National 5
Coursework
Assessment Task

National 5 Design and Manufacture
Assignment — design
Assignment — practical
Assessment task

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Introduction

This document contains instructions for teachers and lecturers, marking instructions, and instructions for candidates for the National 5 Design and Manufacture assessment task. It must be read in conjunction with the course specification.

The assessment task comprises two assignments:

- ‘Assignment — design’
- ‘Assignment — practical’

The assessment task requires candidates to complete the ‘assignment — practical’ by manufacturing what they have designed in the ‘assignment — design’. So the same assessment task covers both assignments.

‘Assignment — design’ has 55 marks.
‘Assignment — practical’ has 45 marks.

This assessment task has 100 marks out of a total of 180 marks available for the course assessment. The other component is a question paper.

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Instructions for teachers and lecturers: assignment — design

The ‘assignment — design’ is set and externally marked by SQA. Evidence for this assessment should be submitted to SQA. The assessment is conducted in centres under conditions specified by SQA.

Centres **must** retain a copy of the completed planning for manufacture pro forma, as it will be required to support assessment judgements for the ‘assignment — practical’.

Conditions of assessment

Candidates should be fully prepared before undertaking the assignment — they should have acquired the appropriate design skills and be aware of the requirements of the assessment. You should give candidates the ‘Instructions for candidates’ that are at the end of this document.

Candidates must be given:

- a choice of three design briefs
- a research pro forma
- a planning for manufacture pro forma

Candidates are required to develop a proposal for **one** of the design briefs. They must submit their work on a maximum of seven A3 sheets (or equivalent), including the research pro forma and the planning for manufacture pro forma. Each A3 sheet must be labelled with the candidate’s name, their Scottish Candidate Number and the page number, for example, page 1 of 7.

All sheets must be single-sided, except the research pro forma, which will be double-sided.

The assignment is conducted under some supervision and control, which means:

- Candidates do not need to be directly supervised at all times.
- The use of resources, including the internet, is not tightly prescribed.
- The work that an individual candidate submits for assessment is their own.
- Teachers and lecturers can provide reasonable assistance.
- The use of generative artificial intelligence is not permitted. Please see SQA's website for more information, if needed.

Candidates can seek clarification regarding the assessment task if they find it unclear. In this case, the clarification should normally be given to the whole class.

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For the ‘assignment — design’, you:

- can provide reasonable assistance
- must exercise your professional responsibility to ensure that evidence submitted by candidates is their own work
- must retain candidates’ work between assessment sessions
- can give advice on selecting an item to generate suitable evidence, for example, it is appropriate to remind candidates that their proposal from this assignment must allow them to demonstrate the skills required for the ‘assignment — practical’
- can give candidates information on the range of materials that the centre can supply

You **must not** provide candidates with:

- any other additional information for the task, for example, specification points
- a structured layout for the folio, for example, a pro forma with headings and/or descriptions of sections
- an exemplar response similar to the task
- alternative ideas or solutions to encourage or enhance exploration
- specific advice, including any advice that would allow candidates to gain marks for work that is not their own, such as:
  - specific information on areas to research
  - advice on which research technique(s) to use
  - advice on which idea-generation technique(s) to use
  - starting points for ideas
  - sketches
  - suggestions on presenting evidence
  - specific information on manufacturing

The assignment must be carried out without interruption by periods of learning and teaching. It is reasonable for you to ask candidates to re-read the brief and/or their specification, giving them the opportunity to progress without providing them with specific information.

Candidates may be faced with more than one possible solution to a problem. You could offer candidates the opportunity to discuss the pros and cons of each option available, and then ask them to decide on a solution based on the discussion. In this way, you are not telling candidates what to do but helping them work towards an appropriate choice.

During the ‘assignment — design’ it is not reasonable to offer guidance to candidates on the suitability of their proposal or provide details for manufacturing it. This includes help with completing the planning for manufacture pro forma.

If candidates are using models to explore or refine a proposal, it is reasonable for you to help in the manufacture of this type of model. Marks are awarded for how they use the model, not the practical skills of making it.

Candidates sometimes encounter difficulties at a particular part of a task. It is reasonable in such circumstances for you to refer candidates to material that has been covered in the course.

Candidates are assessed on their skills in:

♦ Analysing a brief	8 marks
♦ Generating ideas	9 marks
♦ Developing ideas	20 marks
♦ Using models	6 marks
♦ Using graphics	6 marks
♦ Planning for manufacture	6 marks

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Marking instructions: assignment — design

The ‘assignment — design’ is submitted to SQA for external marking.

In line with SQA’s normal practice, the following marking instructions are addressed to the marker. They will also be helpful for those preparing candidates for course assessment.

General marking principles

This information is provided to help you understand the general principles that must be applied when marking candidate responses in this assignment. These principles must be read in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.

a Marks for each candidate response must **always** be assigned in line with these general marking principles and the detailed marking instructions for this assessment.

b Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding; they are not deducted from a maximum on the basis of errors or omissions.

Detailed marking instructions for ‘assignment — design’

Design skills: generation and development of ideas, communication and evaluation

The statements within the band indicate the features that may be displayed in the evidence.

Skill: analysing a brief

A total of 8 marks are allocated to analysing a brief. Judgements should be made on the candidate’s ability to carry out appropriate research and incorporate the findings into a specification.

Skill	Design and manufacture activity	Max marks	1-2 marks	3-4 marks	5 marks
Analysing a brief	Carrying out research	5	♦ limited research ♦ few appropriate issues researched ♦ limited use of research techniques	♦ adequate research ♦ adequate range of issues researched ♦ adequate use of research techniques	♦ effective research ♦ effective range of appropriate issues researched ♦ effective use of research techniques

Skill	Design and manufacture activity	Max marks	1 mark	2 marks	3 marks
Analysing a brief	Incorporating research findings into a specification	3	♦ limited specification ♦ specification contains only points taken from the brief	♦ adequate specification ♦ specification contains adequate points gained from research	♦ detailed specification ♦ specification contains a range of points gained from research

Further information for assessing 'analysing a brief'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Research should generate information that is suitable for a specification. ♦ Research that generates generic information is not valid and should not be awarded marks. ♦ Research techniques must be appropriate to the information being gathered. ♦ Specification points that are drawn only from the brief will achieve a maximum of 1 mark. ♦ Specification points that are based purely on the candidate's personal opinion should not be awarded marks.

Skill: generating ideas

A total of 9 marks are allocated to generating ideas. Judgements should be made on the candidate's ability to generate a range of creative ideas addressing a given design task.

Skill	Design and manufacture activity	Max marks	1–3 marks	4–6 marks	7–9 marks
Generating ideas	Generating ideas	9	♦ limited skill in idea generation ♦ ideas often not aimed at the specification ♦ limited range of ideas ♦ ideas show little creativity ♦ ideas show few differences between them	♦ adequate skill in idea generation ♦ ideas generally aimed at specification ♦ adequate range of ideas ♦ ideas show adequate creativity ♦ ideas show some differences between them	♦ effective skill in idea generation ♦ ideas are clearly aimed at the specification ♦ effective range of ideas ♦ ideas show creativity ♦ ideas show clear differences between them

Further information for assessing 'generating ideas'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Generation of ideas: — may appear throughout the folio — may be shown through graphics and/or models ♦ Annotations can be added to give clarity, but should not simply describe what is already evident in a sketch or model. ♦ Although ideas should be aimed at the specification, it is unlikely that they will fully address it. This is particularly true at the early stage, where some ideas may be random and contain limited detail. ♦ Ideas that are copies of existing products will not allow candidates to achieve marks above the bottom band. ♦ Detailed sketches or models may reduce the need for annotations.

Skill: developing ideas

A total of 20 marks are allocated to developing ideas. Judgements should be based on the candidate's ability to explore and refine ideas by applying knowledge and understanding of design, materials and manufacturing.

Skill	Design and manufacture activity	Max marks	1-2 marks	3-4 marks	5-6 marks
Developing ideas	Exploring ideas towards a proposal	6	♦ limited exploration towards a proposal ♦ limited evolution from initial ideas ♦ limited consideration of alternatives	♦ adequate exploration towards a proposal ♦ adequate evolution from initial ideas ♦ adequate consideration of alternatives	♦ effective exploration towards a proposal ♦ clear evolution from initial ideas ♦ clear consideration of alternatives

Skill	Design and manufacture activity	Max marks	1-2 marks	3-4 marks	5-6 marks
Developing ideas	Refining ideas towards a proposal	6	♦ limited refinement towards a proposal ♦ limited detail	♦ adequate refinement towards a proposal ♦ adequate detail	♦ effective refinement towards a proposal ♦ effective detail

Skill	Design and manufacture activity	Max marks	1 mark	2-3 marks	4 marks
Developing ideas	Applying knowledge and understanding of design	4	♦ limited application of knowledge and understanding of design	♦ adequate application of knowledge and understanding of design	♦ effective application of knowledge and understanding of design

Skill	Design and manufacture activity	Max marks	1 mark	2–3 marks	4 marks
Developing ideas	Applying knowledge and understanding of materials and manufacture	4	♦ limited application of knowledge and understanding of materials and manufacture	♦ adequate application of knowledge and understanding of materials and manufacture	♦ effective application of knowledge and understanding of materials and manufacture

Further information for assessing 'developing ideas'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Exploration can be demonstrated: — throughout the folio — evidence is likely to be in the form of graphics, photographs of models and annotations — through consideration of alternatives in a wide range of areas, for example, function, assembly, aesthetics or materials ♦ There should be evidence of review and justification of decisions during the development. This is likely to be in the form of annotations. ♦ Although a proposal that is a detailed version of the original idea may gain marks for refining ideas, it will be unlikely to achieve marks above the bottom band for exploring ideas. ♦ Refinement should lead to a level of detail that will allow manufacture of the proposal. A proposal that has very little detail will not achieve marks above the bottom band for refinement. ♦ Refinement will result in decisions being made on areas such as size, materials and assembly methods. ♦ Knowledge and understanding of design should be applied to explore and refine ideas. Generic statements about design should not be awarded marks. To achieve marks in the top band, candidates must apply design knowledge related to the key points drawn from the brief provided. ♦ Knowledge and understanding of materials and manufacturing should be applied to explore and refine ideas. Generic statements about materials and manufacturing should not be awarded marks.

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Skill: using models

A total of 6 marks are allocated to using models. Judgements should be made on the candidate's ability to use modelling techniques effectively to develop the design proposal.

Skill	Design and manufacture activity	Max marks	1–2 marks	3–4 marks	5–6 marks
Using models	Applying modelling techniques	6	♦ limited use of modelling to generate ideas ♦ limited use of modelling to test and evaluate ♦ limited use of modelling to resolve issues ♦ limited use of modelling to communicate the proposal	♦ adequate use of modelling to generate ideas ♦ adequate use of modelling to test and evaluate ♦ adequate use of modelling to resolve issues ♦ adequate use of modelling to communicate the proposal	♦ effective use of modelling to generate ideas ♦ effective use of modelling to test and evaluate ♦ effective use of modelling to resolve issues ♦ effective use of modelling to communicate the proposal

Further information for assessing 'using models'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ A model used solely for presentation will not allow candidates to achieve marks above the bottom band. ♦ Marks should be awarded for evidence of the use of models, not the quality of the models. ♦ Modelling must be used for a purpose. Models should not be produced where a graphic has already served the same purpose. ♦ A variety of models can be produced as evidence, for example, sketch models, scale models, block models and/or computer-generated models. ♦ Models should be suitable for their purpose and the stage of the design process. ♦ The same model can be used for a range of purposes. ♦ Influence of modelling can be inferred by changes and decisions taken in the folio. ♦ Supporting annotation could be used to clarify what information was gained from modelling. ♦ Modelling used only as a communication technique will be awarded marks in the bottom band.

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Skill: using graphics

A total of 6 marks are allocated to using graphics. Judgements should be made on the candidate's ability to apply graphic techniques effectively throughout the development of their design proposal.

Skill	Design and manufacture activity	Max marks	1-2 marks	3-4 marks	5-6 marks
Using graphics	Applying graphic techniques	6	♦ limited use of graphics to communicate ideas ♦ limited use of graphics to explore and refine ♦ limited use of graphics to communicate details of the proposal	♦ adequate use of graphics to communicate ideas ♦ adequate use of graphics to explore and refine ♦ adequate use of graphics to communicate details of the proposal	♦ effective use of graphics to communicate ideas ♦ effective use of graphics to explore and refine ♦ effective use of graphics to communicate details of the proposal

Further information for assessing 'using graphics'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Recognised graphic types must be used and must be appropriate to their purpose, for example, early sketches may be produced very quickly and be 'rough'. ♦ Marks are awarded for the appropriate use of graphics, not the quality of the graphic. ♦ Graphics should be used to communicate detail, if appropriate. ♦ To achieve marks in the top band, it is likely that a range of graphic types will have been used.

Skill: Planning for manufacture

A total of 6 marks are allocated to planning for manufacture. Judgements should be made on the candidate's ability to plan a practical task, select appropriate materials, tools, equipment and finishes, and communicate technical details.

Skill	Design and manufacture activity	Max marks	1-2 marks	3-4 marks	5-6 marks
Planning for manufacture	Producing a plan for manufacture	6	The planning for manufacture pro forma provides limited detail of: ♦ materials ♦ sizes ♦ manufacturing and assembly ♦ order of manufacture ♦ equipment	The planning for manufacture pro forma provides adequate detail of: ♦ materials ♦ sizes ♦ manufacturing and assembly ♦ order of manufacture ♦ equipment	The planning for manufacture pro forma provides clear detail of: ♦ materials ♦ sizes ♦ manufacturing and assembly ♦ order of manufacture ♦ equipment

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Further information for assessing 'planning for manufacture'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Evidence for this skill is marked holistically across the three parts of the pro forma (cutting list, sequence of operations and dimensioned graphic). ♦ The planning for manufacture pro forma must be completed prior to commencing manufacture. If it is completed retrospectively, zero marks should be awarded. ♦ The sequence of operations should be in an order that will allow manufacture of the proposal. ♦ Appropriate tools and equipment should be selected to allow manufacture of the proposal accurately and safely.

Instructions for teachers and lecturers: assignment — practical

The 'assignment — practical' is set by SQA, conducted in centres under conditions specified by SQA, marked by centres and externally verified by SQA. Marks for internally assessed components must be submitted to SQA. Centres must retain evidence for this assessment for SQA quality assurance purposes.

Teachers and lecturers must confirm that the design proposal can be manufactured safely and independently in a school or college workshop environment. You should review the detail on the planning for manufacture pro forma and, following discussion, candidates must mark up in a different colour any changes required to allow manufacture. This marked-up copy must be retained for verification.

Conditions of assessment

Candidates should be fully prepared before starting the assignment — they should have acquired the appropriate practical skills and be aware of the requirements of the assessment. The assignment must be carried out without interruption by periods of learning and teaching.

You should issue candidates with the 'Instructions for candidates' at the end of this document.

The assignment is conducted under some supervision and control, which means:

- Candidates do not need to be directly supervised at all times.
- The use of resources, including the internet, is not tightly prescribed.
- The work an individual candidate submits for assessment is their own.
- Teachers and lecturers can provide reasonable assistance.

Note: these conditions do not overrule normal health and safety conditions that apply to workshop activities. You must provide clear guidance on all health and safety issues relating to the completion of the assignment.

For the 'assignment — practical' you can:

- discuss any issues on the planning for manufacture pro forma that would prevent the manufacture of the proposal. Such issues may include errors or omissions in the working drawing/dimensioned sketch, sequence of operations, or cutting list.
- encourage candidates to evaluate quality and accuracy at each stage of the assignment. Candidates are permitted to redo any stage of the 'assignment — practical' prior to submission.
- highlight mistakes that would lead to a compound error, or complete a stage of the 'assignment — practical' to allow candidates to progress. However, this assistance must be recorded and reflected in the marks awarded.

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Candidates can ask for clarification regarding the safe use and operation of tools and equipment, for example, a recap on how to set and use the centre lathe. If one candidate needs clarification, you could extend this to the whole class.

It is reasonable for you to discuss with candidates the suitability of tools and equipment required for each stage of the task.

A mark is allocated in each of the stages, following the instructions given below, and recorded on the assessment record with a comment justifying why each mark was awarded.

Candidates are assessed on their skills in:

- Measuring and marking out — 9 marks
- Using hand and machine tools — 18 marks
- Assembling components — 5 marks
- Finishing — 9 marks
- Evaluating — 4 marks

Marking instructions: assignment — practical

The 'Assignment — practical' is internally marked by centre staff in line with the marking instructions provided in this document. Evidence for the 'assignment — practical' must be retained by centres for quality assurance purposes.

All marking is quality assured by SQA.

In line with SQA's normal practice, the following marking instructions are addressed to the marker. They will also be helpful for those preparing candidates for course assessment.

General marking principles

This information is provided to help you understand the general principles that must be applied when marking candidate responses in this assignment. These principles must be read in conjunction with the detailed marking instructions that identify the key features required in candidate responses.

a Marks for each candidate response must **always** be assigned in line with these general marking principles and the detailed marking instructions for this assessment.

b Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding; they are not deducted from a maximum on the basis of errors or omissions.

c For each of the skills described in the detailed marking instructions on the following pages, the marker will select the band descriptor that most closely describes the evidence gathered. Once the best fit has been selected:

- if the evidence almost matches the level above, award the highest available mark from the range
- if the evidence just meets the standard described, award the lowest mark from the range
- if the evidence does not almost match the level above or below, award an appropriate mark from the middle of the range
- if the candidate's work does not meet the lowest level band descriptor, or where no evidence is provided, award zero marks

Detailed marking instructions for ‘assignment — practical’

Design skills: generation and development of ideas, communication, and evaluation

The statements within the band indicate the features that may be displayed in the evidence.

Skill: measuring and marking out

A total of 9 marks are allocated to measuring and marking out. Judgements should be made on the candidate’s skills in measuring and marking out, and the consistency demonstrated.

Skill	Design and manufacture activity	Max marks	1-3 marks	4-6 marks	7-9 marks
Measuring and marking out	Measuring and marking out	9	♦ limited level of skill demonstrated in measuring and marking out ♦ limited evidence of accurate measuring and marking out	♦ good level of skill demonstrated in measuring and marking out ♦ good evidence of accurate measuring and marking out	♦ high level of skill demonstrated in measuring and marking out ♦ strong evidence of accurate measuring and marking out

Further information for assessing 'measuring and marking out'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Any assistance given to candidates must be taken into account when awarding marks. ♦ The level of skill may be demonstrated by using a range of measuring and marking-out tools, or by measuring and marking out complex or intricate components. ♦ Marks may be awarded if candidates have displayed measuring and marking-out skills in producing a template or jig to aid the manufacture of the proposal. ♦ Marks cannot be awarded for computer-generated templates. ♦ The accuracy of the measuring and marking out can be checked against sizes taken from a dimensioned drawing or sketch. The fit of any joints may also provide evidence of accuracy of measuring and marking out. ♦ The level of complexity of the proposal must be taken into account. For example, a very simple proposal, although skilfully and accurately marked out, will not allow candidates to achieve marks above the bottom band.

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Skill: using hand and machine tools

A total of 18 marks are allocated to using hand and machine tools. Judgements should be made on the candidate's skills in using tools to remove and form materials.

Skill	Design and manufacture activity	Max marks	1-4 marks	5-9 marks	10-14 marks	15-18 marks
Using hand and machine tools	Using hand and machine tools	18	♦ limited skill demonstrated in the use of hand and machine tools ♦ limited skill demonstrated in the removal of material ♦ limited evidence of accurate work ♦ limited skill demonstrated in forming materials	♦ fair level of skill demonstrated in the use of hand and machine tools ♦ fair level of skill demonstrated in the removal of material ♦ fair evidence of accurate work ♦ fair level of skill demonstrated in forming materials	♦ good level of skill demonstrated in the use of hand and machine tools ♦ good level of skill demonstrated in the removal of material ♦ good evidence of accurate work ♦ good level of skill demonstrated in forming materials	♦ high level of skill demonstrated in the use of hand and machine tools ♦ high level of skill demonstrated in the removal of material ♦ strong evidence of accurate work ♦ high level of skill demonstrated in forming materials

Further information for assessing 'using hand and machine tools'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Any assistance given to candidates must be taken into account when awarding marks. ♦ The level of skill may be demonstrated by using a wide range of hand and machine tools, or by using fewer tools for intricate or complex work. ♦ The level of complexity of the proposal must be taken into account. For example, a very simple proposal, with material skilfully and accurately removed, will not allow candidates to achieve marks above the bottom band. ♦ Accuracy may be demonstrated in the shaping of component parts, or in the cutting and fit of any joints. It may also be demonstrated in the forming of component parts. ♦ It is practical skills that are being assessed, therefore marks cannot be awarded for CNC-produced components.

Skill: assembling components

A total of 5 marks are allocated to assembling components. Judgements should be made on the candidate's ability to select and prepare resources for assembly, and assembling the design proposal.

Skill	Design and manufacture activity	Max marks	1-2 marks	3-4 marks	5 marks
Assembling components	Preparing for assembly and assembling the proposal	5	♦ resources prepared and used with guidance ♦ limited evidence of accurate and sound assembly	♦ resources prepared and used with some guidance ♦ good evidence of accurate and sound assembly	♦ resources prepared and used with minimal guidance ♦ strong evidence of accurate and sound assembly

Further information for assessing 'assembling components'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Any assistance given to candidates must be taken into account when awarding marks. However, there may be occasions when candidates cannot assemble a proposal without assistance. Marks should not be deducted on these occasions. ♦ The level of complexity of the proposal must be taken into account. For example, a very simple proposal with a few parts simply bolted together will not allow candidates to achieve marks above the bottom band. ♦ Accuracy can be demonstrated by the assembly being square, level, true and secure.

Skill: finishing

A total of 9 marks are allocated to finishing. Judgements should be made on the candidate's ability to prepare for and apply a quality finish.

Skill	Design and manufacture activity	Max marks	1-3 marks	4-6 marks	7-9 marks
Finishing	Preparing surfaces, application techniques, and final finishing	9	♦ limited evidence of appropriate surface preparation ♦ limited level of skill demonstrated in application techniques ♦ limited level of skill demonstrated in final finishing	♦ good evidence of appropriate surface preparation ♦ good level of skill demonstrated in application techniques ♦ good level of skill demonstrated in final finishing	♦ strong evidence of appropriate surface preparation ♦ high level of skill demonstrated in application techniques ♦ high level of skill demonstrated in final finishing

Further information for assessing 'finishing'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Any assistance given to candidates must be taken into account when awarding marks. ♦ The level of complexity of the proposal must be taken into account. For example, a very simple proposal with few parts will not allow candidates to achieve marks above the bottom band. ♦ The high quality of the surface preparation will be indicated by the removal of glues, or marking, cutting, shaping and forming marks. ♦ The level of skill in applying the finish will be indicated by the use of appropriate techniques and the care with which the finish is applied. ♦ The high quality of the surface finish will be indicated by the absence of runs, uneven layers of finish, uneven lustres or glosses, numerous bristles and deep brush marks.

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Skill: evaluating

A total of 4 marks are allocated to evaluating. Judgements should be made on the candidate's ability to evaluate their design proposal.

Skill	Design and manufacture activity	Max marks	1 mark	2-3 marks	4 marks
Evaluating	Evaluating the proposal	4	♦ limited evaluation of the proposal ♦ evaluation is based on personal opinion	♦ adequate evaluation of the proposal ♦ evaluation is generally based on valid evidence	♦ effective evaluation of the proposal ♦ evaluation is based on valid evidence

Further information for assessing 'evaluating'
When awarding marks, the following should be noted: ♦ The statements within the bands give an indication of the features that may be displayed in the evidence — not every statement needs to be met to achieve marks within a band. ♦ If the candidate's work does not meet the lowest range statement, or if no evidence is provided, zero marks should be awarded. ♦ Any assistance given to candidates must be taken into account when awarding marks. ♦ The evaluation must be based on valid evidence, for example, testing or opinions of others. ♦ Evaluations based solely on personal opinion will not allow candidates to achieve marks above the bottom band.

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Instructions for candidates: assignment — design

This assessment applies to the 'assignment — design' for National 5 Design and Manufacture. It has 55 marks out of a total of 180 marks available for the course assessment.

It assesses the following skills:

♦ Analysing a brief	8 marks
♦ Generating ideas	9 marks
♦ Developing ideas	20 marks
♦ Using models	6 marks
♦ Using graphics	6 marks
♦ Planning for manufacture	6 marks

Your teacher or lecturer will let you know how the assessment will be carried out and any required conditions for doing it.

In this assessment, you will have to design a solution in response to a design brief.

You will be given:

- a choice of three design briefs
- a research pro forma
- a planning for manufacture pro forma

Things to remember:

- You must develop a proposal for **one** of the design briefs.
- You must submit your work on a maximum of seven A3 sheets (or equivalent), including the research pro forma and the planning for manufacture pro forma.
- You must label each A3 sheet with your name, your Scottish Candidate Number and the page number, for example, page 1 of 7.
- All the sheets must be single-sided, except the research pro forma, which will be double-sided.
- The work you submit must be your own.
- There are no restrictions on the resources you can access. You can use books, notes or the internet if you need to.
- You must manufacture your proposal for your 'assignment — practical', therefore your proposal must allow you to demonstrate your practical skills.
- You need to produce suitable evidence for the skills being assessed. The following table provides guidance to help you generate appropriate evidence.

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Skill	What you have to do	Notes
Analysing a brief	♦ Carry out research into a range of issues appropriate to the brief, using appropriate research techniques. ♦ Complete the specification using the information gained from the research.	♦ Your evidence for this skill should be contained in your research pro forma (you may use both sides). ♦ Your research must be aimed at your chosen brief. ♦ Your research should be aimed at gathering information that can be included in the specification. ♦ Your research evidence may be in the form of sketches, notes, text, graphs or pictures. ♦ Your specification should be detailed in order to help you develop a proposal. ♦ Your specification points should be added to the specification on the pro forma.
Generating ideas	♦ Generate a range of ideas that address the specification and are creative and original.	♦ Your evidence for this skill can be sketches or photographs of models. ♦ You may use idea-generation techniques. ♦ You should aim to generate a large number of ideas quickly — your sketches or models may be rough at this stage. ♦ You may clarify your ideas by adding written comments.
Developing ideas	♦ Develop ideas towards a proposal by: — exploring ideas — refining ideas — applying knowledge and understanding of design — applying knowledge and understanding of materials and manufacture	♦ Your evidence for this skill can be annotated sketches, drawings, or photographs of models. ♦ Your exploration should consider a wide range of alternatives. ♦ Your refinement should be aimed at producing a detailed proposal suitable for manufacture. ♦ You should use the specification to help you explore and refine ideas. ♦ You can display your knowledge and understanding through your sketches, drawings and models, and clarify through your written comments. ♦ You must use your knowledge to help you develop the proposal. You will not receive marks for simply listing facts.

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Skill	What you have to do	Notes
Using models	♦ Use models to: — generate ideas — test and evaluate — resolve issues — communicate the design proposal	♦ Your evidence for this skill will be photographs at appropriate places in your folio. ♦ You must consider the purpose of model(s) before you make them. ♦ The model(s) must be used to develop and communicate your proposal. ♦ You must record information gained from the model(s). ♦ You will not receive marks for simply making models.
Using graphics	♦ Use graphics to: — communicate the proposal and its development — communicate detail about the proposal and its development	♦ Your evidence for this skill will be sketches and drawings throughout your folio. ♦ You should use graphic types that suit their purpose. ♦ The graphics will vary through your folio, for example, your sketches of your initial ideas are likely to be produced quickly and therefore will be less refined than graphics that communicate detail of your final proposal.
Planning for manufacture	♦ Plan for manufacture by producing: — a dimensioned sketch or drawing — a sequence of operations — a cutting list	♦ Your evidence for this skill should be contained in your planning for manufacture pro forma (one-sided only). ♦ You should have at least one sketch or drawing with key sizes to allow your proposal to be manufactured. ♦ You should complete the sequence of operations table. ♦ You should complete the cutting list.

Design briefs

Problem situation

A company specialising in the design and manufacture of homeware products is introducing a new range of products based on the theme 'retro design'.

Three of the products being considered by the company are detailed in the briefs below.

You must choose **one** brief for the basis of your proposal.

Each of the briefs contains some key information that you should include in your specification.

Design brief 1 — hobby hub

The company would like a proposal for a product that organises items used for a hobby, such as crafting, gaming or cooking.

The product must be inspired by 'retro design', hold a minimum of three different items and be free-standing.

Design brief 2 — achievement display

The company would like a proposal for a product to display personal achievements. This could include award(s) and item(s) the user is proud of.

The product must be inspired by 'retro design', have more than one method of display and include an element of contrast.

Design brief 3 — relaxation station

The company would like a proposal for a product that stores different items used when relaxing, such as books, drinks cups, snacks or candles.

The product must be inspired by 'retro design', portable and easy to clean.

Instructions for candidates: assignment — practical

This assessment applies to the 'assignment — practical' for National 5 Design and Manufacture. It has 45 marks out of a total of 180 marks available for the course assessment.

It assesses the following skills:

♦ Measuring and marking out	9 marks
♦ Using hand and machine tools	18 marks
♦ Assembling components	5 marks
♦ Finishing	9 marks
♦ Evaluating	4 marks

Your teacher or lecturer will let you know how the assessment will be carried out and any required conditions for doing it.

You must discuss your planning for manufacture pro forma (completed in the 'assignment — design') with your teacher or lecturer **before** you start.

Things to remember:

- You are required to manufacture the proposal you developed in the 'assignment — design'.
- You should use the planning for manufacture pro forma you completed as a guide to completing the 'assignment — practical'.
- You can ask your teacher or lecturer for assistance if required. They will take this into account when awarding marks.
- There are no restrictions on the resources you can access. You can use books, notes or the internet if you need to.
- You have to produce suitable evidence for skills being assessed. The following table provides guidance to help you generate appropriate evidence.

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Skill	What you have to do	Notes
Measuring and marking out	♦ Measure and mark out accurately by using correct tools.	♦ You can show evidence of this skill when you mark out your proposal. ♦ The accuracy of your measuring and marking out will be judged against your dimensioned drawings or sketches in your pro forma. ♦ You can also demonstrate measuring and marking-out skills if producing a physical template or former. ♦ Producing a template using CAD will not allow you to demonstrate appropriate skills.
Using hand and machine tools	♦ Use hand and machine tools accurately to cut, remove or form materials.	♦ The evidence for this skill may be demonstrated in the cutting, shaping or forming of your proposal. ♦ The accuracy of your use of machine and hand tools will be judged against your marking out and/or information from your planning for manufacture pro forma.
Assembling components	♦ Assemble components accurately by using correct resources.	♦ You can show evidence of this skill when you assemble your proposal. ♦ You should select appropriate resources before starting the assembly. ♦ You should use appropriate tools for assembly and checking for accuracy. ♦ Your assembled proposal should be square, level, true and secure.
Finishing	♦ Finishing by preparing surfaces using application techniques.	♦ You can show evidence of this skill in your finished proposal. ♦ Your proposal should be prepared by removing any glue and any marks left from cutting or marking out. ♦ Your finish should not have runs, be patchy or uneven, or have bristles or marks from brush strokes.
Evaluating	♦ Evaluate your proposal by using evaluation techniques.	♦ You can show evidence of this skill in your written evaluation. ♦ Your evaluation must be based on more than personal opinion. ♦ You should use evaluation techniques to gain information.

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Administrative information

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History of changes

Version	Description of change	Date

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