SHFGS Assessment Criteria: Year 8 Product design

Year 8 Grade	**B**elow SHFGS standard	**W**orking towards SHFGS standard	**E**xpected SHFGS standard	**A**bove SHFGS standard	**O**utstanding standard.
Explore *Research, investigate & design requirements*	• Is able to gather some suitable information on primary user needs, aesthetics, construction and function, through directed investigation of existing products. • Is able to communicate information. • Requires assistance to consider exploratory work in order to specify a few needs, requirements, opportunities and constraints.	• Is able to gather suitable information on primary user needs, aesthetics, construction and function through investigation of existing products. • Is able to communicate information well. • Adequately utilises exploratory work to specify some needs, requirements, opportunities and constraints	• Gathers some valuable information on both primary user and stakeholder requirements, through investigation of existing products. • Can appropriately record primary and secondary sources obtained. • Competently specifies needs, requirements, and opportunities.	• Gathers valuable information on both primary user and stakeholder requirements, through thorough investigation of existing products. • Confident in investigating, obtaining, generating, and managing relevant research. • Develops detailed needs, requirements, opportunities and constraints that positively guide and influence their design iterations.	• Gathers valuable broad based information and stimulus, which considers environmental, cost, safety and maintenance issues. • Explores where human values may conflict and compromise has to be achieved. • Competently specifies a range of comprehensive needs, requirements, opportunities and constraints, which offer scope to support the design process.
Create *Design thinking & communication.*	• Informal graphical and modelling skills are limited and rarely clear enough to appropriately communicate initial thinking. • Develops simple, sparsely annotated ideas and designs, trying a range of 2D & 3D sketching, technical/ CAD drawing and modelling as well as using physical modelling, to explore basic solutions. Iterative developments are somewhat progressive. • With instructions and support, is able to demonstrate a level of thinking and problem solving. Little/no evidence of innovation. • Formal presentation of the final design solution(s) is just adequate but provides little understanding to a third party.	• Informal graphical and modelling skills are sufficient in communicating initial thinking. • Develops adequately annotated ideas and designs experimenting with a range of 2D & 3D sketching, technical/ CAD drawing and physical modelling, to explore and reasonably advance solutions. Iterative developments are generally progressive. • With some instructions and support, is able to demonstrate a level of thinking and problem solving. Little evidence of innovation. • Formal presentation of the final design solution(s) is adequate and provides some understanding to a third party.	• Informal graphical and modelling skills are good, but are not consistent in appropriately communicating initial thinking. • Able to combine ideas to develop a number of different, annotated designs via a range of 2D & 3D sketching, technical/ CAD drawing and physical modelling to explore and successfully advance solutions. Iterative developments are generally progressive. • Shows sound thinking and problem solving techniques. Some evidence of innovation. • Formal presentation of the final design solution(s) is sufficient and provides some understanding to a third party.	• Informal graphical and modelling skills are very good and are consistent in appropriately communicating initial thinking. • Uses a variety of approaches, including CAD and some CAM to develop creative ideas and mostly avoids design fixation. Iterative developments are progressive. • Demonstrates good thinking and problem solving techniques. Clear evidence of innovation. • Formal presentation of the final design solution(s) is good and provides appropriate understanding to a third party.	• Informal graphical and modelling skills are very good and are consistent in appropriately communicating initial thinking. • Uses a variety of approaches, including CAD/CAM to develop creative, innovative, functional and appealing products which respond to a variety of situations and avoids design fixation. Iterative developments are progressive. • Takes creative risks when making design decisions and decides which design criteria clash and determine, which should take priority. Clear evidence of innovation. • Formal presentation of the final design solution(s) is very good and provides appropriate understanding to a third party.
Final Prototype	• With support, endeavours to communicate limited technical detail, lists work covering some steps. • With significant guidance selects and uses equipment, tools and processes to manufacture and apply finishes. • Inaccurate and/or basic standards demonstrated. Finishing may not be appropriate and/or the outcome would not present well to a stakeholder. Work may be incomplete. • Final prototype(s) reflects some stakeholder requirements and intended market potential.	• With support, is able to communicate adequate technical detail and can sequence work covering most steps. • Recognises material properties. • With moderate guidance selects and uses equipment, tools and processes to manufacture and apply finishes. • Inaccurate and/or basic standards demonstrated. Finishing may not be appropriate and/or the outcome would not present well to a stakeholder. • Final prototype(s) adequately reflects stakeholder requirements and reasonable market potential.	• With minimal support, is able to communicate technical detail, sequences and schedules. • Utilises material properties. • Shows sufficient skills when using and selecting manufacturing and finishing techniques, including digital design and manufacture, but lacks consistency. • Sufficient standard demonstrated through a generally accurate outcome. Finishing is appropriate but the outcome could be better presented to stakeholders. • Final prototype(s) adequately reflects stakeholder requirements and market potential.	• Produces design solutions and illustrated technical information with production plans that offer competent communication to a third party. • Explains material, equipment and process selection. • Shows good skills when using and selecting manufacturing and finishing techniques, including digital design and manufacture. • Good standard and levels of accuracy demonstrated. Finishing is appropriate and the outcome will present well to a stakeholder. • Final prototype(s) reflects stakeholder requirements and offers reasonable market potential.	• Produces detailed, technical/production plans with timeframes that communicate well to a third party. • Justifies material, equipment and process selection. • Works independently, flexibly, accurately and safely with a broad range of resources. Very good skills are evident. • Very good standard and levels of accuracy demonstrated. Finishing is appropriate and the outcome will present very well to a stakeholder. • Final prototype(s) meets stakeholder requirements and has market potential.
Evaluate	• Some analysis and evaluation of a few investigated sources of information from stakeholders and existing products offering little or no support to inform the design process. • Is able to produce some design evaluation/notes with very little reflection on design requirements. Problems are not identified and thus design progression is limited, without support. • When supported, is able to produce a superficial evaluation of strengths and/or weaknesses of their final prototype, with little or no suggestions for modification.	• A limited analysis and evaluation of investigated sources of information from stakeholders and existing products offering little or no support to inform the design process. • Is able to produce limited design evaluation/notes with very little reflection on design requirements. Problems are not identified and thus design progression is limited. • When directed, is able to produce a superficial evaluation of strengths and/or weaknesses of their final prototype, with little or no suggestions for modification and/or consideration of possible design improvements.	• A sufficient analysis and evaluation of investigated sources of information from stakeholders, existing products and wider issues, offering some support to inform the design process. • With guidance, periodically tests and evaluates their designs against some of the design requirements and some feedback. Some aspects of problems are identified and used to help planning the next steps. • When encouraged, will produce sufficient critical evaluation of strengths and/or weaknesses of their final prototype with some suggestions for modification and/or consideration of possible design optimisation presented.	• A good level of analysis and evaluation of investigated sources of information from stakeholders, existing products and wider issues, offering clear support to inform the design process. • Selects appropriate methods to periodically evaluate their designs against design requirements and feedback. Reviews are used to identify problems and plan the next steps for design progression. • Can produce good critical evaluation of the strengths and weaknesses of their final prototype, with detailed suggestions for modification and consideration of possible design optimisation for improving performance.	• A very good level of analysis and evaluation of investigated sources of information from stakeholders, existing products and wider issues, offering clear support to inform the design process. • Regularly tests, evaluates and refines their ideas and designs against design requirements and feedback. Ongoing reviews are used to identify problems and consistently plan the next steps for design progression. • Can confidently produce a very good critical evaluation of the strengths and weaknesses of their final prototype, with detailed suggestions for modification and consideration of possible design optimisation for improving performance. Life cycle analysis of the final design is considered.