



SUNNYDOWN SCHOOL

DT CURRICULUM PLAN

Subject	DT	Year group	Y8
Subject Intent	<p>During Year 8 Sunnydown students will build their knowledge and understanding of D&T through completing projects with more complex briefs and tasks. They will begin to use a broader selection of materials and equipment. Metal work is introduced in year 8 alongside continued work with woods and plastics. More emphasis is placed on independence and creativity with students encouraged to create individual, personalised designs. Research, design and evaluation paperwork is increased to begin preparing students for the demands of a potential KS4 course. Health and safety is embedded throughout projects and students continue to fill in their Health and Safety passports.</p>		

Term	Topic	Core learning	Key concepts	Sequencing
Autumn 1	Acrylic ball bearing maze	<p>Technical knowledge: Properties of plastic, where they come from and their environmental impact. Creating a prototype and testing. Joining techniques.</p> <p>Design: Creating a selection of designs and evaluating to select one to take forward. Design should include features to create a challenging maze. Selected design to be prototyped using foam board so iterative changes can be made.</p> <p>Making: Use of prototype to provide measurements and placement of components. Accurate measuring and cutting of acrylic parts. Polisher to be used to create a smooth finish to acrylic parts. Use of plastic weld to</p>	<ul style="list-style-type: none"> • Different types of plastic • Where plastic comes from • Acrylic • Plastic weld • Polisher • Usability • Shaping acrylic • Prototyping • Iterative design 	<p>Building on..... Year 7 Autumn 1 and 2 acrylic work. Reinforcing joining methods for acrylic. Accurate marking and measuring learned throughout year 7</p> <p>Building towards... Students gain a core knowledge of plastics and polymers, understanding the source of plastics and their environmental impacts. Fine motor skills are developed when working on small parts which will help with accuracy and neatness on future projects.</p>

		<p>join parts together. Understanding of using heat to shape acrylic.</p> <p>Evaluate: Detailed list of materials and tools used. Explanation of the making process written in full sentences. Improvements considered and personal targets set. Each finished product to be peer assessed and to include constructive advice.</p>		
Autumn 2	Steel hanging basket bracket	<p>Technical knowledge: Process for starting the forge and lighting the torch. Health and safety and specific PPE when using the forge. (leather apron, gauntlets, face shield) Use of jigs to create accurate, reproducible shapes. Use of triangulation in design to create a strong structure. Understanding metal joining techniques from riveting to welding.</p> <p>Design: Multiple designs made and evaluated. Creating a scale drawing of design. Cutting list created to provide information when starting practical work.</p> <p>Making: Use of metal work tools with specific emphasis on selection of correct saws to cut mild steel. Forge used to anneal metal parts ready for bending. Explanation and use of the process of center punching and drilling holes in metal. Metal bending jigs used to create accurate and repeatable bends and shapes. Use of rivets and rivet gun to join metal parts. Introduction to welding as a joining technique. (to be used by some) Use of metal finishes to protect from elements.</p> <p>Evaluate: Detailed list of materials and tools used. Full explanation of the making process with students</p>	<ul style="list-style-type: none"> ● Forge ● Health and safety ● PPE ● Joining metal ● Where metal comes from ● Mild steel ● Metal bending jigs ● Riveting ● Triangulation ● Structure ● Strength ● Welding ● Rusting ● Metal finishes ● Aesthetics 	<p>Building on..... Health and safety in the workshop from Autumn 1, year 7. Introduction of metal work completes students preliminary experience of working with each of the three materials used in DT at Sunnydown.</p> <p>Building towards... students being confident to work with metal and use the forge. Increases students' knowledge of a variety of tools and equipment that they had previously not used. This will lead to student being able to make informed decisions on tools and materials later on in KS3 and KS4.</p>

		encouraged to explain different processes learnt. Improvements considered and product weight bearing test carried out.		
Spring 1	Birdboxes	<p>Technical knowledge: Introduction to treated timbers as a way to protect them from the weather. Reason for drilling pilot holes and countersinking. Ways to avoid wood splitting. Understanding of the stock form of wood, specifically how pine used is sold in shops (planks)</p> <p>Design: Basic bird box requires students to follow a design plan with measurements. Each bird box is then personalised with students encouraged to add detail using additional materials.</p> <p>Making: Use of different hand saws to cut pine. Justification of why a saw was used for each job. Use of belt sander to create smooth and accurate components before assembly. Measuring and marking for screw placement. Use of pilot holes to reduce chance of splitting and countersinking for flush screw fitment. Additional design features created and added using a variety of joining techniques and finishes.</p> <p>Evaluate: Detailed list of materials and tools used. Explanation of the making process written in full sentences. Improvements considered and personal targets set. Each finished product to be peer assessed and to include constructive advice.</p>	<ul style="list-style-type: none"> ● Treated pine ● Marking and measuring ● Pilot holes ● Countersink ● Types of screw ● Weather protection ● Personalisation ● Creative design ● Stock form 	<p>Building on... Year 7 Autumn 2 using drills. Developing skills using hand drills and pillar drill. Continuing material knowledge from year 7 with introduction of new material. (weather treated wood)</p> <p>Building towards... Students will start to analyse existing products which is built on through Year 8 and 9, this also starts to encourage taking inspiration for their own ideas and research skills. Further development of students material knowledge leading to correct materials being selected for specific tasks.</p>
Spring 2	Electronic torch	<p>Technical knowledge: Understanding of basic electrical components. Use of</p>	<ul style="list-style-type: none"> ● Electronic components 	<p>Building on..... Year 7 Summer 1 electronics.</p>

		<p>soldering iron. Following a design plan. Cutting a material within tolerances.</p> <p>Design: This project requires less design work as students will follow a plan to produce accurate parts for the torch casing.</p> <p>Making: Following instructions to solder a basic working electrical circuit. Torch casing made using accurately cut acrylic pieces and joined using plastic weld. Completed casing sanded to create an ergonomic shape handle.</p> <p>Evaluate: Detailed list of materials and tools used. Explanation of the making process written in full sentences. Improvements considered and explained. Students to comment on what they could improve on as a learner in DT for the next project.</p>	<ul style="list-style-type: none"> ● Soldering ● Sustainability ● Recycling ● Technical drawings ● Design plan ● Tolerances ● Ergonomics ● Sanding 	<p>Students are also working with electronic components in Science. Reinforcing measuring and cutting acrylic accurately from Year 8 autumn 1.</p> <p>Building towards... Students will recognise and use basic electrical components, developing understanding of inputs and outputs. Soldering requires fine motor skills, which will help students take part in more detailed work beyond KS3.</p>
<p>Summer 1</p>	<p>Mitre jointed boxes</p>	<p>Technical knowledge: Creating an aesthetically pleasing product. Making and using a jig to replicate a process repeatedly. Properties of woods. Creating accurate angled mitre joints. Investigating angles in different geometric shapes. Considering the cost of different materials.</p> <p>Design: Students to choose a shape with more than 4 sides to create a mitre jointed decorative box frame. Design for frame drawn out to full scale to help make decisions on measurements. Lid design requires at least 2 different colour woods.</p> <p>Making:</p>	<ul style="list-style-type: none"> ● Angles ● Different timbers ● Choice of materials ● Hardwood ● Softwood ● Mitre joint ● Jigs ● Wood finishes ● Varnish ● Wax ● Accuracy ● Tolerances ● Quality finish ● Aesthetics 	<p>Building on..... Wood joint work from year 7 Spring 1 and 2. Introduction of mitre joints. Developing measuring skills from year 7 to include angles. Protractor and angle work from Maths</p> <p>Building towards... students recognising a variety of wood joints and being able to select the appropriate type for a given project. Use of jigs when making encourages students to attempt more complicated work whilst</p>

		<p>Pine used to create box sides. Each piece needs to be accurately cut and sanded using sanding jigs. Top and base made using lamination process of joining two or more different woods to create an aesthetically pleasing look. Product to be completed using a finish that accentuates the natural wood look.</p> <p>Evaluate: Detailed list of materials and tools used. Explanation of the making process written in full sentences. Improvements suggested if different materials were available. Effectiveness of finishes discussed.</p>	<ul style="list-style-type: none"> ● Laminating ● Adhesives 	<p>reducing the worry of failure.</p>
<p>Summer 2</p>	<p>Mechanical pinball machine</p>	<p>Technical knowledge: Levers and linkages. How to recognise the different class of lever. Using mechanisms and potential energy to move a ball bearing.</p> <p>Design: Creating a choice of designs that can be used to make a personalised product. Design needs to include measurements and features to create a challenging yet achievable game.</p> <p>Making: Following technical drawings to create accurate components. Students need to mark, measure and cut MDF accurately. Students will use paints to create an aesthetically pleasing product.</p> <p>Evaluate: Detailed list of materials and tools used. Explanation of the making process written in full sentences. Improvements considered and personal targets set. Products tested by peers and feedback given.</p>	<ul style="list-style-type: none"> ● Mechanisms ● Levers ● Potential energy ● Cams ● Research ● Aesthetics ● Individual design ● MDF ● Adhesives ● Technical drawing 	<p>Building on..... Year 7 Summer 2 mechanism work. Using multiple levers and mechanisms develops understanding. Imbedding accurate marking and measuring.</p> <p>Building towards... students understanding how levers can reduce the force required to lift a weight using mechanical advantage. Recognising types of Forces that materials can be under e.g. Tension, Compression, Torsion and Shear</p>