

Design, Creativity and Technology

In Design, Creativity and Technology, standards for assessing and reporting on student achievement are introduced at Level 3. The learning focus statements for Levels 1 and 2 provide advice about learning experiences that will assist students to work towards the achievement of the standards at Level 3.

Design, Creativity and Technology – Progressing towards Level 3

Progression Point 2.25

At 2.25, the work of a student progressing towards the standard at Level 3 demonstrates, for example:

Investigating and designing

- imaginative ideas, shown through labelled sketches and oral description (with significant teacher prompting) in response to a simple design brief
- identification of common materials/ingredients, such as paper, cardboard, fabric, wood and flour, that are used in familiar products
- teacher-guided identification of the main steps required to make a product or simple system they have designed

Progression Point 2.5

At 2.5, the work of a student progressing towards the standard at Level 3 demonstrates, for example:

Investigating and designing

- with a team, generation of imaginative ideas in response to a design brief
- communication of design ideas using labelled sketches and experimental models, and oral explanations when prompted
- with teacher assistance, identification of obvious characteristics or properties, such as hard, soft, stretchy and sweet, of common materials/ingredients used in familiar products
- identification and ordering of the main steps required to make a product or simple system they have designed

Progression Point 2.75

At 2.75, the work of a student progressing towards the standard at Level 3 demonstrates, for example:

Investigating and designing

- independent generation of imaginative ideas based on the requirements of a design brief, with recognition that designs may need to meet more than one requirement
- communication of design ideas using words, labelled sketches, models, and oral and/or written clarification when asked
- identification of the characteristics and properties of common materials, ingredients or components that make them suitable for use in particular products or simple systems; for example, wheels and axles on a vehicle, honey in a cake mixture
- identification and ordering of the main steps required to make a product or simple system they have designed, including reference to teacher-identified safety considerations

Progression Point 2.25

At 2.25, the work of a student progressing towards the standard at Level 3 demonstrates, for example:

Producing

- spontaneous trial-and-error approach when making a simple product, and awareness, when prompted by the teacher, of the steps involved
- with significant teacher direction and assistance, use of a few basic tools, equipment and simple techniques to make a product; for example, preparing and combining familiar materials, ingredients or components

Analysing and evaluating

- simple, teacher-directed testing of their product or simple system; for example, placing weight on a package to test its strength
- understanding of how their product/system meets a particular requirement of the design brief, for example, through oral description

Progression Point 2.5

At 2.5, the work of a student progressing towards the standard at Level 3 demonstrates, for example:

Producing

- some reference to production steps, and spontaneous trial-and-error approach when making a product
- with teacher direction and guidance, particularly about safety and hygiene, use of familiar materials, tools, equipment and simple techniques to make a product

Analysing and evaluating

- simple testing, with teacher support, of their product/systems, with a view to possible revisions
- identification of the positive and negative aspects of their product/system; for example, 'It is too salty but nice and crunchy.'

Progression Point 2.75

At 2.75, the work of a student progressing towards the standard at Level 3 demonstrates, for example:

Producing

- identification of the steps required to make a product or assemble a simple system, and a spontaneous trial-and-error approach to making modifications to components or substituting ingredients
- with teacher guidance, particularly about safety and hygiene, use of familiar tools, equipment and simple techniques to prepare, alter and combine materials, ingredients or components to make a product or simple system

Analysing and evaluating

- following teacher-supported testing, an evaluation and revision of their product/system
- with teacher prompting, communication of reasons for changes being made; for example, 'Ali said it was too sour.'
- reflection on how well the product/system works, its suitability for the purpose, its strengths, and aspects that could be improved



Design, Creativity and Technology – Level 3

Investigating and designing

At Level 3 students, individually and in teams, generate ideas based on a design brief, demonstrating understanding that designs may need to meet a range of different requirements. They use words, labelled sketches and models to communicate the details of their designs, and clarify ideas when asked. They identify simple systems components and common materials/ingredients and explain the characteristics and properties that make them suitable for use in products. Students think ahead about the order of their work and list basic steps to make the product or system they have designed.

Producing

At Level 3, students use their list of steps and are able to choose appropriate tools, equipment and techniques to alter and combine materials/ingredients and assemble systems components. They use a variety of simple techniques/processes and a range of materials/ingredients to safely and hygienically alter and combine materials/ingredients and put together components to make products and simple systems that have moving parts.

Analysing and evaluating

At Level 3, students test, evaluate and revise their designs, products or simple systems in light of feedback they have gained from others. They identify what has led to improvements and describe what they consider to be the strengths and drawbacks of their design, product or simple system. They consider how well a product or simple system functions and/or how well it meets the intended purpose.

Design, Creativity and Technology – Progressing towards Level 4
Progression Point 3.25

At 3.25, the work of a student progressing towards the standard at Level 4 demonstrates, for example:

Investigating and designing

- teacher-directed collection of data relevant to a design brief
- generation of design ideas – labelled sketches and drawings, explanations or models – in response to a design brief
- listing of at least three basic steps for a recipe or a product/system plan, or minor modification of an existing recipe or plan; for example, options for pizza toppings

Producing

- development of a production plan and, with teacher support, selection of appropriate tools, equipment, familiar materials, ingredients and/or system components, and processes
- use of familiar tools and equipment, with teacher instruction on appropriate and safe handling

Progression Point 3.5

At 3.5, the work of a student progressing towards the standard at Level 4 demonstrates, for example:

Investigating and designing

- contribution to a group design brief of requirements and/or limitations to that brief; for example, considering user/consumer needs
- contribution to group research into an aspect of a design brief using an appropriate research method such as an Internet search, a questionnaire, trialing, collection of stimulus pictures and recipes
- annotation of design ideas with reference to the intended function and/or appearance of the product
- development of steps for a recipe or a product/system plan, or modification of an existing recipe or plan

Producing

- reference to the steps in their production plan to assist with the selection of tools and equipment, familiar materials, ingredients and/or system components, and production processes
- following teacher demonstration, use of a range of production and finishing/presentation techniques
- use of familiar and unfamiliar tools and pieces of equipment, with teacher direction on safety and hygiene

Progression Point 3.75

At 3.75, the work of a student progressing towards the standard at Level 4 demonstrates, for example:

Investigating and designing

- teacher-assisted identification of evaluation criteria developed from a design brief
- individual research into aspects of a design brief, using appropriate research methods; for example, Internet search, questionnaire, trialing, and collection of stimulus pictures and recipes
- annotation of design ideas with reference to environmental or social constraints
- development of detailed steps for a recipe or a product/system plan, or detailed modification of an existing recipe or plan

Producing

- reference to their production plan to assist with the selection of unfamiliar tools and equipment, materials, ingredients and/or system components, and production processes
- selection of and work with a variety of materials, ingredients and systems components to make a functional product using a range of production and finishing/presentation techniques

Progression Point 3.25

At 3.25, the work of a student progressing towards the standard at Level 4 demonstrates, for example:

Progression Point 3.5

At 3.5, the work of a student progressing towards the standard at Level 4 demonstrates, for example:

Progression Point 3.75

At 3.75, the work of a student progressing towards the standard at Level 4 demonstrates, for example:

- competent use of a range of tools and pieces of equipment, with teacher guidance on safety and hygiene
- recording of dates and main production steps

Analysing and evaluating

- oral reflection on their design as it is developed, using teacher-prescribed evaluation criteria
- modifications to their design, in response to teacher feedback and with teacher support

Analysing and evaluating

- oral and/or written reflection on their design as it is developed, using class-developed criteria
- modifications to their designs/products/systems in response to teacher and peer feedback
- awareness of at least one impact that a familiar product and/or technological system might have on people or the environment; for example, a battery-operated torch

Analysing and evaluating

- oral and written reflection on their design as it is developed, using class-developed and their own evaluation criteria and justifying design choices
- modification to their designs/products/systems in response to feedback from teacher and peers, and their own documented reflection
- awareness of at least two impacts that a familiar product or technological system might have on people and/or the environment



Design, Creativity and Technology – Level 4

Investigating and designing

At Level 4, students contribute to the development of design briefs that include some limitations and specifications. Individually and in teams, they use a range of methods to research and collect data in response to design briefs. They generate and communicate alternative design ideas in response to a design brief and use words, labelled sketches and models, to demonstrate that they are aware of environmental and social constraints.

Students take account of the views of users/consumers and produce step-by-step plans and/or modify recipes for making products and/or simple mechanical/electrical systems. They describe how their intended product will function or be used, and what it will look like in the context of the requirements of the design brief. They identify evaluation criteria from design briefs and use them to justify design choices.

Producing

At Level 4, students use their production plan and select and work safely with a variety of materials/ingredients and systems components to produce functional products and/or systems. They use a range of measuring, marking, joining/combining techniques to alter materials and finishing/presentation methods, and operate tools and equipment competently, showing consideration of safety and hygiene, and record their progress.

Analysing and evaluating

At Level 4, students reflect on their designs as they develop them and use evaluation criteria, identified from design briefs, to justify their design choices. They modify their designs/products/systems after considered evaluation of feedback from peers and teachers, and their own reflection. They describe the impact products and technological systems have on people and the environment.

Design, Creativity and Technology – Progressing towards Level 5
Progression Point 4.25

At 4.25, the work of a student progressing towards the standard at Level 5 demonstrates, for example:

Investigating and designing

- teacher-directed research into factors relevant to a design brief, using appropriate information sources and research methods/strategies; for example, interviews or questionnaires on products, text/Internet searches, trialing, and collection of stimulus images and recipes
- development of design ideas in response to a brief, using appropriate methods of drawing, writing and modelling, and appropriate technical language
- use of feedback gathered from others to inform judgements about the development of a design
- teacher-assisted identification of the major steps in the production of a designed product and the materials, ingredients or components required

Producing

- use of a range of tools and equipment, including at least one that is more complex, with significant teacher instruction on safety and hygiene

Progression Point 4.5

At 4.5, the work of a student progressing towards the standard at Level 5 demonstrates, for example:

Investigating and designing

- teacher-assisted research into factors relevant to a design brief, using at least two appropriate information sources, and research methods/strategies; for example, interviews or questionnaires on products, text/Internet searches, trialing, and collection of stimulus images and recipes
- development of design ideas that apply appropriate design elements and principles, and use appropriate methods of drawing, writing and modelling, technical language and media, including information and communications technology (ICT) where useful
- use of feedback that is gathered and given, to inform judgments about the development of a design
- teacher-assisted sequencing of the major steps in the production of a designed product, and listing of materials, ingredients or components required

Producing

- use of a range of tools and equipment, including at least two that are more complex, with teacher guidance on safety and hygiene

Progression Point 4.75

At 4.75, the work of a student progressing towards the standard at Level 5 demonstrates, for example:

Investigating and designing

- independent research into factors relevant to a design brief, using at least two appropriate information sources, and research methods/strategies; for example, as interviews or questionnaires on products, text/Internet searches, trialing, and collection of stimulus images and recipes
- development of at least three design ideas in response to a brief, using a variety of drawing, written and modelling methods, technical language, appropriate media, including information and communications technology (ICT) where useful, and design elements and principles such as colour, line, shape and texture
- use of feedback based on evaluation criteria developed from a design brief, to inform judgments about the development of a design
- planning for production of a designed product that includes a logical sequence of the major steps of production, and a list and calculation of required materials/ingredients

Producing

- use of a range of tools and equipment, including some that are more complex, with teacher support, as necessary, on safety and hygiene

Progression Point 4.25

At 4.25, the work of a student progressing towards the standard at Level 5 demonstrates, for example:

- use of a range of materials, ingredients/components and processes, showing understanding of at least one characteristic or property of each
- modifications, as necessary, during production following evaluation

Progression Point 4.5

At 4.5, the work of a student progressing towards the standard at Level 5 demonstrates, for example:

- selection, based on their characteristics or properties, of materials, ingredients/components and processes for given purposes
- modifications, as necessary, during production in response to feedback and/or research

Progression Point 4.75

At 4.75, the work of a student progressing towards the standard at Level 5 demonstrates, for example:

- selection, giving reasons, of materials, ingredients/components and processes in relation to a design brief
- oral or written reflection on modifications made during production, including explanation of responses to evaluation, feedback and/or research, and their part in the production process

Analysing and evaluating

- with teacher direction, particularly about safety, selection and use of appropriate equipment and techniques to test their products/systems
- evaluation of the performance, function and/or appearance of their products/systems, using teacher-provided evaluation criteria leading to modifications or improvement
- evaluation of the performance, function and/or appearance of products/systems made by others, using teacher-provided evaluation criteria
- awareness of possible social and/or environmental impacts of their products/systems

Analysing and evaluating

- with teacher support, safe testing of their products/systems, using suitable equipment and techniques
- modifications to their products/systems in response to suggestions for improvement from teacher and peers, and with reference to class-developed criteria for evaluating performance, function and/or appearance
- use of class-developed evaluation criteria to identify modifications that could be made to products/systems made by others
- commentary on possible social and/or environmental impacts of their own and others' products/systems

Analysing and evaluating

- independent selection and safe use of suitable equipment and techniques to test the performance of their products/systems
- implementation of modifications to improve their products/systems following the use of detailed self-generated evaluation criteria
- justification of recommendations for improvements to products/systems made by others
- identification and analysis of the likely social and/or environmental impacts of their own and others' designs, products and technological systems



Design, Creativity and Technology – Level 5

Investigating and designing

At Level 5, students use various strategies and sources of information to investigate and research a range of factors relevant to more sophisticated design briefs to which they have contributed. During the design process they clarify their understanding of design brief requirements and their design ideas by gathering, responding to and providing feedback to others. They develop evaluation criteria from the design brief to inform their judgments during the design process. They use a variety of drawing and modelling techniques to visualise design ideas and concepts. Students demonstrate understanding of design elements and principles and use appropriate technical language.

Students understand and logically sequence major stages of production, and calculate and list materials/ingredients and quantities needed for production. They record and communicate their ideas using a variety of media that includes information and communications technology equipment, techniques and procedures.

Producing

At Level 5, students work safely/hygienically with a range of tools and equipment, including some which are complex, and manage materials/ingredients, components and processes to produce products and systems, taking full account of the appropriateness of their properties, characteristics or expected outputs in meeting requirements of design briefs.

They make modifications during production, providing a sound explanation for changes that demonstrates reflection, research, responsiveness to feedback, and use of evaluation criteria.

Analysing and evaluating

At Level 5, students select appropriate equipment and techniques to safely test and evaluate the performance of their products/systems. They suggest modifications to improve their products/systems in light of evaluation of their performance, function and appearance. They recommend improvements to the performance, function and appearance of others' product/systems. They describe and analyse the social and environmental impacts of their own and others' designs, products and technological systems.

Design, Creativity and Technology – Progressing towards Level 6

Progression Point 5.25

At 5.25, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

Investigating and designing

- teacher-assisted identification of considerations and constraints within a student-developed design brief that require research; for example, into the needs of a potential client or user, or factors such as expected function and performance, energy/nutritional or other requirements, and suitability of materials or ingredients
- development, from a brief, of a range of design alternatives, using technical language, selecting a preferred option, and providing evidence of decisions about materials, ingredients and/or system components
- logical sequencing and planning of production stages, and listing of required materials, equipment, ingredients and/or systems components
- use of information and communications technology (ICT) equipment and techniques such as computer-aided design (CAD) to support the design process

Progression Point 5.5

At 5.5, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

Investigating and designing

- identification of evaluation criteria based on the design considerations and constraints of a student-developed design brief
- research that arises from design brief specifications, such as the characteristics and properties of materials or ingredients, production techniques and/or system components
- development, using appropriate technical language, of a range of design alternatives and a justified preferred option, with evidence that decisions are based on design specifications and an understanding of materials, ingredients and/or systems components
- logical sequencing and planning of production stages, and listing of the resources required, including availability of equipment and facilities
- use of information and communications technology (ICT) equipment and techniques, such as computer-aided design (CAD) and spreadsheet or nutritional analysis software to support stages of the design process

Progression Point 5.75

At 5.75, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

Investigating and designing

- identification of considerations and constraints within a student-developed design brief that require research, and development of a range of related evaluation criteria
- research, drawn from identified considerations and constraints, that informs their design, including the needs of a client or user, and a range of design factors, and the characteristics and properties of materials/ingredients or systems relationships
- development and justification of a preferred design option from a range of alternatives, using appropriate technical language, detailing evidence of investigation of design considerations, and showing an understanding of the relationship between inputs, processes and outputs
- logical sequencing and detailed planning of production stages within allocation, showing resources and calculation of time and costs
- use of information and communications technology (ICT) equipment and techniques, such as computer-aided design (CAD) and modelling, to support stages of the design process

Progression Point 5.25

At 5.25, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

Producing

- production of a product/system that shows consideration of the quality, aesthetic, functionality, nutritional or performance requirements of the design brief
- with teacher guidance on safety/hygiene, implementation of a range of production and finishing/presentation processes, selecting and using tools, equipment and machines with some degree of accuracy
- selection and use of materials/ingredients or system components, accompanied by an explanation of the suitability of at least one of these
- with teacher prompting, modification of production methods (if needed) and justification of changes made

Analysing and evaluating

- use, under teacher direction, of safe procedures in product testing
- use of student-developed criteria and the results of testing to evaluate their product/system in terms of safety, function and suitability for the intended purpose

Progression Point 5.5

At 5.5, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

Producing

- production of a product/system that meets generally acceptable standards in terms of the quality, aesthetic, functionality, nutritional and/or performance requirements of the design brief
- with teacher guidance on safety/hygiene, independent implementation of a broad range of production and finishing/presentation processes, using some complex tools and equipment with accuracy
- selection and use of materials/ingredients or system components that are explained in terms of their characteristics and properties (physical, chemical, sensory or aesthetic), or their function within a system
- modification or adaptation of production methods (if needed) and justification of any changes to the design plan

Analysing and evaluating

- use, under teacher supervision, of safe procedures in product/system testing
- use of student-developed criteria and detailed reference to test findings to evaluate their product/system in terms of use of resources

Progression Point 5.75

At 5.75, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

Producing

- production of a product/system that is close to commercial standards in terms of the quality, aesthetic, functionality, nutritional and/or performance requirements of the design brief
- implementation of a range of production and finishing/presentation processes with minimal supervision and competent use of complex tools and equipment, with limited guidance on safety/hygiene
- justification of the selection and use of materials/ingredients (based on physical, chemical, sensory or aesthetic properties) or system components to achieve the expected outputs/nutritional or other requirements of the design brief
- modification or adaptation of production methods (if needed) to overcome difficulties, with any changes to the design plan clearly explained

Analysing and evaluating

- use, with minimal teacher supervision, of safe procedures in product/system testing
- use of student-developed criteria, detailed reference to test findings, and feedback from teacher and peers, to evaluate their product/system in terms of safety, function, suitability for the intended purpose and use of resources

Progression Point 5.25

At 5.25, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

- identification, through discussion, of changes that could be made to their processes, materials/ingredients, systems components and/or equipment that would lead to an improved outcome
- consideration of the possible social, cultural, legal or environmental impacts of their own and/or others' products/systems, and of an innovative new technology

Progression Point 5.5

At 5.5, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

- analysis and consideration of changes that could be made to processes, materials/ingredients, systems components and/or equipment that would lead to an improved outcome
- research into, and commentary on, the likely social or cultural, legal and environmental impacts of their own and/or others' products/systems, and of an innovative new technology

Progression Point 5.75

At 5.75, the work of a student progressing towards the standard at Level 6 demonstrates, for example:

- revision of processes, materials/ingredients, systems components and/or equipment used, and justification of changes proposed to produce an improved outcome
- critical analysis of the social, cultural, legal and environmental impacts of their own and others' products/systems, and of an innovative new technology



Design, Creativity and Technology – Level 6

Investigating and designing

At Level 6, students identify considerations and constraints within a design brief. They undertake research relevant to the design brief. They locate and use relevant information to help their design thinking and identify the needs of a variety of client/user groups. When designing, they generate a range of alternative possibilities, use appropriate technical language, and justify their preferred option, explaining how it provides a solution to the problem, need or opportunity. They make critical decisions on materials/ingredients, systems components and techniques based on their understanding of the properties and characteristics of materials/ingredients and/or of the relationship between inputs, processes and outputs. They effectively use information and communications technology equipment, techniques and procedures to support the development of their design and planning. Students take account of function and performance, energy requirements, aesthetics, costs, and ethical and legal considerations that address the requirements of design briefs. They identify a range of criteria for evaluating their products and/or technological systems. Students plan a realistic and logical sequence of the production stages, incorporating time, cost and resources needed for production.

Producing

At Level 6, students implement a range of production processes accurately, consistently, safely/hygienically and responsibly, and select and use personal protective clothing and equipment when necessary. They produce products/systems using complex tools, equipment, machines, materials/ingredients and/or systems components with precision. They clearly explain decisions about the suitability of materials/ingredients, systems components, energy requirements and production techniques based on their understanding of the properties and characteristics of materials/ingredients, and the inputs, processes and outputs of systems.

In response to changing circumstances, they adapt their methods of production and provide a sound explanation for deviation from the design proposal. They make products/systems that meet the quality, aesthetic, functionality and performance requirements outlined in the design brief.

Analysing and evaluating

At Level 6, students use evaluation criteria they have previously developed, and critically analyse processes, materials/ingredients, systems components and equipment used, and make appropriate suggestions for changes to these that would lead to an improved outcome. They use a range of suitable safe testing methods in this analysis. They relate their findings to the purpose for which the product and/or system was designed and the appropriate and ethical use of resources.

They synthesise data, analyse trends and draw conclusions about the social, cultural, legal and environmental impacts of their own and others' designs and the products/systems, and evaluate innovative new technology in the manufacturing industry.

Design, Creativity and Technology – Progressing beyond Level 6

Progression Point 6.25

At 6.25, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

Investigating and designing

- independent development of a design brief, including specifications (considerations and constraints) and identification of a range of relevant evaluation criteria
- research, based on specifications in a design brief, into the needs of the likely user/consumer/client, related design factors, proposed materials/ingredients/components and processes, and a social, ethical or environmental issue related to the design brief, materials or production
- generation of a range of clearly communicated design ideas (including, for example, supporting sketches, models) and a justified preferred option, using a range of drawing and communication techniques (including information and communication technologies if appropriate), conventions, and appropriate terminology
- evidence of design decisions relevant to a design brief, including design considerations and/or design elements and principles, proposed materials/ingredients/components and production processes – provided in, for example, discussions of the design brief and evaluation criteria, design annotations, evaluation grids, and justification of the preferred option

Progression Point 6.5

At 6.5, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

Investigating and designing

- independent development of a design brief, requirements and specifications (considerations and constraints), including an explanation of a range of relevant evaluation criteria
- research, based on specifications in a design brief, into user/consumer/client needs, including identification of related design factors, proposed materials/ingredients/components and processes, and social, ethical or environmental issues related to the brief, materials or production
- generation of a range of clearly communicated design ideas, and selection and justification of a preferred option, using a range of appropriate drawing and communication techniques (including information and communication technologies if appropriate), conventions and appropriate terminology
- evidence of decisions made in relation to a design brief, design considerations, and the application of design elements and principles, materials/ingredients/components and production processes
- development of a detailed step-by-step plan, using project management software, and a list of materials, components, equipment and safety measures needed to produce a design, including a timeline and costing

Progression Point 6.75

At 6.75, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

Investigating and designing

- independent development of a design brief, requirements and specifications (considerations and constraints), and a list and explanation of a range of relevant evaluation criteria, including the evaluation question, and methods of testing or checking the product
- extensive research, based on specifications in a design brief, into the intended user/consumer/client and their needs, design factors, materials/ingredients/components and processes, and a range of social, ethical, or environmental issues related to the brief, materials or production
- generation of a range of detailed and innovative design ideas, and selection and detailed justification of a preferred option, using a broad range of drawing and communication techniques (including information and communication technologies if appropriate), conventions, and appropriate terminology
- evidence of design decisions relevant to a design brief, including a range of design considerations, that incorporate knowledge of design elements and principles, materials/ingredients/components and production processes

Progression Point 6.25

At 6.25, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

- development of a logically sequenced plan and a list of the materials, components, equipment and safety measures needed to produce a design, including a timeline and costing

Progression Point 6.5

At 6.5, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

Progression Point 6.75

At 6.75, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

- development of a detailed step-by-step production plan using project management software, and a timeline, quality control measures and check points, a list of materials, components, costs and equipment, and a risk assessment of the product and production process

Producing

- production of a product/system that meets the requirements of a design brief, shows consideration of quality, aesthetics and functionality/performance, and meets the expectations of a user/consumer
- selection and competent handling of materials, ingredients and/or system components, showing an understanding of characteristics and properties or function in a system
- selection and use of a range of complex tools, equipment, and production and finishing/presentation processes, showing, after practice and trialing, a high level of accuracy, competency, responsibility and safety
- skill in managing production processes
- recording of production work (for example, in a journal or log, using information and communications technology where appropriate) that describes the use of the production plan and details modifications (if any)

Producing

- production of a product/system that meets the requirements of a design brief and shows detailed consideration of quality, aesthetics and functionality/performance approaching the level applied in industry and commerce
- selection and competent handling of materials, ingredients and/or system components (including some which are less commonly used in school), showing an understanding of characteristics and properties or function in a system, and considering environmental, ethical or social impacts
- selection and use of a broad range of complex tools, equipment, and production and finishing/presentation processes, showing a high level of accuracy, competency, responsibility and safety
- skill in managing production processes, and checking of the quality of the work
- recording of production work that describes the use of the production plan, evaluation of outcomes, and details of any modifications

Producing

- production of an innovative product/system that meets the requirements of a design brief and shows particular attention to quality, aesthetics and functionality/performance consistent with that applied in industry and commerce
- selection and competent handling of materials, ingredients and/or system components (including some which are less commonly used in school), showing an in-depth understanding of characteristics and properties or function in a system, and explaining consideration of environmental, ethical and/or social impacts
- independent selection and use of a broad range of complex tools, equipment, and production and finishing/presentation processes, showing an optimal level of accuracy, competency, responsibility and safety; for example, implementing risk assessment processes
- high level of skill in managing the production processes, and detailed checking and improvement of the quality of the work

Progression Point 6.25

At 6.25, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

Progression Point 6.5

At 6.5, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

Progression Point 6.75

At 6.75, the work of a student progressing beyond the standard at Level 6 demonstrates, for example:

- detailed recording of production work that explains the use of the production plan and evaluation of outcomes, and justifies any modifications

Analysing and evaluating

- use of an appropriate qualitative testing or checking method, a range of evaluation criteria developed from the design brief, and input from others (particularly users/consumers) to assess their product/system in terms of suitability for the intended use, function/performance, appearance, quality and usability
- consideration and analysis of the efficiency and efficacy of production processes
- analysis of the product and production processes in terms of safety and risk
- identification of the possible social, environmental, cultural and ethical/legal impacts of their products/systems and those of others

Analysing and evaluating

- use of an appropriate qualitative or quantitative testing or checking method, a range of evaluation criteria developed from the design brief, and input from others to assess their product/system in terms of sustainability, aesthetics, and acceptability or value to a user/consumer
- evaluation of the efficiency and efficacy of production processes
- assessment of the product and production processes in terms of safety and risk
- commentary on their products/systems and those of others in terms of the social, environmental, cultural and/or ethical/legal impacts that have been identified

Analysing and evaluating

- use of qualitative and quantitative testing or checking methods, a range of evaluation criteria developed from the design brief, comparison with a similar commercial product, and input from others to assess their product/system in terms of its commercial feasibility and acceptance or value to a client or user/consumer
- evaluation of the efficiency and efficacy of production processes, and of quality control measures used; for example, use of checks, regular progress reviews, trialling and testing, and consultation
- changes to the product and production processes to improve safety and reduce risks
- analysis and assessment of the social, environmental, cultural and/or ethical/legal impacts of their products/systems and those of others