



Making Progress

Design and Technology: Textiles, Electronics, Resistant Materials

<u>Grade</u>	<u>Investigating</u>	<u>Designing</u>	<u>Making</u>	<u>Analysing and Evaluating</u>
Foundation	<p>Little or no response to a brief or specification. Can search for mostly relevant images to help and inspire ideas. Can name different types of movement and force.</p>	<p>Shows initial ideas through drawings with little or no development. Some colour used to add to improve the appearance. Labels designs with key words. Designs are shown in 2D only.</p>	<p>Needs considerable assistance to solve problems. Constant support during the manufacturing process. Working outcome produced with a poor finish. Used equipment and machinery with assistance and close supervision.</p>	<p>Uses advice and feedback to close the gap. Evaluated final outcome showing limited strengths and areas to develop.</p>
Working towards	<p>Responds to a brief or specification superficially. Can search for specific images to help build knowledge and inspire ideas. Can name and demonstrate different types of movement and force.</p>	<p>Shows initial ideas through sketching or simplistic drawings with little or no development. Uses colour to show forward planning. Label designs with key information. Designs are shown in 2D only.</p>	<p>Needs assistance or guidance to solve problems. Supported during the manufacturing process. Superficial testing when making to ensure the outcome will work. Working outcome with little consideration of finish. Safely used equipment and machinery with support.</p>	<p>Uses advice and feedback to close the gap. Evaluated final outcome showing realistic strengths and areas to develop.</p>
1	<p>Responds to a brief or specification. Produce secondary research showing an understanding of the theme set or basic understanding of work of others. Can name, describe and demonstrate basic types of movement and forces.</p>	<p>Shows imagination when producing a range of designs with little development. Uses colour and simple lines to show the material properties. Annotate designs with key information. Designs are shown in 2D sketches and attempted in 3D. CAD used with considerable assistance and supervision.</p>	<p>Needs assistance to solve problems. Ongoing testing when making to ensure a quality outcome is produced. Chronological evidence of making through a diary or photos. Successful pleasing appearance and well finished. Working outcome. With support can apply different types of motion to outcome such a linear and rotary.</p>	<p>Uses advice and feedback to close the gap. Evaluated final outcome showing clear strengths and areas to develop. Tested and evaluated final outcome to see if it works.</p>

		Limited or no consideration of materials that could be used.	Little evidence of making through a diary or photos. Successful working outcome with little consideration of finish. Select correct equipment. Safely used equipment and machinery.	
2	Creates and responds to a specification. Produce secondary research that aids the design process and identifies work of others that could be inspirational. Impact on society has been vaguely considered. Profiles who the product could be designed and made for. Understands how more advanced mechanical systems used in their products enable changes in movement and force.	Shows creativity and imagination when producing a design with little or no development. Uses colour and lines/mark making to show the material properties and finish. Annotate designs with thoughts and key information. Designs are shown in 2D and 3D. CAD used if appropriate with resilience to trail new tools. Limited consideration of materials that could be used.	Needs some guidance to solve problems. Used some guidance and supervision during the manufacturing process Ongoing testing and QC is minimal. Understand and apply different types of motion to outcome such a linear and rotary. Basic evidence of making through a diary or photos. A mostly successful appearance, working outcome and some consideration of finish. Accurately and safely used equipment and machinery.	Uses advice and feedback to close the gap. Evaluated final outcome showing clear strengths and areas to develop. Basic testing, evaluation and refining their ideas and products against a specification, taking into account the views of intended users and other interested groups.
3	Basic analysis of the task/brief showing areas to consider when designing and making. Understands and can state limited information on a client's needs and wants. Can investigate and use information gathered on iconic designers/movements to inform ideas. Understands how society can change/impact on design.	Shows creativity and imagination when producing one or more designs with little or no development. Developed design ideas with consideration of the client's needs and ongoing research. Considered function, aesthetics and innovation when developing ideas through visual or annotated evidence. Designs are shown using different 2D and 3D techniques. CAD used if appropriate with resilience to trail new tools.	Independent decision making and problem solving, Produces models of work in fabric, paper/card or rough material or programming (breadboard) to ensure the outcome is feasible. Inconsistent QC in making. A mostly successful appearance, working outcome and some consideration of finish. Basic, well ordered evidence of making through a diary or photos.	Uses advice and feedback to close the gap. Evaluated final outcome showing clear strengths and areas to develop. Some aspects of the final product have been tested, evaluated and refined to improve ideas and the final product against a specification, taking into account the views of intended users and other interested groups

		Evidence of modelling the final solution.		
4	<p>Analyse the task/brief in detail showing areas to consider when designing and making. Produced a client profile suited to the outcome that can mostly be used to address a client's needs and wants Understood pattern and shape and how they can be used within a design. Displayed research from eras, design movements or work of others. Show an understanding of traditional and industrial processes. Identify and solve design problems and understand how to reformulate problems. Basic research evident into materials and their properties to make an informed decision in making.</p>	<p>Shows creativity and imagination when producing a small range of designs with little or no development. Develops designs ideas using ongoing research and others opinions. Final solution designed and annotated. Forward planning shown for manufacture. Use technical language in annotation.</p>	<p>Basic manufacturing specification is produced. Produces models of work in fabric, paper/card, rough material or programming (breadboard) to ensure the outcome is feasible. Can design and assemble nets accurately. Demonstrates marking and measuring out onto materials with correct equipment and cut/saw accurately. Explain the process of manufacture and justify actions. Can explain and demonstrate inputs, processes and outputs. Chronological evidence of making through a diary or photos.</p>	<p>Evaluated skills throughout the project. Evaluated strengths and stated areas to develop. Most aspects of the final product have been tested, evaluated and refined to improve ideas and the final product against a specification, taking into account the views of intended users and other interested groups.</p>
5	<p>Detailed brief and analysis. Shown an understanding and consideration of SMSC with limited understanding of the impact. Investigated existing products.</p>	<p>None obvious ideas with more outside the box thinking for initial ideas. Taken ongoing research into consideration when designing. Measuring and accuracy applied to technical drawings. Some evidence of experimented in 2D and 3D techniques.</p>	<p>Good level of finishing skills that are appropriate for the outcome. Appropriate use of CAM. Tools and equipment are used safely, accurately and confidently. Good level of QC through the project. Shown consideration of industrial practice through making.</p>	<p>Justify the need for modifications when evaluating. Some parts of the outcome have been tested against the specification/s Understand developments in design and technology, its impact on individuals, society</p>

	<p>Understand what a client wants and needs and investigates this through an interview or profile. A mostly accurate and appropriate design and manufacturing specification.</p>	<p>Development shown in drawing and modelling. Selected material and components with reference to their properties. CAD has been used confidentially if appropriate.</p>	<p>Chronological evidence of making through a diary, photos or flowchart. Most of the specification points have been met.</p>	<p>and the environment, and the responsibilities of designers, engineers and technologists when identifying areas to modify and improve.</p>
6	<p>Analysed existing products to influence designs in depth. Shown an understanding and consideration of SMSC with limited understanding of the impact. Understand what a client wants and needs and investigates this through an interview or profile. Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]</p>	<p>Avoided stereotypical responses. Taken into account the client's needs and wants and justified these. Mathematical modelling using oral and digital presentations and computer-based tools. Considered the cost of materials and components. Investigate new and emerging technologies. Planned for combining materials.</p>	<p>Trialled a wide range of techniques that are suitable for chosen outcome. Transferred skills to final outcome independently. Combines a range of materials and techniques in final outcome/s. Can display complex joints or seams to attach and join material. Have inserted or combined premade components accurately. Understand material properties and use this to make informed decisions. Take risks and show resilience during manufacture. Built in tolerance when making and conduct QA/QC. Demonstrated computer-aided manufacture. Selected from and use a wider, more complex range of materials and components, taking into account their properties. Most of the specification points have been met.</p>	<p>Justify the need for modifications when evaluating. Some parts of the outcome have been tested against the specification/s. Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists when identifying areas to modify and improve.</p>
7	<p>Detailed design brief and Analysis is evident with justified conclusion. Investigated potential client and explained their needs and wants. All research conducted is relevant and concise.</p>	<p>Detailed specification produced that links to research conducted. Shows great creativity in designs and presentation. Development is done accurately and from ongoing research conducted. Evidence of experimenting and or modelling</p>	<p>Trialled a wide range of techniques that are suitable for chosen outcome. Transferred skills to final outcome independently. Combines a range of materials and techniques in final outcome/s. Can display complex joints or seams to attach and join material. Have inserted or combined premade components accurately.</p>	<p>Justify the need for modifications when evaluating. Some parts of the outcome have been tested against the brief and /or specification/s. Understand developments in design and technology, its impact on individuals, society and the environment, and the</p>

	<p>Have analysed work of others in a range of styles to aid inspiration.</p> <p>Shows an understanding of SMSC in general</p> <p>Appropriate written, drawn or practical investigations conducted.</p>	<p>At least one model is fit for purpose.</p>	<p>Understand material properties and use this to make informed decisions.</p> <p>Take risks and show resilience during manufacture.</p> <p>Built in tolerance when making and conduct QA/QC.</p> <p>Demonstrated computer-aided manufacture.</p> <p>Selected from and use a wider, more complex range of materials and components, taking into account their properties.</p> <p>Most of the specification points have been met.</p> <p>Manufacturing specification produced that has clear relevance to work produced.</p> <p>High level of making and finishing</p> <p>Skilfully used equipment.</p>	<p>responsibilities of designers, engineers and technologists when identifying areas to modify and improve.</p> <p>Ongoing evaluation shown throughout.</p>
8	<p>Understand and display knowledge of materials and properties with original source and process of manufacturing.</p> <p>Can explain a range of appropriate material finishes.</p> <p>State how materials are commercially sold.</p> <p>Understand how market research can affect the design process.</p> <p>Demonstrate industrial skills.</p> <p>Display client's wants and needs through a questionnaire or survey and analyse results.</p> <p>Create and differentiate between a design and manufacturing specification.</p>	<p>Creative and innovative ideas considering functionality and aesthetics.</p> <p>Plan for manufacture.</p> <p>Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].</p>	<p>Consider costing and availability of materials and components.</p> <p>Can explain Scale of production and production systems.</p> <p>Demonstrate manipulation of materials.</p> <p>Use Jigs, pattern blocks, templates, reference points.</p> <p>QA and QC conducted.</p> <p>Considered ergonomics and anthropometrics when making.</p> <p>Produce creative ideas that are able are viable.</p> <p>Demonstrated further research.</p> <p>Consider different mechanisms to make the outcome move.</p> <p>Use CAD independently where appropriate.</p> <p>Create a manufacturing specification.</p> <p>Create a cutting list with quantities, cost and size.</p> <p>Shows scale/working drawings</p> <p>Develops ideas through modelling a number of ideas.</p>	<p>Redesign and suggest areas for development and modifications.</p> <p>Show third party opinions when evaluating throughout.</p> <p>A variety of testing throughout as well as the final product and recorded with a clear understanding and justification of results.</p> <p>Tested designs and final product against the specifications and function such as strength, appearance, durability and safety.</p>

	<p>Researched and shown an understanding for SMSC.</p>		<p>Further small scale experimenting evident through a wide range of 2D and 3D techniques.</p>	
9	<p>Use Primary and Secondary sources for research of others. Written an appropriate and detailed brief. Analyse the context and problem in detail. Consider new and emerging technologies through research. Show knowledge of Modern and smart materials. Display Systems for designing and making that could be used. Look at market place focusing on current and changing trends. Profiled and investigated a relevant target market. Researched and shown an understanding for SMSC with a specific focus on the project.</p>	<p>Produce creative ideas that are able are viable. Demonstrated further research. Consider different mechanisms to make the outcome move. Use CAD independently where appropriate. Select appropriate materials and components for the design/s. Show clear forward planning for manufacture with QA/QC and safety tests build in. Create a manufacturing specification. Create a cutting list with quantities, cost and size. Shows scale/working drawings Develops ideas through modelling a number of ideas. Further small scale experimenting evident through a wide range of 2D and 3D techniques. Selected appropriate and challenging materials and components.</p>	<p>Detailed manufacturing specification. Exceptional high standard of outcome and finish. Meets the specification fully. Use and/or explain the industrial practice used to manufacture the outcome. Use CAM independently where appropriate. Consistently adapting outcome where needed to meet clients, needs and wants. Apply appropriate finishes to materials used. Commercially viable outcome. Large body of detailed evidence of making the outcome.</p>	<p>Redesign and suggest areas for development and modifications. Show third party opinions when evaluating throughout. A variety of testing throughout as well as the final product and recorded with a clear understanding and justification of results. Tested designs and final product against the specifications.</p>