

Grade	AO1 - Research	AO2 - Designing	AO3 - Making	AO4 - Evaluating
9	<p>The candidate has fully investigated the design need, interviewing an expert and creating a questionnaire to set the parameters of the project. Video evidence has been used. Research shows evidence of a wider knowledge base and independent reading around the subject. Expert advice has been acted upon.</p>	<p>Design responses show an outstanding level of creativity and the ability to create innovative and unexpected design concepts.</p> <p>Sketching of ideas is of outstanding quality, using a variety of graphical techniques, with comprehensive and detailed annotation.</p> <p>High level of ICT with integrated CAD.</p> <p>3D Printing has been used during the development phase which shows continual trialling and testing to arrive at a suitable final solution.</p> <p>Mathematical calculations are advanced and positively used in the design process.</p> <p>The final design has been communicated in a detailed CAD drawing with both engineering and rendered views.</p>	<p>Production log shows depth of knowledge and great skill when using materials, tools and equipment with justified modifications and problem solving.</p> <p>Practical work shows a high level of competence and understanding, with some full consideration given to sustainability, a high regard for safety and how to achieve precision.</p> <p>Product displays an excellent level of outcome and works well as intended.</p> <p>Marking, cutting, forming and finishing techniques have been carried out with an outstanding level of independence and skill.</p>	<p>Evidence of thorough testing by the user and detailed reference to the specification.</p> <p>Modifications and improvements are suggested with full detail.</p> <p>Full details of quantity manufacturing with materials Marketing presentation is very well explained, interesting and persuasive.</p> <p>Modifications have been fully explored in response to client consultation.</p>
8	<p>Detailed evidence of both the need and intended user with a precise design brief for the product. The problem has been fully explored with a video and interviews to support. Detailed primary testing of similar products with other relevant research. Intended user of product examined with</p>	<p>A range of detailed ideas leading to a full detailed solution and showing innovation and flair. Student shows an ability to create one or two unexpected ideas to a brief.</p> <p>Full consideration has been given to the user, aesthetics, function, sustainability and or other</p>	<p>Production log shows a high degree of skill when using materials, tools and equipment with justified modifications and problem solving.</p> <p>Student shows very good economic use of material with some consideration to sustainability and</p>	<p>Evidence of thorough testing by the user with detailed reference to the specification.</p> <p>Modifications and improvements are suggested with full detail. Full details of quantity manufacturing with materials.</p>

	<p>significant data collected. Detailed and justified design specification which fully considers the user.</p> <p>Students show evidence of independently reading around a topic.</p>	<p>influences.</p> <p>Design proposal is clearly chosen, supported by detailed evaluation against the specification.</p> <p>Development through modelling is of a very high standard, using a range of materials and techniques. The work will clearly show how the students adapt and modify their idea in the light of problems and constraints.</p> <p>Sketching is of an excellent standard. Several mathematical calculations have been completed and applied to the design work. Modelling includes sophisticated CAD. Client need has been fully addressed. Some students may have added notes relating to sustainability issues such as the environment.</p>	<p>a high understanding of safety and how to achieve precision.</p> <p>Product displays a high level of outcome and works well as intended.</p> <p>Marking, cutting, forming and finishing techniques have been carried out with a high degree of skill.</p>	<p>Marketing presentation is very well explained, interesting and persuasive.</p> <p>Modifications have been suggested in response to client consultation.</p>
7	<p>Evidence of both the need and intended user with a clear design brief for the product. The problem has been fully explored with a video to support.</p> <p>Full examination of similar products and other research</p> <p>Intended user of product examined with important data collected</p> <p>Design specification with most key features.</p>	<p>A full and innovative range of creative solutions have been generated showing detail, innovation and flair.</p> <p>Consideration has been given to the user, aesthetics, function, sustainability and or other influences.</p> <p>The design proposal chosen is supported by clear evaluation against the specification and product standards.</p> <p>Graphical, modelling and written work will be of a very high standard and clearly structured in the development towards a final</p>	<p>Production log shows a good range of materials, tools and equipment with modifications and problem solving.</p> <p>Shows good economic use of material with some consideration to sustainability and reasonable understanding of safety and how to achieve precision.</p> <p>Product displays a high level of outcome and works as intended.</p> <p>Components have been made to a very high standard of finish.</p>	<p>Evidence of testing by the user and reference to the specification.</p> <p>Modifications and improvements to the product are suggested with reasonable detail.</p> <p>Some details of quantity manufacturing method</p> <p>Marketing presentation is well explained, persuasive and interesting</p>

		<p>solution. Mathematical calculations have been completed and applied.</p> <p>Sketching is of a very high standard.</p> <p>A high level of independently created ICT elements has been used together with integrated CAD/CAM (3D Printing has been used in development).</p>		
6	<p>Some details of the need or intended user with a design brief for the product.</p> <p>Evaluation of similar products</p> <p>Intended user of product examined with data collected</p> <p>Design specification with some key features.</p>	<p>The student has drawn up a diverse range of creative ideas, clearly showing how they work and how they might be made.</p> <p>Drawings are detailed and carefully drawn to a good size, with full use of colour.</p> <p>Consideration is given to the user, aesthetics, function, sustainability and or other influences.</p> <p>Cursory evaluation of designs has been made against the specification and product standards. Mathematical calculations have been attempted.</p> <p>Graphical, modelling and written work will clearly show how the students adapt and modify their idea in the light of problems and constraints.</p> <p>ICT includes good use of CAD</p>	<p>Production log shows a satisfactory range of materials, tools and equipment.</p> <p>Work shows some economic use of material, consideration of sustainability and reasonable understanding of safety and precision.</p> <p>Product displays a high level of outcome and works as intended.</p> <p>Components have been made with accuracy and a high standard of finish.</p>	<p>Evidence of evaluation with some reference to the user and specification.</p> <p>Modifications and improvements to the product are suggested with some detail</p> <p>Limited details of quantity manufacturing.</p> <p>Marketing presentation is has key points yet lacks a persuasive and convincing delivery.</p>
5	<p>Student conduct some independent research in addition to the collection of a wide range of information using a survey, magazines, books and the internet</p> <p>Student has evaluated and tested some existing products.</p>	<p>The student has drawn up a wide range of ideas, showing how they work and how they might be made. Their drawings are carefully drawn to a good size, with full use of colour.</p> <p>Several solutions showing detail but with little innovation or flair at this stage.</p> <p>Some consideration given to the</p>	<p>A final plan has been accurately drawn to scale with full consideration to measurements using a CAD package such as Solidworks or ArchiCad. The student can use and control several machines whilst making a product to a very good standard. Complexity is evident in their work with several components.</p>	<p>Some students may have considered the future of their product if it were to be manufactured, including cost and market research.</p>

		<p>user, aesthetics, function, sustainability and or other influences. Strengths and weaknesses are bullet pointed. Intended use is thoroughly explored.</p> <p>ICT includes some use of CAD</p>	<p>They can work independently, to make a product with some precision.</p>	
4	<p>The student has collected a wide range of information using a survey, magazines, books and the internet</p> <p>They evaluated and tested some existing products.</p>	<p>The student has drawn up a wide range of creative ideas, clearly showing how they work and how they might be made. Sketches show an increasing ability to communicate ideas through drawing.</p> <p>They have made a range of models to help progress their idea, including the basic use of CAD. They have added notes around all their ideas to consider, how it would be used, what it would be made from.</p>	<p>A final plan has been accurately drawn to scale with full consideration to measurements</p> <p>The student has written a cutting list for all the materials. They have written a detailed sequence of the making. They can independently use and control several machines whilst making the product to a workable standard. Complexity is evident in their work with several components.</p> <p>The student can work independently, overcoming problems to progress the project to an outcome of great quality. They have modified the design in light of progress made.</p>	<p>The student has carried out several practical tests. Strengths and weaknesses have been identified. A thorough market survey has taken place. There are pictures of the product in use and the student has clearly defined improvements that could be made.</p>
3	<p>The student has collected a range of information for my project including pictures, written information and ICT. They have independently evaluated some existing products in some detail.</p>	<p>A range of ideas has been created, showing how they work and how they might be made. Sketches show the product concept, yet lack detail of components and construction.</p> <p>The student has made more than one model to help progress their idea, using card and some resistant materials.</p> <p>They have added a few notes around all their ideas to consider, how it would be used, what it would be made from, and how?</p> <p>They have created a simple CAD drawing of my design.</p>	<p>A final plan has been well drawn to scale with the main measurements shown</p> <p>The student has written a cutting list for all the materials and has planned the sequence of how they intend to make the product. They can use and control several machines whilst making the product to a workable standard. The product is made up of several different components.</p> <p>The student can work with increasing independence, overcoming problems to progress the project to an outcome of</p>	<p>The student has tested their product and written down the strengths and weaknesses. They have asked a few people about the product and have pictures of the product in use. Details of improvements are clearly defined.</p>

			usable quality.	
2	The student has collected some pictures and asked others about the project. They have evaluated some existing products as directed.	<p>The student has drawn up three or four ideas, showing what they would look like and details to show how they would work. Drawings are set out with reasonable care, and include some use of colour.</p> <p>The student has made a simple card model and added notes around their ideas sketches, explaining the use of the product. Annotation shows understanding of intended use.</p>	<p>A final plan has been drawn with some consideration to size.</p> <p>The student has written a cutting list for most of the materials for my product. They have learnt to use and control several machines whilst making the product to a reasonable standard. Edges and surfaces are well finished</p> <p>The student can competently mark out, cut, form, join and finish with a little assistance from the teacher or technician.</p>	The student has taken a picture of their product and asked people to comment on the design. They have stated their likes and dislikes
1	The student has collected some pictures to help with their ideas. They have looked at some existing products.	<p>The student has drawn up one idea showing what it would look like and how it would work. They have created basic drawings without the use of colour.</p> <p>The student has yet to add notes around all their idea sketches, but generally knows how it will work. They are yet to understand how they will make it.</p>	<p>A final plan has been hastily drawn. I will work out the size later</p> <p>The student is relying on the teacher for materials and how to make the product. They have learnt to use and control several machines whilst making a product. They can mark out, cut, form, join and finish with assistance from the teacher or technician.</p>	The student has written a few notes about the product they have designed and made.