

Year 9 Design Technology					
	Embarking	Emerging	Developing	Securing	Mastering
<b>Design</b>	<ul style="list-style-type: none"> <li>Collect information that helps understanding and clarity of problem.</li> <li>Use pictures and words to describe what you want to do.</li> <li>Generate ideas and recognise that your designs have to meet a range of different needs.</li> <li>Generate simplistic ideas by using collected information and use some ideas from others to inform your own work.</li> </ul>	<ul style="list-style-type: none"> <li>Use limited research and exploration to identify and demonstrate limited understanding of user needs.</li> <li>Identify design problems and demonstrate a limited understanding of how to reformulate problems given to them.</li> <li>Develop limited specifications to inform the design of innovative, functional, appealing products that respond to limited needs in a variety of situations.</li> <li>Use a limited variety of approaches, to generate some creative ideas and avoid stereotypical responses.</li> <li>Develop and communicate some design ideas using annotated sketches, detailed plans, 3D and mathematical modelling, oral and digital presentations and computer-based tools.</li> </ul>	<ul style="list-style-type: none"> <li>Use research and exploration to identify and demonstrate some understanding of user needs.</li> <li>Identify their own design problems and demonstrate some understanding of how to reformulate problems given to them.</li> <li>Develop specifications to inform the design of innovative, functional, appealing products that respond to some needs in a variety of situations.</li> <li>Use a variety of approaches, to generate some creative ideas and avoid stereotypical responses.</li> <li>Develop and communicate design ideas using annotated sketches, detailed plans, 3D and mathematical modelling, oral and digital presentations and computer-based tools.</li> </ul>	<ul style="list-style-type: none"> <li>Use good research and exploration to identify and understand user needs.</li> <li>Identify and solve some of their own design problems and demonstrate a good understanding of how to reformulate problems given to them.</li> <li>Develop good specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.</li> <li>Use a good variety of approaches, to generate creative ideas and avoid stereotypical responses.</li> <li>Develop and communicate good design ideas using annotated sketches, detailed plans, 3D and mathematical modelling, oral and digital presentations and computer-based tools.</li> </ul>	<ul style="list-style-type: none"> <li>Use detailed research and exploration to identify and understand user needs.</li> <li>Identify and solve their own design problems and understand how to reformulate problems given to them.</li> <li>Develop detailed specifications to inform the design of innovative, functional, appealing products that respond well to needs in a variety of situations.</li> <li>Use a wide variety of approaches, to generate very creative ideas and avoid stereotypical responses.</li> <li>Develop and effectively communicate detailed design ideas using annotated sketches, detailed plans, 3D and mathematical modelling, oral and digital presentations and computer-based tools.</li> </ul>
<b>Make</b>	<ul style="list-style-type: none"> <li>Work with a range of tools, materials, ingredients, equipment, components and processes with some precision.</li> <li>Apply your knowledge of materials, ingredients and components, and work with them with some accuracy, paying attention to quality of finish.</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use tools, techniques, processes, equipment and machinery with accuracy, including computer-based manufacture.</li> <li>Select from and use a wide range of materials, components and ingredients, taking into account a property.</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use specialist tools, techniques, processes, equipment and machinery with some precision, including computer-based manufacture.</li> <li>Select from and use a wide range of materials, components and ingredients, taking into account their properties.</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-based manufacture.</li> <li>Select from and use a wider complex range of materials, components and ingredients, taking into account their properties.</li> </ul>	<ul style="list-style-type: none"> <li>Independently select from and use specialist tools, techniques, processes, equipment and machinery with consistent precision, including computer-based manufacture.</li> <li>Independently select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties.</li> </ul>

<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Evaluate your products as they are being used, and identify ways of improving them.</li> <li>Test and evaluate your products, showing that you understand the situations in which the products will function.</li> </ul>	<ul style="list-style-type: none"> <li>Explain the work of professionals and others to help their development and evidence of their understanding.</li> <li>Demonstrate an awareness of new technologies.</li> <li>Evaluate and refine their ideas and products against a specification.</li> <li>Explain developments in design and technology, its impact on individuals and society.</li> </ul>	<ul style="list-style-type: none"> <li>Analyse the work of professionals and others to develop and evidence their understanding.</li> <li>Demonstrate an awareness of new and emerging technologies.</li> <li>Evaluate and refine their ideas and products against a specification, taking into account the views of intended users.</li> <li>Demonstrate an awareness of developments in design and technology, its impact on individuals, society and the environment.</li> </ul>	<ul style="list-style-type: none"> <li>Analyse the work of past and present professionals and others to develop and broaden their understanding.</li> <li>Investigate new and emerging technologies.</li> <li>Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.</li> <li>Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.</li> </ul>	<ul style="list-style-type: none"> <li>Analyse and evaluate the work of past and present professionals and others to develop and broaden their understanding.</li> <li>Investigate and analyse new and emerging technologies.</li> <li>Test, evaluate and refine their ideas and products against a detailed specification, taking into account the views of intended users and other interested groups.</li> <li>Understand and demonstrate developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.</li> </ul>
<b>Technical knowledge</b>	<ul style="list-style-type: none"> <li>Verbally explain the different properties of at least 3 different materials</li> <li>Show an appreciation of a mechanical system can be used to change speed, direction, or path of movement</li> <li>Demonstrate how an electrical system can be powered and controlled within a product</li> <li>Demonstrate an awareness of how electronics can be programmed respond to inputs giving desired outputs</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate a good understanding and use the properties of materials and the performance of structural elements to achieve functioning solutions.</li> <li>Demonstrate a good understanding of how more advanced mechanical systems used in their products enable changes to movement and force.</li> <li>Demonstrate a good understanding how more advanced electrical and electronic systems can be powered and used in their products.</li> <li>Apply computing and demonstrate an awareness of the use electronics to embed intelligence in products that respond to inputs, and control outputs, using programmable components.</li> </ul>	<ul style="list-style-type: none"> <li>Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.</li> <li>Understand how more advanced mechanical systems used in their products enable changes to movement and force.</li> <li>Understand how more advanced electrical and electronic systems can be powered and used in their products.</li> <li>Apply computing and use electronics to embed intelligence in products that respond to inputs, and control outputs, using programmable components.</li> </ul>	<ul style="list-style-type: none"> <li>Fully understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.</li> <li>Fully understand how more advanced mechanical systems used in their products enable changes to movement and force.</li> <li>Fully understand how more advanced electrical and electronic systems can be powered and used in their products.</li> <li>Apply computing, use and explain electronics to embed intelligence in products that respond to inputs, and control outputs, using programmable components.</li> </ul>	<ul style="list-style-type: none"> <li>Fully understand, use and explain the properties of materials and the performance of structural elements to achieve functioning solutions.</li> <li>Fully understand and explain how more advanced mechanical systems used in their products enable changes to movement and force.</li> <li>Fully understand and explain how more advanced electrical and electronic systems can be powered and used in their products.</li> <li>Apply computing, use and fully explain electronics to embed intelligence in products that respond to inputs, and control outputs, using programmable components.</li> </ul>