="text-align: center;"><b><u>Electronic Products</u></b></p> <p>Students are set the challenge to use the school's CAD/CAM and Electronics facilities to produce a prototype portable speaker that will appeal to a target audience with a suitable theme of their choice, the design should be considered carefully to attract their intended user.</p> <p>Students will learn to :</p> <ul style="list-style-type: none"> <li>• Write a design brief</li> <li>• Write a detailed specification</li> <li>• Develop 2D Design- Speaker Case Design Solutions</li> <li>• Calculate resistor values</li> <li>• Develop electronics "Theory" knowledge</li> <li>• Identify Speaker Circuit &amp; Components</li> <li>• Manufacture an Electronic Circuit</li> <li>• Apply electrical testing &amp; fault finding procedures</li> <li>• Evaluate their work and their own skills</li> <li>•</li> </ul> <p>This project is designed to enable students to build on their electronics knowledge from Year 7 and will also teach them a range of new and exciting skills, including use of the laser cutter.</p>	<p style="text-align: center;"><b><u>Year 9 Unit - Manufacturing in Engineering</u></b></p> <p>This unit allows learners the opportunity to have first-hand experience of Engineering Manufacturing and use of excellent facilities that we as a technology department are proud to have at JPS. Pupils will undertake an Engineering experience through manufacture of a headphone holder.</p> <p><b>Pupils will prepare, plan and manufacture a pre-production product (headphone holder)</b></p> <p>Pupils' tasks and objectives are:</p> <p><b><u>Task 1: Production planning for a pre-production product</u></b>  <b><i>Learning Outcome 1 - Be able to plan for the making of a pre-production (prototype) product, and Interpret information from the 2D and 3D engineering drawings provided.</i></b></p> <p>In this part of the assessment they will need to:</p> <ul style="list-style-type: none"> <li>• <b><i>Work from given engineering drawings</i></b> demonstrating understanding.</li> <li>• Produce a <b><i>detailed production plan</i></b> for the manufacture of a pre-production part.</li> <li>• Work safely and <b><i>describe some hazards, risks and use of PPE.</i></b></li> </ul> <p><b><u>Task 2: Select and use production processes, tools and equipment safely to make a pre-production product</u></b>  <b><i>Learning Outcome 2 - Be able to use processes, tools and equipment safely to make a pre-production product.</i></b></p>





<p><b>Design &amp; Technology 2</b></p>	<p style="text-align: center;"><b><u>Cosmetics</u></b></p> <p>During this graphics based project students will learn;</p> <ul style="list-style-type: none"> <li>• Isometric drawing techniques</li> <li>• Enhance 3D drawings use tone / shade</li> <li>• The skills required to accurately produce a cosmetics package.</li> </ul> <p>Further to this; students will:</p> <ul style="list-style-type: none"> <li>• Conduct research into existing products</li> <li>• Investigate Branding and develop a brand identity</li> <li>• Develop a range of packaging design ideas</li> <li>• Modelling/Development towards a final prototype.</li> <li>• Evaluate the final outcome.</li> </ul>	<p style="text-align: center;"><b><u>Clock</u></b></p> <p>During week 1 of the clock project students are required to demonstrate their ability to cut, file and polish a piece of acrylic into a keyring. This mini project is designed to assess students cutting skills gained in Yr 7.</p> <p>Leading on from this, students work on the clock project, this is a practical project where students design and make a clock for use by people aged 12+, that is influenced by either a theme, popular trend or design research.</p> <p>Students follow the design process introduced in Year 7;</p> <p><b>PROBLEM RESEARCH IDEAS MAKE EVALAUTE</b></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>• Write a justified specification using ACCESS FM</li> <li>• Develop a range of initial concept sketches</li> <li>• Create a final design using Isometric drawing/rendering</li> <li>• Select an idea suitable for manufacture.</li> <li>• Research materials and their key properties and uses.</li> <li>• Create a final design</li> <li>• Write a material cutting list</li> <li>• Plan the manufacture of their product.</li> <li>• Evaluate the final outcome.</li> </ul> <p>Practical skills include:</p> <ul style="list-style-type: none"> <li>• Making a model template</li> <li>• Using a coping saw to cut out a specific shape</li> <li>• Filling and finishing</li> <li>• Using the Pillar drill</li> <li>• Fitting a standardised Clock mechanism</li> <li>• Applying a theme/design to the clock</li> </ul>	<p style="text-align: center;"><b><u>Pewter Casting - Product Design</u></b></p> <p>This unit has been developed to give students an experience of GCSE Product Design where learners will work through a mini coursework assignment, producing an individual design and make project that starts with a design brief, undertake investigations, produce and develops design ideas and leads to a successful manufacture producing a small pewter cast item that can be evaluated.</p> <p>Pupils' tasks and objectives are:</p> <p><b><u>Learning Outcome 1: Investigating the Design Context</u></b></p> <ul style="list-style-type: none"> <li>- Analyse the context and produce a design brief.</li> <li>- Analyse a range of existing products.</li> <li>- Analyse their client / target market and their needs.</li> <li>- Produce a design specification.</li> </ul> <p><b><u>Learning Outcome 2: Development of Design Proposals</u></b></p> <ul style="list-style-type: none"> <li>- Produce a range of design ideas.</li> <li>- Develop a chosen design idea.</li> <li>- Produce CAD drawings of their developed idea.</li> <li>- Produce a plan of manufacture for making their chosen design.</li> </ul> <p><b><u>Learning Outcome 3: Realisation</u></b></p> <ul style="list-style-type: none"> <li>- Manufacture the chosen proposal using the correct tools, equipment and considering Quality Control.</li> <li>- Ensure that health &amp; safety is considered throughout the whole making process.</li> <li>- Produce a diary of manufacture for making their chosen design.</li> </ul> <p><b><u>Learning Outcome 4: Testing and Evaluation</u></b></p> <ul style="list-style-type: none"> <li>- Test their outcome.</li> <li>- Identify strengths and weaknesses.</li> <li>- Compare the outcome against the design specification.</li> <li>- Provide potential improvements.</li> <li>- Assess their own performance.</li> </ul> <p>During the unit learners will also:</p>
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<p><b>Design &amp; Technology 2</b></p>			<ul style="list-style-type: none"> <li>• Develop freehand sketching techniques to generate initial ideas.</li> <li>• Use CAD/CAM to produce a feasible design solution and produce an appropriate mould.</li> <li>• Use appropriate heat processes to undertake the pewter casting.</li> <li>• Use a range of finishing processes to complete the practical outcome.</li> <li>• Undertake evaluation and assessment.</li> </ul>
<p><b>Computing 1</b></p>	<p>Digital Literacy</p> <ul style="list-style-type: none"> <li>· Logging in and use of passwords</li> <li>· Acceptable Use Policy</li> <li>· Organising folders</li> <li>· Use of email</li> <li>· Hardware and software</li> <li>· Networks</li> <li>· Internet and WWW</li> </ul> <p>E-Safety</p> <ul style="list-style-type: none"> <li>· Creating private and safe Online Profile</li> <li>· Safer Internet and Internet Safety</li> </ul> <p>Celebration Day</p> <ul style="list-style-type: none"> <li>· Consequences</li> <li>· Fake News</li> <li>· Reliability and validity of information</li> </ul> <p>Kodu</p> <ul style="list-style-type: none"> <li>· Introduction to interface</li> <li>· Game design</li> <li>· Programming</li> <li>· Assessment and evaluation</li> </ul>	<p>Control</p> <ul style="list-style-type: none"> <li>• Flowcharts</li> <li>• Sequence and iteration</li> <li>• Selection</li> <li>• Sequencing application</li> <li>• Subroutines</li> <li>• Designing and evaluation</li> <li>• Applications of real life scenarios</li> </ul> <p>Python programming</p> <ul style="list-style-type: none"> <li>• Strings and variables</li> <li>• Data types</li> <li>• Operators</li> <li>• IF statements and applications</li> <li>• Programming questions</li> <li>• Pseudocode</li> <li>• Using While loops</li> </ul> <p>Website design</p> <ul style="list-style-type: none"> <li>• Design reviews</li> <li>• Pre production</li> <li>• Code development</li> <li>• Advanced HTML tags</li> <li>• CSS</li> </ul> <p>Checklist and Evaluation</p>	<p>Understanding Computers</p> <ul style="list-style-type: none"> <li>• Input, Output and Storage devices</li> <li>• Input/Process/Output model</li> <li>• Storage devices</li> <li>• Binary to Denary conversion</li> </ul> <p>Python</p> <ul style="list-style-type: none"> <li>• Data types</li> <li>• IF statements</li> <li>• Loops</li> <li>• Sub Routines</li> <li>• Python Challenges</li> </ul> <p>Digital Graphics</p> <ul style="list-style-type: none"> <li>• Bitmap Graphics</li> <li>• Vector Graphics</li> <li>• Pre Production documents and production</li> <li>• Creating a media product</li> <li>• Exporting a media product</li> </ul>
<p><b>Computing 2</b></p>	<p>Scratch</p> <ul style="list-style-type: none"> <li>• Introduction to Game guides x3</li> <li>• Game design</li> <li>• System Life Cycle</li> <li>• Tracking Progress</li> <li>• Game design cover for Xbox and PS4</li> <li>• Knowledge check/test</li> <li>• Scratch Evaluation</li> </ul> <p>Small Basic</p> <ul style="list-style-type: none"> <li>• Introduction to programming</li> <li>• Loading/using the Virtual Machine</li> <li>• Iteration</li> <li>• Sub Routines</li> <li>• Patterns/Challenge</li> </ul> <p>HTML</p> <ul style="list-style-type: none"> <li>• HTML codes and conventions</li> <li>• Webpage design</li> </ul>	<p>Scratch</p> <ul style="list-style-type: none"> <li>• Introduction to Game guides x3</li> <li>• Game design / Algorithms</li> <li>• Flowcharts</li> <li>• System &amp; Software Life Cycle</li> <li>• Tracking Progress</li> <li>• Knowledge check/test</li> <li>• Scratch Evaluation</li> </ul> <p>Databases</p> <ul style="list-style-type: none"> <li>• Database uses</li> <li>• Using database queries (Gotcha)</li> <li>• Creating a database</li> <li>• Database Theory</li> <li>• Database operators</li> <li>• Testing</li> </ul> <p>Control KNEX</p>	<p>Networks Theory</p> <ul style="list-style-type: none"> <li>• Domains and web addresses</li> <li>• IP addresses</li> <li>• Transmission speeds</li> </ul> <p>Network design</p> <ul style="list-style-type: none"> <li>• Topologies and components</li> <li>• Client server and Peer to Peer</li> <li>• Encryption</li> </ul> <p>Cyber security</p> <ul style="list-style-type: none"> <li>• Phishing</li> <li>• Computer misuse</li> <li>• Legal issues</li> </ul> <p>Computer use</p> <ul style="list-style-type: none"> <li>• Health and Safety</li> <li>• E-Waste and environmental impact</li> </ul>



<p><b>Computing 2</b></p>	<ul style="list-style-type: none"> <li>• Interactive features</li> <li>• Knowledge checker</li> <li>• Responsive design</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction to control applications using KNEX</li> <li>• Flowcharts</li> <li>• Selection of levelled scenarios to complete using kits</li> </ul>	<p>Video production</p> <ul style="list-style-type: none"> <li>• Pre production and client briefs/requirements</li> <li>• Target audience</li> <li>• Storyboard design</li> <li>• Video production techniques</li> <li>• Video editing techniques</li> <li>• Exporting</li> <li>• File formats</li> <li>• Testing</li> <li>• Peer Reviews/Evaluation</li> </ul> <p>Extended Projects Python programming/ Digital animation/ Building a PC/ Digital Art/ HTML &amp; CSS/ CAD Design</p>
<p><b>Food &amp; Nutrition</b></p>	<p>Introduction to Food Technology.</p> <p>Covering in theory application:</p> <ul style="list-style-type: none"> <li>• Health and safety.</li> <li>• The Eatwell Guide.</li> <li>• Equipment, small and electrical, plus cookers.</li> <li>• Sensory Analysis.</li> <li>• Weighing and Measuring.</li> <li>• The science of: dextrinization, gelatinisation, how heat enters food.</li> <li>• Conduction, radiation and convection.</li> <li>• Food provenance.</li> <li>• Food safety in relation to chicken.</li> </ul> <p>Covering in practical focus:</p> <ul style="list-style-type: none"> <li>• Fruit salad</li> <li>• Simple soups</li> <li>• Savoury rice</li> <li>• Macaroni cheese</li> <li>• Fruit crumble</li> <li>• Chicken (veg alternative) or fish goujons</li> </ul>	<p>Next level of Food Technology, increasing practical skills and science application.</p> <p>Covering in theory application:</p> <ul style="list-style-type: none"> <li>• Eatwell guide in meals.</li> <li>• Theory of bread, history and science of yeast, kneading, proving and rising.</li> <li>• Designing using ingredients (pizza).</li> <li>• Energy balance.</li> <li>• Mince, buying, storing, cooking, provenance of.</li> <li>• Sugar, comparative testing of small cakes and extended sensory analysis.</li> <li>• Salt, health focus.</li> <li>• Fats: saturated and unsaturated.</li> <li>• Recipe modification.</li> </ul> <p>Covering in practical focus:</p> <ul style="list-style-type: none"> <li>• Pasta salad; design and execution in relation to Eatwell guide.</li> <li>• Bread, traditional shapes.</li> <li>• Bread based pizza; bread base, tomato sauce, layering and constructing.</li> <li>• Burger making, shaping, cooking.</li> <li>• Burger stack with own bread bun.</li> <li>• Comparative cake experiment.</li> </ul> <p>Cheesecake; base, topping and use of fruit in coulis or topping.</p>	<p>Application of Food Technology to Teenagers and healthy lifestyle choices.</p> <p>Covering in theory application:</p> <ul style="list-style-type: none"> <li>• Nutritional needs of adolescents.</li> <li>• Linking energy needs to Eatwell guide and current nutritional thinking.</li> <li>• Importance of breakfast.</li> <li>• Eggs as a powerful nutritional food.</li> <li>• Theory of pastry.</li> <li>• Theory and energy calculation of cakes.</li> <li>• Curry in the British diet.</li> </ul> <p>Covering in practical focus:</p> <ul style="list-style-type: none"> <li>• Using eggs for quick nutritional breakfast: boiled, poached, scrambled, pancakes.</li> <li>• Pastry making.</li> <li>• Quiche, plate pie or Bakewell Tart.</li> <li>• Creaming method cake.</li> <li>• Decorations techniques: water icing, buttercream, chocolate glazing, modelling with sugar paste, jam making.</li> <li>• Simple, homemade curry.</li> <li>• Take and add - timed team practical challenge.</li> </ul> <p>All practical are discussed and tailored to the needs of each year 9 group.</p>