

KS3

Specification

2020



PRODUCT DESIGN

Stage Descriptors

RLT Stage Criteria	
Stage 11	<ol style="list-style-type: none"> 1. Can comprehensively explore a wide range of design features of existing products with consistency and can carry out detailed investigations into materials/processes/components and the work of others and write a detailed and justified product/manufacturing specification linked to research and demonstrating excellent understanding of design features. 2. Can develop highly imaginative and innovative ideas using a detailed design strategy. Designs are developed to a high standard using detailed annotation and terminology. CAD is used to a high standard where appropriate 3. Can adapt, modify and improve the functionality of a product that has a high level of challenge using a range of techniques. The product will have an exceptional level of accuracy and is fully commercially viable. Quality control has been exceptional throughout the manufacture of the product as the tolerance is extremely high. Jigs and templates have been manufactured to help with further mass production of the product. 4. Can comprehensively test (including 3rd party feedback) and fully evaluate the product at all stages of iteration which includes the explanation of good/ bad points, materials/ processes choices, detailed comparisons between it and similar products plus the discussion of ongoing/further modifications and alternative methods of production
Stage 10	<ol style="list-style-type: none"> 1. Can explore a wide range of design features of existing products with consistency and can carry out detailed investigations into materials/processes/components and the work of others and write a detailed specification linked to investigation, justifying some points. 2. Can develop imaginative and innovative ideas using a detailed design strategy. Designs are developed to a high standard using detailed annotation. CAD is used to a high standard (where appropriate) 3. Can adapt or modify the product which has a high level of challenge with alternative techniques. Product will have a high level of accuracy, will be creative and could be commercially viable. Quality control has been thorough in the manufacture as the product is to high tolerances and the use of jigs and templates is evident. 4. Can comprehensively test (including 3rd party feedback) and fully evaluate the product at most stages of iteration which includes the explanation of good/ bad points, materials/ processes choices, detailed comparisons between it and similar products plus the discussion of ongoing/further modifications and alternative methods of production
Stage 9	<ol style="list-style-type: none"> 1. Can describe a wide range of design features linked to specific investigations of materials/processes/components and the work of others and can write a detailed specification highlighting key properties and describe how it meets the client's need 2. Can develop original design ideas using a design strategy. Designs are developed to a good standard using detailed annotation. CAD is used to a good standard (where appropriate) 3. Can produce a product that has a high level of challenge, all parts function correctly and it is completed to a high standard. If a low-level product, it is completed to an exceptionally high standard, the student has shown additional flare and the product can be commercially viable. Quality control has been applied to all parts of the product and some suggestion to jigs for further production has been applied 4. Can devise tests (including 3rd party feedback) and fully evaluate the product at most stages of iteration which includes the explanation of good/ bad points, materials/ processes choices, detailed comparisons between it and similar products plus the discussion of ongoing/further modifications

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Stage 8	<ol style="list-style-type: none"> 1. Can describe a range of design features of existing products and link investigation to materials/processes/components and the work of others and can write a specification relevant to the clients need 2. Can develop a range of creative design ideas which consider design criteria and wider issues. Designs are developed and use clear annotation. CAD is used effectively (where appropriate) 3. Can produce a product that has a high level of challenge, all parts work correctly and it is completed to a high standard. If a low level product, it is completed to an excellent degree of accuracy and is commercially viable. Quality control is evident throughout all of the product to meet tolerances required. 4. Can devise tests (including 3rd party feedback) and fully evaluate the product at some stages of iteration which includes the explanation of good/ bad points, materials/ processes choices, detailed comparisons between it and similar products plus the discussion of ongoing/further modifications
Stage 7	<ol style="list-style-type: none"> 1. Can identify and comment on a range of design features of a product and investigate existing products/materials/work of others and can write a basic specification relevant to the clients needs 2. Can generate a range of creative design ideas which consider some of the design criteria. Designs are developed and use annotation. CAD is used effectively (where appropriate) 3. Can produce a product that has a moderate level of challenge, most parts work correctly. If a low level product the student can complete all work with a high degree of accuracy and the product is commercially viable with some minor tweaks. Can applied quality control to most parts of the product. 4. Can devise tests and evaluate the product at some stages of iteration which may include the explanation of good/ bad points, materials/ processes choices, detailed comparisons between it and similar products plus the discussion of modifications
Stage 6	<ol style="list-style-type: none"> 1. Can identify the design features/key properties of a product, investigate facts about existing products/materials/work of others and identify different needs of the client 2. Can generate designs linked to the design criteria. Annotation has been used well to explain key features. CAD is used well (where appropriate) 3. Can attempt to make a product that has a moderate level of challenge, some parts work correctly. If a low level product the student can complete all work with a high degree of accuracy. Quality control has been applied to some parts of the product 4. Can test and evaluate the product against the design criteria which may include the explanation of good/ bad points, materials/ processes choices, comparisons between it and similar products plus the discussion of modifications
Stage 5	<ol style="list-style-type: none"> 1. Can list some design features and investigate some facts about an existing product/ materials or the work of others and list some needs of the client 2. Can generate different design ideas. Annotation has been used to explain key features. CAD has been used (where appropriate) 3. Can produce a product that has some level of challenge, all parts work correctly, is fully complete with a good degree of accuracy. Quality control is evident at some stages of the product 4. Can perform a number of tests in order to identify some good/ bad points and suggest modifications to the product

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Stage 4	<ol style="list-style-type: none">1. Can state some design features and investigate simple facts about an existing product/materials or the work of other2. Can generate basic design ideas. Basic annotation is used to explain the materials used. CAD has been used with support (where appropriate)3. Can produce a product that has a some level of challenge, parts work correctly, is mainly complete with some accuracy. Quality control has been applied once in the product4. Can perform a basic test order to identify some good / bad points of the product
Stage 3	<ol style="list-style-type: none">1. Can state some design features of an existing product/ material/ work of other2. Can generate basic ideas. Simple annotation has been used. CAD has been used with support (where appropriate)3. Can produce a product that has a low level of challenge, some parts work correctly, some parts are incomplete and there are errors in accuracy. No quality control checks have been evident.4. Can identify some good/ bad points of the product
Stage 2	<ol style="list-style-type: none">1. Can acknowledge some design features of an existing product/ material/ work of other2. Can generate simple design ideas. CAD (Where appropriate)3. Can produce a product that has a low level of challenge, it does not work correctly, parts are incomplete and accuracy is of a low level. No quality control checks have been evident.4. Can identify a few good/ bad points of the product
Stage 1	<ol style="list-style-type: none">1. Can recognise some design features of an existing product/ material/ work of other2. Can explain and attempt to present design ideas3. Can attempt to produce a product that has a low level of challenge, it does not work yet and isn't fully complete.4. Can recognise good/ bad points of the product