Key learning steps- Life without levels

Subject: Design Technology				
Year	Step	Key Learning Outcomes	Skills developed	End of year /unit exam topic/s
Beginning of Year 7		Baseline no prior knowledge expected non-core subject.		
Summary of Year Design Technology. In year 7 Pupils rotate around the 4 areas of Design Technology: Catering, Graphics, Textiles and Product Design. Pupils will complete a project in each area and will be graded against a standardised criteria assessing investigating, designing, making and analysing. In Catering pupils will study basic health and safety, healthy eating and various cooking techniques before producing a 'lunch pot' style meal. In Graphics pupils will investigate, design and make a pop up greeting card. In Product Design pupils will develop their knowledge of cams and mechanisms to produce a pull along toy. In Textiles pupils will develop sewing and machine skills producing an animal inspired 'Puggly'.				
End of Year 7	Step 1	Grade 1 pupils should be able to respond to stimuli presenting basic solutions showing little independence in practical work. Grade 2 pupils should be able to explore a limited range of solutions to design problems, producing basic research to help them formulate ideas. Pupils should be able to demonstrate limited analytical skills of existing products. They should be able to complete basic practical tasks independently but may need help with more advance techniques. Practical work should show minimal refining. Grade 3 pupils should be able to explore a range of solutions to design problems, producing research to help them formulate	At Grade 1 pupils should clearly demonstrate and present: • A single design possibility. • Single user/client stated. • Identification of the work of others but not used to inform ideas or mainly irrelevant. • Minimal understanding of the impact on society. • Limited investigation. • Design ideas have been developed with limited or no reference to functionality, aesthetics and innovation. • Further developments are made but limited. • Development work is lacking in detail with a limited range of 2D/3D techniques (including CAD where appropriate). • Limited development of one model. • Limited consideration of the materials selected. • Prototype(s) shows limited level of making/finishing skills that are not always appropriate. Tolerances have not been adhered to. • Tools, materials and equipment (including CAM where appropriate) have been used but needed close supervision and guidance. • Prototype(s) is of poor quality and/or was manufactured with extensive guidance.	Pupils are assessed for prior knowledge at the start of each rotation.

		ideas. Mood boards should present a wide range of sources. Pupils should be able to demonstrate some analysis of existing products suitable to the brief. They should be able to complete practical tasks independently. Practical work should show refinement. Pupils should be able to evaluate their own work suggesting improvements. Grade 4 pupils should be able to explore a range of solutions to design problems, producing research to help them formulate ideas. Pupils should have tested prototype ideas against the brief. Pupils should specifically address the needs of the client / brief. Mood boards should present a wide range of sources and demonstrate sophisticated research into the topic. Pupils should be able to analyse existing products suitable to the brief. They should be able to complete practical tasks independently. Practical work should show a good level refinement, working towards a 'professional' finish. Pupils should be able to evaluate their own work suggesting improvements.	• Evidence of Quality Control is minimal having little effect on the outcome. • Minimal evidence of the stages of making. • Minimal design brief produced in response to one of the contextual challenges, with no analysis or evaluation of client's needs and wants. • Limited design specification produced. • Limited manufacturing specification produced. • Iterations are limited with little/no consideration of analysis and evaluation of the prototype(s). No reflection upon feedback received from third parties. • Limited aspects of the prototype(s) have been tested against the design brief or specification. With no reference to modifications. • Evaluation is limited to a final summary at the end of the project. Very little evidence of either analysis or evaluation through the project. At Grade 2 pupils should adequately demonstrate and present: • More than one design possibility identified, with limited depth/breadth of knowledge demonstrated. • Investigation into the user/client, with limited reference to the client's needs and wants at basic level. • Basic identification and description of the work of others to inform ideas. • Basic understanding of the impact on society based on economic or social effects. • Basic investigation evident throughout. • Design ideas have been developed with some reference to functionality, aesthetics and innovation. • Further developments made sometimes take into account basic on-going research. • Some basic experimentation and development work through a basic range of 2D/3D techniques (including CAD where appropriate). • Basic development of at least one model. • Some materials/components selected with basic research into their working properties. • Prototype(s) shows basic level of making/finishing skills that are not always appropriate with the main tolerances being achieved. • Tools, materials and equipment (including CAM where appropriate) have been operated correctly and safely but are not always appropriate and sometimes requiring guidance. • Prototype(s) of basic quality and manufactured with some guidance. • Inconsistent Quality Control is evident and is not always appropriate.	

			• Basic evidence of the stages of making. • Basic design brief produced in response to one of the contextual challenges, with limited analysis and evaluation of their client's needs and wants. • A basic design specification with some justification. • Basic manufacturing specification has been produced with some justification, links to their prototype(s), but lacks accuracy. • Iterations shown to be basic with little consideration of analysis and evaluation of the prototype(s). Limited reflection upon feedback received from third parties. • Aspects of the prototype(s) have been tested against the design brief or specification. With limited reference to modifications. • Basic analysis and evaluation throughout. At Grade 3 pupils should convincingly demonstrate and present: • More than one design possibility identified, with limited depth/breadth of knowledge demonstrated. • Investigation into the user/client, with limited reference to the client's needs and wants at basic level. • Basic identification and description of the work of others to inform ideas. • Basic understanding of the impact on society based on economic or social effects. • Basic investigation evident throughout. • Design ideas have been developed with some reference to functionality, aesthetics and innovation. • Further developments made sometimes take into account basic on-going research. • Some basic experimentation and development work through a basic range of 2D/3D techniques (including CAD where appropriate). • Basic development of at least one model. • Some materials/components selected with basic research into their working properties. • Prototype(s) shows basic level of making/finishing skills that are not always appropriate with the main tolerances being achieved. • Tools, materials and equipment (including CAM where appropriate) have been operated correctly and safely but are not always appropriate and sometimes requiring guidance. • Prototype(s) of basic quality and manufactured with some guidance. • Inconsistent Quality Control is evident and is not always appropriate. • Basic evidence of the stages of making.	

			• Basic design brief produced in response to one of the contextual challenges, with limited analysis and evaluation of their client's needs and wants. • A basic design specification with some justification. • Basic manufacturing specification has been produced with some justification, links to their prototype(s), but lacks accuracy. • Iterations shown to be basic with little consideration of analysis and evaluation of the prototype(s). Limited reflection upon feedback received from third parties. • Aspects of the prototype(s) have been tested against the design brief or specification. With limited reference to modifications. • Basic analysis and evaluation throughout. At Grade 4 pupils should clearly demonstrate and present: • Design possibilities identified and explored demonstrating aspects of depth and breadth of knowledge. • An investigation of the user/client, with some reference to the client's needs and wants. • Some analysis of the work of others to inform ideas. • Limited aspects of understanding of the impact on society including economic and social effects have been investigated. • Some investigation throughout, with basic justification. • Imaginative ideas have been developed, considering functionality, aesthetics and innovation. • Further developments made take into account some on-going research. • Some experimentation and development work through a range of 2D/3D techniques (including CAD where appropriate). • Development of at least one model. • Materials/components selected with some research into their working properties. • Prototype(s) shows good level of making/finishing skills that are appropriate ensuring most tolerances have been met. • Tools, materials and equipment (including CAM where appropriate) have generally been operated correctly and safely. • Prototype(s) shows some evidence of quality of manufacture. • Quality Control is evident throughout the manufacture of the prototype(s) but isn't always appropriate. • Evidence of most stages of making with consideration of industrial practices. • Design brief produced in response to one of the contextual challenges, with detail	

			showing some analysis and evaluation of their client's needs and wants. • A design specification with reasonable justifications. • A manufacturing specification with reasonable justifications linking to their prototype(s), but these may not always be accurate. • Some evidence that iterations are a result of sound consideration linked to analysis and evaluation of the prototype(s). Some reflection upon feedback received from third parties. • Some aspects of the prototype(s) have been tested against the design brief or specification. With some reference to modifications that are not always appropriate. • Some analysis and evaluation throughout.	
Summary of Year 8 Design Technology. In Year 8 pupils rotate around the 4 areas of Design Technology: Catering, Graphics, Textiles and Product Design. Pupils will complete a project in each area and will be graded against a standardised criteria assessing investigating, designing, making and analysing. In Catering pupils will develop their knowledge of cooking skills through researching, designing and making their own celebration cake. In Graphics pupils will respond a competition brief researching a client's needs and professionally presenting and pitching their design solutions. In Product Design pupils will develop their knowledge of cams and mechanisms to produce a pull along toy. In Textiles pupils will develop their knowledge printing techniques, pattern and surface design techniques to create a stiffed Fish.				
End of Year 8	Step 2	Grade 1 pupils should be able to respond to stimuli presenting basic solutions showing little independence in practical work. Grade 2 pupils should be able to explore a limited range of solutions to design problems, producing basic research to help them formulate ideas. Pupils should be able to demonstrate limited analytical skills of existing products. They should be able to complete basic practical tasks independently but may need help with more advance techniques. Practical work should show minimal refining. Grade 3 pupils should be able to explore a range of solutions to design problems, producing research to help them formulate	For Grades 1-4 please see above. At Grade 5 pupils should just demonstrate and present: • Relevant and detailed design possibilities identified and explored demonstrating wide breadth and depth of knowledge. • An investigation of the user/client, with a clear explanation of the majority of the clients needs and wants. • Detailed analysis of the work of others that subsequently informs ideas. • A general understanding of the impact on society including economic and social effects. • Aspects of investigation throughout, with ample justification and understanding. • Creative, imaginative ideas have been developed accurately, considering functionality, aesthetics and innovation. • Further developments made that take into account on-going research. • Experimentation and development work through a range of 2D/3D techniques (including CAD where appropriate). • Development of at least one model, that is mainly fit for purpose. • Appropriate materials/components selected with suitable research into their working properties.	Each project is individually marked by class teacher and moderated at faculty level.

		ideas. Mood boards should present a wide range of sources. Pupils should be able to demonstrate some analysis of existing products suitable to the brief. They should be able to complete practical tasks independently. Practical work should show refinement. Pupils should be able to evaluate their own work suggesting improvements. Grade 4 pupils should be able to explore a range of solutions to design problems, producing research to help them formulate ideas. Pupils should have tested prototype ideas against the brief. Pupils should specifically address the needs of the client / brief. Mood boards should present a wide range of sources and demonstrate sophisticated research into the topic. Pupils should be able to analyse existing products suitable to the brief. They should be able to complete practical tasks independently. Practical work should show a good level refinement, working towards a 'professional' finish. Pupils should be able to evaluate their own work suggesting improvements. Grade 5 pupils should be able to explore a wide range of solutions to design problems, producing detailed research into existing solutions to help them formulate ideas. Pupils should extensively test and evaluate prototype ideas against the brief. Pupils should specifically address the needs of the client /	• Prototype(s) shows a high level of making/finishing skills that are appropriate, ensuring the majority of specified tolerances have been met. • Use of relevant tools, materials and equipment (including CAM where appropriate) that have been operated skilfully and safely. • Independently worked to produce a high quality prototype(s). • The use of Quality Control is evident ensuring the prototype(s) is accurate. • Evidence of all the stages of making with appropriate consideration to industrial practices. • Design brief produced in response to one of the contextual challenges, with justified detail showing analysis and evaluation of their client's needs and wants. • A design specification with justification linking to their own and others considerations, wants and interests. • A manufacturing specification covering all essential aspects, justified and linking to their prototype(s) to inform manufacture. • Evidence that most iterations are as a result of considerations linked to analysis and evaluation of the prototype(s). May reflect upon feedback received from third parties. • Most aspects of the prototype(s) have been tested against the design brief or specification (including some third party testing). With some reference to modifications throughout the project. • Good, continuous analysis and evaluation throughout.	

		brief, producing detailed research about the client. Mood boards should present a wide range of sources and demonstrate sophisticated research into the topic. Pupils should be able to analyse existing products suitable to the brief. They should be able to complete practical tasks independently. Practical work should show a high level refinement, working towards a 'professional' finish. All work should be evaluated and annotated throughout clearly explaining the design process. Pupils should be able to evaluate their own work and act upon recognised opportunities for improvement.		
Summary of Year 9 Design Technology. In year 9 pupils will have opted to specialise in one or more areas of Design Technology. In Catering pupils will study international cuisine, pastry and cakes, and healthy fast food. In Graphics pupils will study typography designing their own font and illuminated letters using a variety of traditional and digital techniques before progressing to complete a real world Design Brief. Graphics in year 9 is assessed against the Art and Design specification. Please refer to the Art and Design document for additional information. In Product Design pupils will develop a range of advanced material skills, such as wood bending and lathe work, and electronic skills in order to produce a speaker. In Textiles pupils will develop pattern cutting techniques and printing techniques producing a range of products including a 'bag for life' for the National Trust.				
End of Year 9	Step 3	Grade 3 pupils should be able to explore a range of solutions to design problems, producing research to help them formulate ideas. Mood boards should present a wide range of sources. Pupils should be able to demonstrate some analysis of existing products suitable to the brief. They should be able to complete practical tasks	For Grades 1-5 please see above. At Grade 6 pupils should clearly demonstrate and present: • Relevant and detailed design possibilities identified and explored demonstrating wide breadth and depth of knowledge. • An investigation of the user/client, with a clear explanation of the majority of the clients needs and wants. • Detailed analysis of the work of others that subsequently informs ideas. • A general understanding of the impact on society including economic and social	

		independently. Practical work should show refinement. Pupils should be able to evaluate their own work suggesting improvements. Grade 4 pupils should be able to explore a range of solutions to design problems, producing research to help them formulate ideas. Pupils should have tested prototype ideas against the brief. Pupils should specifically address the needs of the client / brief. Mood boards should present a wide range of sources and demonstrate sophisticated research into the topic. Pupils should be able to analyse existing products suitable to the brief. They should be able to complete practical tasks independently. Practical work should show a good level refinement, working towards a 'professional' finish. Pupils should be able to evaluate their own work suggesting improvements. Grade 5 pupils should be able to explore a wide range of solutions to design problems, producing detailed research into existing solutions to help them formulate ideas. Pupils should extensively test and evaluate prototype ideas against the brief. Pupils should specifically address the needs of the client / brief, producing detailed research about the client. Mood boards should present a wide range of sources and demonstrate sophisticated research into the topic. Pupils should be able to analyse existing products	effects. • Aspects of investigation throughout, with ample justification and understanding. • Creative, imaginative ideas have been developed accurately, considering functionality, aesthetics and innovation. • Further developments made that take into account on-going research. • Experimentation and development work through a range of 2D/3D techniques (including CAD where appropriate). • Development of at least one model, that is mainly fit for purpose. • Appropriate materials/components selected with suitable research into their working properties. • Prototype(s) shows a high level of making/finishing skills that are appropriate, ensuring the majority of specified tolerances have been met. • Use of relevant tools, materials and equipment (including CAM where appropriate) that have been operated skilfully and safely. • Independently worked to produce a high quality prototype(s). • The use of Quality Control is evident ensuring the prototype(s) is accurate. • Evidence of all the stages of making with appropriate consideration to industrial practices. • Design brief produced in response to one of the contextual challenges, with justified detail showing analysis and evaluation of their client's needs and wants. • A design specification with justification linking to their own and others considerations, wants and interests. • A manufacturing specification covering all essential aspects, justified and linking to their prototype(s) to inform manufacture. • Evidence that most iterations are as a result of considerations linked to analysis and evaluation of the prototype(s). May reflect upon feedback received from third parties. • Most aspects of the prototype(s) have been tested against the design brief or specification (including some third party testing). With some reference to modifications throughout the project. • Good, continuous analysis and evaluation throughout.	

		suitable to the brief. They should be able to complete practical tasks independently. Practical work should show a high level refinement, working towards a 'professional' finish. All work should be evaluated and annotated throughout clearly explaining the design process. Pupils should be able to evaluate their own work and act upon recognised opportunities for improvement. Grade 6 pupils should be able to explore a wide range of solutions to design problems, producing detailed research into existing solutions to help them formulate ideas. Pupils should be able to present detailed justification for why they feel there solutions will work. Pupils should extensively test and evaluate prototype ideas against the brief. Pupils should specifically address the needs of the client / brief, producing detailed research about the client. Mood boards should present a wide range of sources and demonstrate sophisticated research into the topic. Pupils should be able to analyse existing products suitable to the brief. They should be able to complete practical tasks independently and demonstrate industrial practices have been considered. Practical work should show a high level refinement, working towards a 'professional' finish. All work should be evaluated and annotated throughout clearly explaining the design process and justifying design decisions. Pupils should be able to		

		evaluate their own work and act upon recognised opportunities for improvement.		