

DESIGN & TECHNOLOGY GRADES 9-1

Grade	Identifying & investigating design possibilities	Producing a design brief & specification	Generating design ideas	Developing design ideas	Realising design ideas	Analysing & evaluating
9	Design context identified and comprehensively investigated; student is discriminative in their collection and use of research material. Client's needs are comprehensively investigated; as are the possible impact of their work on society; social effects and economic. Work of others has been comprehensively investigated and clearly informs their ideas. Relevant investigation work can be seen throughout all stages of the project. All decisions are thoroughly and comprehensively justified throughout the work.	A wide range of possibilities have been considered before a thorough and comprehensive design brief has been written. The brief has been comprehensively justified and reflects all of the investigation work. The design specification is very comprehensive, with a very high level of justification. It includes a thorough and logical range of objective and measurable criteria, to direct and fully inform the design and manufacture of a prototype.	Considered a wide range of design strategies, techniques and approaches and applied an iterative design process to generate and communicate broad, complex; imaginative; creative and innovative ideas. Design fixation has been avoided and all aspects of the design have been considered. Ideas take full account of ongoing investigation work. Ideas clearly address all requirements of the design brief and specification. Very extensive experimentation and excellent communication is evident, using a wide range of sophisticated techniques.	Very detailed development work is evident, using a very wide range of 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Excellent modelling, using a very wide variety of methods to test their design ideas, fully meeting all requirements. Fully appropriate materials/components selected with extensive research into their working properties and availability. Excellent; comprehensive and detailed manufacturing specification is produced with comprehensive justification to inform manufacture.	The correct tools, materials and equipment (including CAM where appropriate) have been consistently used or operated safely with an exceptionally high level of skill. An exceptionally high level of quality control is evident to ensure the prototype is accurate by consistently applying very close tolerances. Prototype shows an exceptionally high level of making/finishing skills that are fully consistent and appropriate to the desired outcome. An exceptionally high quality prototype that has the potential to be commercially viable has been produced and fully meets the needs of the client/user	Very extensive evidence that various iterations are as a direct result of considerations linked to testing, analysis and evaluation of the prototype, including excellently considered feedback from third parties. Extensive testing of all aspects of the final prototype against the design brief and specification. Exceptionally detailed and justified reference is made to any modifications both proposed and undertaken. Excellent ongoing analysis and evaluation evident throughout the project that clearly influences the design brief and the design and manufacturing specifications
8	Design context is identified and thoroughly investigated; student has shown some discrimination in the collection of research material. The needs of the client are understood and thoroughly researched; relevance to the context is made clear. The effect of their work on society is clearly understood. The work of others is thoroughly investigated and used to inform their ideas. Relevant investigation work can be seen throughout most stages of the project. All decisions are thoroughly justified.	Several possibilities have been considered before a comprehensive design brief has been written. The brief has been fully justified and reflects the vast majority of the investigation work. The design specification is comprehensive, with a high level of justification. It includes a logical range of objective and measurable criteria, to direct and inform the design and manufacture of a prototype.	Considered a range of design strategies, techniques and approaches and applied an iterative design process to generate and communicate broad; imaginative; creative and innovative ideas. Identified and considered social, moral and economic factors which are relevant to the context and potential user(s). There is evidence of clear, effective and detailed use of testing to evolve ideas and to refine their design decisions.	Detailed development work is evident, using a range of 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Very good modelling, using a wide variety of methods to test their design ideas, meeting the majority of all requirements. Appropriate materials/components selected with very good research into their working properties and availability. A detailed manufacturing specification is produced with very good justification to inform manufacture.	The correct tools, materials and equipment (including CAM where appropriate) have been consistently used or operated safely with a high level of skill. A high level of quality control is evident to ensure the prototype is accurate by consistently applying close tolerances. Prototype shows a high level of making/finishing skills that are consistent and appropriate to the desired outcome. A high quality prototype that has the potential to be commercially viable has been produced and fully meets the needs of the client/user.	Extensive evidence that various iterations are as a direct result of considerations linked to testing, analysis and evaluation of the prototype, including well considered feedback from third parties. Comprehensive testing of all aspects of the final prototype against the design brief and specification. Fully detailed and justified reference is made to any modifications both proposed and undertaken. Very good ongoing analysis and evaluation evident throughout the project that clearly influences the design brief and the design and manufacturing specifications
7	Design context is identified and explored, demonstrating a very good understanding of the problem. A possible client has been identified and their needs have been investigated and linked to the context. There is a detailed investigation in to the work of others; which has influenced the student's ideas. Investigation work can be seen throughout most stages of the project. Investigation work is focused and decisions are justified.	A range of possibilities have been considered before deciding upon a final design brief. The design brief is well written, with clear justification of the links to a majority of the investigation work. The design specification is very detailed, with a very good level of justification. The specification is relevant and includes a range of objective and measurable criteria, to inform the design and manufacture of a prototype.	Imaginative and creative ideas have been generated which mainly avoid design fixation and have a more than adequate consideration of functionality, aesthetics and innovation; which are relevant to the context and potential user(s). Ideas have been generated, taking into account on-going investigation that is relevant and focused. Very good experimentation and communication is evident, using a wide range of techniques. Effective use of different design strategies for different purposes as an approach to designing.	Very good development work is evident, using a range of 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Very good modelling which uses a variety of methods to test their design ideas, largely meeting requirements. Materials/components selected are largely appropriate with good research into their working properties and availability. Largely detailed manufacturing specification is produced with good justification to inform manufacture.	The correct tools, materials and equipment (including CAM where appropriate) have been used or operated safely with a very good level, of skill. Detailed quality control is evident to ensure the prototype is largely accurate through application of tolerances. Prototype shows a very good level of making/finishing skills that are largely consistent and appropriate to the desired outcome. A very good quality prototype that has the potential to be commercially viable has been produced which largely meets the needs of the client/user.	Very good evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype. Very good testing of most aspects of the final prototype against the design brief and specification. Detailed reference is made to any modifications either proposed or undertaken, responded to feedback and identified the potential for further development. Very good analysis and evaluation at most stages of the project that influences the design brief and the design and manufacturing specifications.
6	Design context is identified and explored, demonstrating a good understanding of the problem. A possible client has been identified and there has been some investigation in to their needs. The work of others has been investigated and as had some influence on the student's design ideas. Investigation work can be seen throughout some stages of the project. Investigation work is focused and most decisions are justified.	A range of possibilities have been considered before deciding upon a final design brief. The design brief is good with an attempt to link it to the investigation work. Detailed design specification with good justification. It includes some objective and measurable criteria and largely informs the design and manufacture of a prototype.	Imaginative and creative ideas have been generated which mainly avoid design fixation and have adequate consideration of functionality, aesthetics and innovation; which have some relevance to the context and potential user(s). Ideas have been generated, taking into account on-going investigation that is relevant and focused. Clear and effective use of testing to evolve ideas and to refine their design decisions. Demonstrated good use of a range of skills/techniques to communicate ideas and proposals to a third party.	Good development work is evident, using a range of 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Good modelling which uses a variety of methods to test their design ideas, meeting most requirements. Materials/components selected are mostly appropriate with good research into their working properties and availability. Detailed manufacturing specification is produced with good justification to inform manufacture.	The correct tools, materials and equipment (including CAM where appropriate) have been used or operated safely with a good level, of skill. Mostly detailed quality control is evident to ensure the prototype is mostly accurate through partial application of tolerances. Prototype shows a good level of making/finishing skills that are largely consistent and appropriate to the desired outcome. A good quality prototype that may have potential to be commercially viable has been produced which mostly meets the needs of the client/user.	Good evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype, including some consideration of feedback from third parties. Good testing of most aspects of the final prototype against the design brief and specification. Good reference is made to any modifications either proposed or undertaken. Good analysis and evaluation of the majority of the stages of the project that influenced the design brief and the design and the manufacturing specifications.

5	Design context is identified, with some exploration linked to the problem. There is a more than adequate understanding of the problem. A client has been identified with partial relevance to the context and their needs and wants recognised and recorded. The work of others has been investigated, with partial influence on later design. Investigation work can be seen in more than one stage of the project. There is some focus to the investigation work and decisions are partially justified.	Some possibilities have been considered before a brief has been written. There are some links to the investigation work and the brief has some relevance to the context. The design specification is good, with some justification; but lacks detail. The design specification partially informs the subsequent design stages.	Imaginative ideas have been generated with a small degree of design fixation and having some consideration of functionality, aesthetics and innovation; with some attempt to relate these to the context and potential user(s). Ideas have been generated that take some account of investigations carried out but may lack relevance and/or focus. Experimentation is sufficient to generate a range of ideas. Communication is evident, using a range of techniques. Different design strategies explored but only at a superficial level with the approach tending to be fairly narrow.	Development work is sufficient, using some 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Modelling is more than sufficient, using a variety of methods to test their design ideas, meeting some requirements. Materials/components selected with some research into their working properties and availability. A more than adequate manufacturing specification contains sufficient detail with justification to inform manufacture.	The correct tools, materials and equipment (including CAM where appropriate) have been used or operated safely with an above adequate level of skill. Some quality control is evident through measurement and testing. Prototype shows an above adequate level of making/finishing skills that are largely appropriate to the desired outcome. A prototype of sufficient quality has been produced that may have potential to be commercially viable, although further may be developments be required, and only partially meets the needs of the client/user.	Some evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype, including adequate consideration of feedback from third parties. Adequate testing of some aspects of the final prototype against the design brief and specification. Some reference is made to modifications either proposed or undertaken. Adequate analysis and evaluation is present at some stages of the project but does not have sufficient influence on the design brief and the design and manufacturing specifications.
4	Design context is identified with some exploration. There is an adequate understanding of the problem. A client has been recognised; with some links to the problem. There has been a more than basic recognition of their needs. There has been some investigation of the work of others; with little influence on future design ideas. There are some justifications for decisions.	A number of possibilities have been considered before a brief has been written. The brief is adequate and has some consideration of the investigation work. The design specification is adequate; but lacks justification and/or detail. Informs subsequent design stages to some extent.	Imaginative ideas have been generated with a degree of design fixation. Different design strategies and techniques have been considered to generate and communicate a range of basic initial ideas. Identified social, moral and economic factors with some attempt to relate these to the context and potential user(s). Made some use of testing to evolve ideas and to refine their design decisions. Demonstrated satisfactory use of a small range of skills/techniques to communicate ideas and proposals to a third party.	Development work is adequate, using some 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Modelling is adequate using a variety of methods to test their design ideas, meeting a number of requirements. Materials/components selected with research into their working properties and availability. Some of these may not be fully appropriate for purpose. Adequate manufacturing specification contains sufficient detail with some justification to inform manufacture.	The correct tools, materials and equipment (including CAM where appropriate) have been used or operated safely with an adequate level of skill. Some quality control may be evident through measurement and testing. Prototype shows an adequate level of making/finishing skills that are mostly appropriate to the desired outcome. A prototype of sufficient quality has been produced that may or may not have potential to be commercially viable, although further developments will be required, and only some of the needs of the client/user have been met.	Basic evidence that various iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype, including partial consideration of feedback from third parties. Basic testing of some aspects of the final prototype against the design brief and specification. Basic reference is made to modifications either proposed or undertaken. Basic analysis and evaluation is present at some stages of the project that has little influence on the design brief and the design and manufacturing specifications.
3	There is some recognition of the design context. Investigation is generally linked to the problem. The needs and wants of possible clients have not been fully considered. The work of others has been considered and may have been used to influence future designs. Basis investigation work can be seen in more than one stage of the project. There are some basic justifications for decisions.	A small number of possibilities have been considered before a brief has been written. The brief is based on some aspects of the investigation work and limited relevance to the context. The design specification is basic, with minimal detail and/or justification. Little influence on subsequent design stages	A limited range of ideas have been generated with clear design fixation and limited consideration of functionality, aesthetics and innovation. Ideas generated taking little or no account of investigations carried out. Simple experimentation and communication is evident, using a limited number of techniques.	Above basic development work is evident, using a limited range of 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Modelling is above basic, using a limited number of methods to test their design ideas meeting requirements only superficially. Materials/components selected with limited research into their working properties or availability and may or may not be fully fit for purpose. Above basic manufacturing specification that lacks detail and has minimal justification to inform manufacture.	Tools, materials and equipment (including CAM where appropriate) have been used or operated safely at an above basic level. Basic quality control is evident through measurement only. Prototype shows above basic level of making/finishing skills which may or may not be appropriate for the desired outcome. A prototype of above basic quality has been produced with little or no potential to be commercially viable and does not meet the needs of the client/user.	Partial evidence that some iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype. Partial testing of some aspects of the final prototype against some of the design brief and specification. Partial reference is made to any modifications either proposed or undertaken. Superficial analysis and evaluation. Little influence on the design brief and the design and manufacturing specifications.
2	Basic recognition of the design context. The link between the investigation work and the problem is not clear. An attempt has been made to identify a client, but they are not linked to the context. There may or may not have been some recognition of the work of others. Investigation is basic and lacks focus; it only takes place in the initial stage. Decisions are not explained.	Only one opportunity has been considered. Brief is basic with a very limited links to the investigation work and little, if any, relevance to the context. The design specification includes a number of appropriate points.	Generated and communicated a limited range of undeveloped initial ideas; with a clear design fixation. Only one or two areas of investigation may or may not have been considered. Made very little use of testing to evolve ideas. Demonstrated limited ability to communicate their idea(s) to a third party.	Basic development work is evident, using a limited range of 2D/3D techniques (including CAD where appropriate) in order to develop a prototype. Modelling is basic. Materials/components selected with limited research into their working properties or availability and may not be fully fit for purpose. Basic manufacturing specification which is a simple list.	Tools, materials and equipment (including CAM where appropriate) have been used or operated safely at a basic level. No evidence of quality control. Prototype shows a basic level of making/finishing skills which may not be appropriate for the desired outcome. A prototype of basic quality has been produced with no potential to be commercially viable and does not meet the needs of the client/user.	Limited evidence that some iterations are as a result of considerations linked to testing, analysis and evaluation of the prototype. Limited testing of very few aspects of the final prototype against the design brief and specification. Identified the potential for some further development of their prototype, including suggestions of how modifications could be made. Very superficial analysis and evaluation.
1	Recognition of the context is not clear and there is little, if any, understanding of the problem. Investigation is less than basic, with little, if any, relevance to the context. A client has not been identified and no investigation in to the work of others. There no clear decisions throughout this stage.	A small number of possibilities have been considered before a brief has been written. The brief may have no link to the context. They may, or may not, be a design specification of very limited, if any, relevance.	Generated one or two ideas; which do not take into account any of the investigation work. May or not have used basic testing to evolve ideas. Basic use of a single design strategy.	Development is just the original idea redrawn. A very simplistic model may or not have been made. Materials/components used is a simple list. No evidence of a manufacturing specification	Worked with materials and components to partly complete the manufacture of the prototype. Implemented some making skills and processes to produce a partially functioning prototype. Less than basic degree of accuracy. The prototype partially or is unable to fully perform as intended.	Produced a very limited evaluation of their ideas and decisions. Produced a very limited evaluation of their final prototype; which would mainly be descriptive. Identified how their prototype could be modified.