Course Support Notes

National 4 Graphic Communication Course Support Notes

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Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

August 2019, version 3.0
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Contents

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the National 4 Graphic Communication Course. They are intended for teachers and lecturers who are delivering the Course and its Units. They should be read in conjunction with the *Course Specification*, the *Added Value Unit Specification*, and the *Unit Specifications* for the Units in the Course.

General guidance on the Course

Aims

As stated in the *Course Specification,* the aims of the Course are to enable learners to:

- develop skills in graphic communication techniques, including the use of equipment, materials and software
- extend and apply knowledge and understanding of graphic communication standards, protocols and conventions, where these apply
- develop an understanding of the impact of graphic communication technologies on our environment and society

This Course will also give learners the opportunity to develop numeracy, health and wellbeing, skills in numeracy, employability, enterprise and citizenship, and thinking skills.

Progression into this Course

Entry into this Course is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- National 3 Design and Technology Course, particularly *Graphics for Design* and/or *Designing and Modelling* Units

Experiences and outcomes
New National Courses have been designed to draw on and build on the curriculum experiences and outcomes as appropriate. Qualifications developed for the senior phase of secondary education are benchmarked against SCQF levels. SCQF level 4 and the curriculum level 4 are broadly equivalent in terms of level of demand although qualifications at SCQF level 4 will be more specific to allow for more specialist study of subjects.

Learners who have completed Curriculum for Excellence experiences and outcomes will also find these an appropriate basis for doing the Course.

In this Course the following may be relevant:

Craft, design, engineering and graphics:
- Having sketched or drawn a series of everyday objects pictorially and orthographically, I have become proficient in third angle projection and can apply this knowledge when producing 2D or 3D images when using software. (TCH 4-15a).
- When developing or enhancing representations of ideas or items, manually or electronically, I can apply my knowledge of colour theory, justifying the choices I make. (TCH 4-15b).
- I can confidently use appropriate software to represent my ideas and items in the world around me, showing creativity, imagination or innovation. (TCH 4-15c).

Other experience
Learners may also have relevant skills and knowledge gained through other education systems or from their own interests and informal learning.

Skills, knowledge and understanding covered in this Course

This section provides further advice and guidance about skills, knowledge and understanding that could be included in the Course.

Note: teachers and lecturers should refer to the *Added Value Unit Specification* for information about the skills, knowledge and understanding to be covered in this Course.

A broad overview of the mandatory subject skills, knowledge and understanding that will be assessed in the Course includes:

- replicating basic and familiar graphic forms in 2D, 3D and pictorials
- initiating and producing simple preliminary, production and promotional graphics in familiar contexts
- initiating and producing simple informational graphics in straightforward and familiar contexts
- demonstrating visual literacy by interpreting simple and familiar graphic communications
- spatial awareness in simple and familiar 2D, 3D and pictorial graphic situations
- using standard graphic communication equipment, software and materials effectively for simple and familiar tasks
- knowledge of graphic communication standards, protocols and conventions, in straightforward and familiar contexts
- applying design skills, including creativity when developing solutions to simple graphics tasks
- the ability to contribute to the evaluation of work in progress and completed graphics and to make judgements and be able to offer suggestions for improvement in presentation
- basic knowledge of computer-aided graphics techniques and practice
- knowledge of colour, illustration and presentation techniques in straightforward and familiar contexts
- basic knowledge of the impact of graphic communication technologies on our environment and society

Progression from this Course

This Course or its components may provide progression to:

- National 5 Graphic Communication Course
- other technological subjects at National 5

and, ultimately, for some, to:

- employment, apprenticeships and/or training in graphic communication-related fields
- Higher and Advanced Higher Graphic Communication

Hierarchies

Hierarchy is the term used to describe Courses and Units which form a structured progression involving two or more SCQF levels

It is important that any content in a Course and/or Unit at one particular SCQF level is not repeated if a learner progresses to the next level of the hierarchy. The skills and knowledge should be able to be applied to new content and contexts to enrich the learning experience. This is for centres to manage.

This Course is designed in hierarchy with corresponding Course at SCQF levels 5 and 6 (National 5 and Higher) and has the same structure of Units with corresponding titles.

Each of the Units — *2D Graphic Communication,* and *3D and Pictorial Graphic Communication* — is in hierarchy with the corresponding Unit at SCQF levels 5 and 6. The design of the Units means that teachers and lecturers in multi-level teaching situations may be able to design learning activities that are appropriate for groups of learners working at different levels.

Teachers should also refer to the Outcomes and Assessment Standards for each level when planning delivery.

Further advice on multi-level teaching is given in the National 4 Graphic Communication *Unit Support Notes*.

Approaches to learning and teaching

Planning learning and teaching should take into account personalisation and choice. With the greater availability and ease of use of graphic communication technology and software applications, centres should be assured that unless otherwise specified (eg where references are made to computer aided design) then learners and teachers may fully utilise the available technology. There are judgements to be made by the lecturer or teacher and learners as to what best supports the acquisition of knowledge and skills and supports development of their learning of graphic communication, principles and practice. This directly infers that references to 'sketching' and 'drawing' in any of the Units can and does encourage the use and experience of both electronic and/or manual methods. Teachers, lecturers and learners may make full use of available resources, enjoying the potential they offer. In embracing the principles of Curriculum for Excellence, learners should be afforded as much flexibility, personalisation and choice in the context for learning as possible.

There are many approaches to learning, teaching and engaging with graphics for communicative purposes that may utilise a range of media and electronic technology. Part of the purpose of the Course is to ensure that learners develop the appropriate knowledge and understanding which underpins successful graphic communication and visual literacy — therefore methodologies selected to enable learners to develop these must be carefully selected.

Learning and teaching strategies
Centres should be encouraged to use an array of learning and teaching strategies to enrich the learners' experience. For example —

Co-operative and collaborative learning approaches support, encourage, and enable all learners to achieve their full potential. These methods support a learner's thinking skills and develop confidence in working as part of a team and develop higher order skills such as analysis and problem solving. This may be used when setting learners with open briefs. Graphic communication lends itself to the use of active learning due to the close relationship to real-life situations in the subject content. Centres will find it of benefit to contextualise the learning experiences where appropriate. There are a number of project-based themes which support this method of learning, such as competition-based work, charity and community, enterprise and business, and environmental themes.

Problem-based learning (PBL) is another strategy which will support a learner's progress through this Course. This method may be best utilised at the end of an Outcome or a topic, where additional challenge is required to ensure learners are secure in their knowledge and understanding and to develop the ability to apply knowledge and skills in less familiar contexts. The teacher sets a problem which requires learners to apply their knowledge to solve a problem. For example, learners could be asked to design a logo for promotion of an international sporting event, such as the Olympic or Commonwealth Games, which will be understood by people from many competing or visiting nations. The learners must apply their knowledge of sport, athletics, games, sporting equipment, international identity, language and barriers, layout, colour, and textual information in addressing this task and presenting a solution. This could be an individual or group task.

Learning through PBL develops a learner's problem solving, decision making, investigative skills, creative thinking, team working and evaluative skills and will prepare the learner for undertaking problem-based assessment activities.

Contexts for learning
Centres should develop a programme of learning which supports graphic communication in the world of work and activities which can be observed in the graphic industries. Most communities will have businesses or individuals with expertise who can contribute to the learning context, providing useful information, acknowledging the skill sets useful for success after full-time education, creating sustainable links with the centre and fostering aspirations for employment and careers.

Where appropriate, centres might enrich the learning experience with guest speakers and educational visits and trips, for example: a local newspaper production office, printers, signage, engineering, construction sales office, packaging, retail outlets, etc. These will support learning through contextualisation. Links with industry and/or colleges/universities will benefit learners' understanding of graphic communication in the context of the world of work and support their future progression and inform curriculum or career pathway decisions.

Learning about Scotland and Scottish culture will enrich the learners' learning experience and help them to develop the skills for learning, life and work they will need to prepare them for taking their place in a diverse, inclusive and participative Scotland and beyond. Where there are opportunities to contextualise approaches to learning and teaching to Scottish contexts, teachers and lecturers should consider this.

Assessment
Assessment activities, used to support learning, may usefully be blended with learning activities throughout the Course. The use of assessment should be a natural part of all learning activities, continuing from the broad general education. Assessment activities should be blended with learning activities throughout the Course.

Assessment should be used naturally to support learning by:
- sharing learning intentions/success criteria
- using assessment information to set learning targets and next steps
- adapting teaching and learning activities based on assessment information
- boosting learners' confidence by providing supportive feedback

Self- and peer-assessment techniques should be encouraged wherever appropriate. In graphic communication feedback is likely to include aspects such as quality, correctness, applicability, meaning, emotions conveyed, effectiveness and relevance.

Working towards Units and Course
Learning and teaching activities should be designed to develop both:

- skills and knowledge to the standard required by **each Unit** and to the level defined by the associated Outcomes and Assessment Standards
- ability to apply knowledge, understanding and skills required to complete the **Added Value Unit** successfully

Individual needs and multi-level teaching
Every group of learners can be considered to be multi-level or mixed, as each learner has individual strengths and needs.

Within a group working at National 4, there may be learners capable of achieving National 5 standards in some aspects of the Course. Where possible, they should be given the opportunity to do so.

Teachers need to consider both the Outcomes and Assessment Standards and the extended descriptions of content for National 5 when deciding this.

Where a group is formally multi-level, with some learners working towards National 4 and others towards National 5, a range of common activities with opportunities for enrichment and development may assist the teacher to plan activities, with common activities covering National 4 for all learners, and enrichment and development work for National 5 learners.

However, where groups working at National 4 are likely to thereafter undertake National 5 as part of progression, it is important to provide them with new and different contexts for learning to avoid repetition and demotivation. For example, where a theme approach is taken, it would be useful to rotate themes bi-annually to avoid this. Where appropriate, learners might have the opportunity to contribute to deciding the theme.

Centres should consider the information in the National 4 Added Value Unit, and the *Course Assessment Specification* for any differences in content between the levels.

Learning and teaching resources
ICT is an integral part of the learning in graphic communication and should be encouraged at every opportunity. Where appropriate, centres and learners will benefit from the use of ICT and resources such as: interactive boards, tablets, scanners and visualisers. Interactive boards can improve the learning experience when delivering new learning related to software packages (simply by making it easier to observe ideas, instruction and direction), and visualisers support the delivery of manual sketching and rendering, as well as tonal work with shadow and reflection using demonstrations and even physical items. As technology evolves, learning and teaching approaches will naturally adapt to reflect their potential. For example, where a learner has the facility and desire to demonstrate sketching using electronic devices then this should be encouraged — this represents personalisation and choice in learning. However, centres should ensure that those choices will develop appropriate knowledge and understanding of principles where they apply. Electronic technology may also be used effectively in capturing the learner's journey as they progress across the Course.

As well as new technology, it is likely that centres will make use of existing resources in the completion of graphics work and tasks. Such resources are still commonly used in graphic activities out of school and should not be omitted. Such resources might include drawing boards, pencils, markers, pastels, masks, inks and airbrush, vinyl, texture boards, templates, stencils, highlighting pens, compasses, light boxes, straight edges and squares.

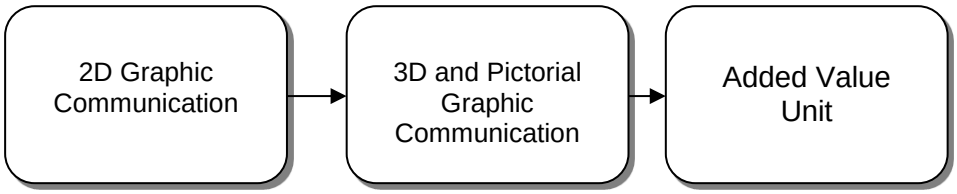
Sequence of delivery
There is no set sequence to delivery of the Units in this Course; however, the way in which they are laid out is a logical approach which may be familiar to

centres. It is likely that integration will be observed between the 2D, and the 3D and Pictorial Graphic Communication Units. The Outcomes within the Units lend themselves to an integrated approach within and across the Units. Although the Units can be delivered and assessed discretely, their integration will better support the development of transferable skills and provide a richer experience. Integrating the Units will make more effective use of time.

Centres should take account of individual learners' needs and plan for where support will be required. It is essential that pace and challenge be taken into account for a group and an individual. Clear and understandable plans for the Course should indicate to learners what the expectations are. Where additional support is required for a particular individual, this should be taken into account when planning. Feedback should be clear, focused and meaningful to improve learning and self-confidence. Higher order questioning and self/peer assessment will be required to ensure learners' engagement and successful completion of the Course/Unit.

Fitting the Added Value Unit into a Course plan
It is essential that learners are given opportunities to prepare for the Added Value Unit where they are undertaking the Course. It is likely that evidence of work gathered in the Units may support and contribute to the requirements of the Added Value Unit. Work can begin on the Added Value Unit at any time although it is logical that it will follow from the skills, knowledge and understanding gained in the other Units.

Possible Course structures
Sequential delivery of Units:

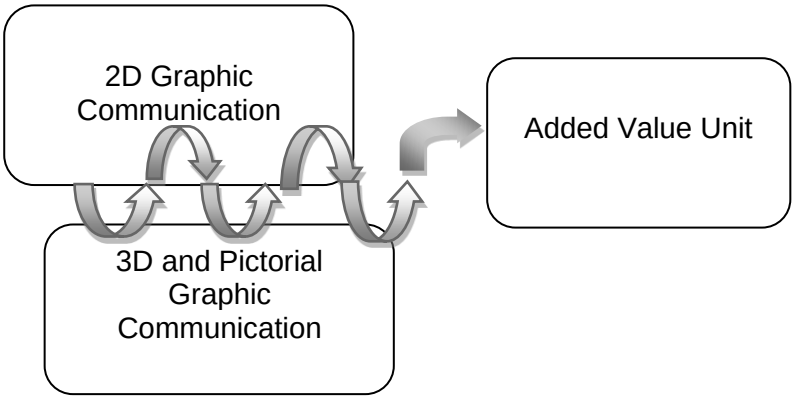


In this model, the centre has decided to take each Unit and systematically complete the work for each, finishing with the Added Value Unit. Potentially, in this case the learner is gaining a deeper understanding of each of the techniques related to each Unit. They have focused initially on developing 2D drawing and sketching[1] skills, 2D preliminary work and 2D promotional work before repeating much of the knowledge in a 3D format.

This gives the lecture or teacher opportunities to gather evidence Outcome by Outcome and Unit by Unit should they desire. It is however likely that the learner will potentially fail to see the important relationships between the skills, knowledge and understanding which connects the 2D and 3D Units and it is less likely to provide a rich learning experience.

[1] Drawing and sketching, unless otherwise dictated by Outcome, refers to manual and/or electronic methods.

Integrating 2D and 3D Units:



In this learning model, *2D* and *3D and Pictorial* Units are delivered in an integrated way. Here the skills, knowledge and understanding developed support the completion of the Added Value Unit. In this case, learning activities such as creating sketches and drawings in 2D would naturally be extended to their representation in 3D and pictorial — a common approach already adopted in many centres. It is likely that 2D work would initiate the learning process and thereafter loop in and out of 2D and 3D work.

In this model Appendix 2 suggests a notional integrated delivery method. It is not prescriptive.

In both cases, time must be made available for re-assessment and preparing for and completing the Added Value Unit.

Advice on distribution of time
The distribution of time between the various Units and components of learning within the Units is a matter for professional judgement and is entirely at the discretion the centre. Each Unit is likely to require an approximately equal time allocation, although this may depend on the learners' prior learning in the different topic areas.

Within the time allocated for the Added Value Unit (*Graphic Communication Assignment),* learning and teaching time will be required for:

- preparation for the assignment, which could include considering exemplar assignments and practising the application and integration of skills
- carrying out all the stages of the assignment, with teacher guidance and support

Developing skills for learning, skills for life and skills for work

Guidance on the development of skills for life, skills for learning and skills for work is to be found in the support notes for each of the component Units.

Approaches to assessment

The centre may wish to employ other assessment strategies to ensure that the learners are meeting the standards. These will inform the learner, the centre and for the purposes of reporting. Learners should be made aware of the success criteria required to achieve the Outcomes/Unit and be involved in the process where appropriate.

Centres should be careful not to burden the learner with assessment and to plan effectively, identifying key times and natural opportunities for capturing evidence. If the Unit is being studied as part of the Course, centres may want to adopt assessment strategies appropriate to the combined Units and their related Outcomes. This will enhance learners' understanding of the common skills and consolidate the relationship between them. This structure will also reduce the assessment burden and make best use of time.

It is likely that centres will collect graphic evidence naturally as part of learning and teaching and retain the learner's evidence as proof of the standard and also to inform future learning and activities.

Centres should ensure that assessments do not restrict personalisation and choice and allow for individual approaches to achieving success in the assessment. For example, if the assessment method is not prescriptive, learners would have freedom to select the most appropriate and personalised method for demonstrating the skill or knowledge being assessed. In graphic communication activities, centres are already well versed in methods which can successfully determine learner performance and understanding. Centres must ensure learners are aware of expectations for assessments, allowing learners to respond in different ways — say, write, make, do. An assessment based on knowledge and understanding could allow learners to respond either by writing, drawing, sketching or digitally capturing their response.

Pedagogy for Design and Technology subjects leaves ample opportunity for learners and teachers to make effective and active use of ICT in learning, teaching and assessment activities. Research in this field shows many ways in which this can be done in an effective and systematic way. Using ICT to support the breadth of graphical work could bring an added dimension to learning in this subject area.

There are a variety of approaches to assessment:

- a combined approached whereby tasks are set which can cover Assessment Standards across both the *2D* and *3D and Pictorial* Graphic Communication Units (although some discrete Unit activities may be necessary)
- a Unit-by-Unit approach whereby tasks are set which cover only the Assessment Standards for either the *2D* or the *3D and Pictorial* Graphic Communication Units
- a portfolio approach, where collection of naturally occurring evidence is used to support the achievement of Assessment Standards — this could be gathered from structured tasks, discrete activities, themed work, etc
- a combination of approaches — assessors may mix and match according to the needs of their learners

In each case, evidence should be judged in the same way and by using the information given on making assessment judgements in SQA documentation for Unit Assessment Support contained on the secure website.

Learners should be encouraged to maintain a portfolio of learning to maintain a useful record for the learner and centres. This could be approached in a number of ways:

- keeping a verbal journal recorded into podcasting
- maintaining a blog or wiki
- using screen capture software or video evidence of their work
- digital scans or capture of manual work

Centres may wish to encourage learners to maintain an e-portfolio to allow greater opportunities for the sharing of standards and to aid with local and regional moderation and verification activities.

Appendix 2 may also suggest ways in which combined assessment evidence can be gathered.

Added value

Courses from National 4 to Advanced Higher include assessment of added value. At National 4 the added value will be assessed in the Added Value Unit. Information given in the *Course Specification* and the *Added Value Unit Specification* about the assessment of added value is mandatory.

The Added Value Unit will, in context, assess the application of skills and knowledge which learners will have developed through experiences in *2D Graphic Communication (National 4)* and *3D and Pictorial Graphics* (National 4) Units.

Evidence for the Added Value Unit will be generated through an assignment in which learners will produce a collection of meaningful graphic responses to a given brief. Learners will develop and confirm the brief as required. They will carry out research to enhance the effectiveness of their proposals and develop and produce a response.

Combining assessment across Units

If an integrated approach to Course delivery is chosen, then there may be opportunities for combining assessment across Units.

Centres are free to combine evidence across Units in order to meet the standard. Centres should plan their approaches to assessment logically and look for key points to gather supporting evidence at naturally occurring points in learning.

Centres may also find the combination of assessments across Units beneficial to a learner's development as this supports the links in learning between the Units of work in graphic communication. This structure may also maximise the time for teaching and learning and avoiding the potential for repetition. Parts of or whole Outcomes or Units may be partnered with other Units and assessed where appropriate.

Appendix 2 demonstrates an integrated approach. It is logical that across the activity transition points, evidence could be gathered in a cross-Unit approach.

Equality and inclusion

Within any graphics course there are specific activities with which individual learners may experience particular challenges; there may also be specific issues with equipment. In such cases reasonable adjustments may be appropriate, including (for example) the use of adapted equipment or alternative assistive technologies.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Course Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Course.

It is important that centres are aware of and understand SQA's assessment arrangements for disabled learners, and those with additional support needs, when making requests for adjustments to published assessment arrangements. Centres will find more guidance on this in the series of publications on Assessment Arrangements on SQA's website: www.sqa.org.uk/sqa/14977.html.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled learners and/or those with additional support needs) — various publications are available on SQA's website at: www.sqa.org.uk/sqa//14977.html.
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- Principles and practice papers for curriculum areas
- *SCQF Handbook: User Guide* (published 2009) and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*

Appendix 2: Possible integrated delivery structure

<table>
<tr><td rowspan="2">2D Unit</td><td>Creating orthographic sketches</td><td>Producing orthographic drawings</td><td rowspan="3"></td><td colspan="2">2D promotional display work</td></tr>
<tr><td rowspan="2">Preliminary designs for promotional 2D</td><td>Producing single-page 2D displays or layouts</td></tr>
<tr><td rowspan="3">both</td><td colspan="2">Colour theory and application</td><td>Informational graphics</td></tr>
<tr><td colspan="2">Illustrating 2D and pictorial drawings and sketches</td><td colspan="3" rowspan="2">Promotional planning activities, DTP design principles, layout, terms, scenarios</td></tr>
<tr><td colspan="4">Graphic literacy development — knowledge of standards, conventions, protocol, terminology and extracting and using information</td></tr>
<tr><td></td><td colspan="4">Graphic proficiency development — skills in sketching, drawing, applying, producing, analysing, evaluating, and planning.</td></tr>
<tr><td>3D Unit</td><td>Creating pictorial sketches</td><td>Producing pictorial drawings</td><td>Creating rendered 3D computer aided designed models</td><td colspan="2"></td></tr>
</table>

2D Unit			**Added Value Unit — produce, with guidance, a graphical response to an assignment brief**							
both	Promotional planning activities, DTP design principles, layout, terms, scenarios		Confirming and developing the requirements of the brief	Carrying out investigations in response to the requirements of the brief	Using idea generation techniques and producing preliminary graphics	Developing the preliminary graphic ideas into production and promotional graphics	Developing informational graphics if and as required	Using 2D and 3D and pictorial graphics as required	Using graphics techniques to enhance the final presentation in terms of relevant visual impact	Identifying strengths and weaknesses of the final presentation relative to the brief
	Graphic literacy development — knowledge of standards, conventions, protocol, terminology and extracting and using information									
	Graphic proficiency development — skills in sketching, drawing, applying, producing, analysing, evaluating, and planning.									
3D Unit	3D promotional display work									
	Preliminary designs for promotional 3D	Producing single-page 3D promotional graphic display								

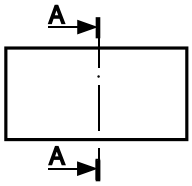
Appendix 3: Standards and conventions — information and support for candidates

This appendix provides information on the expected use of standards and conventions for the SQA Graphic Communication National 4 Course and Units. It is not an exhaustive list of terms used in the graphics industry and does not cover every single term referred to in the course specifications. It is guidance and you should read it in conjunction with the rest of the course specification.

Technical graphic line types

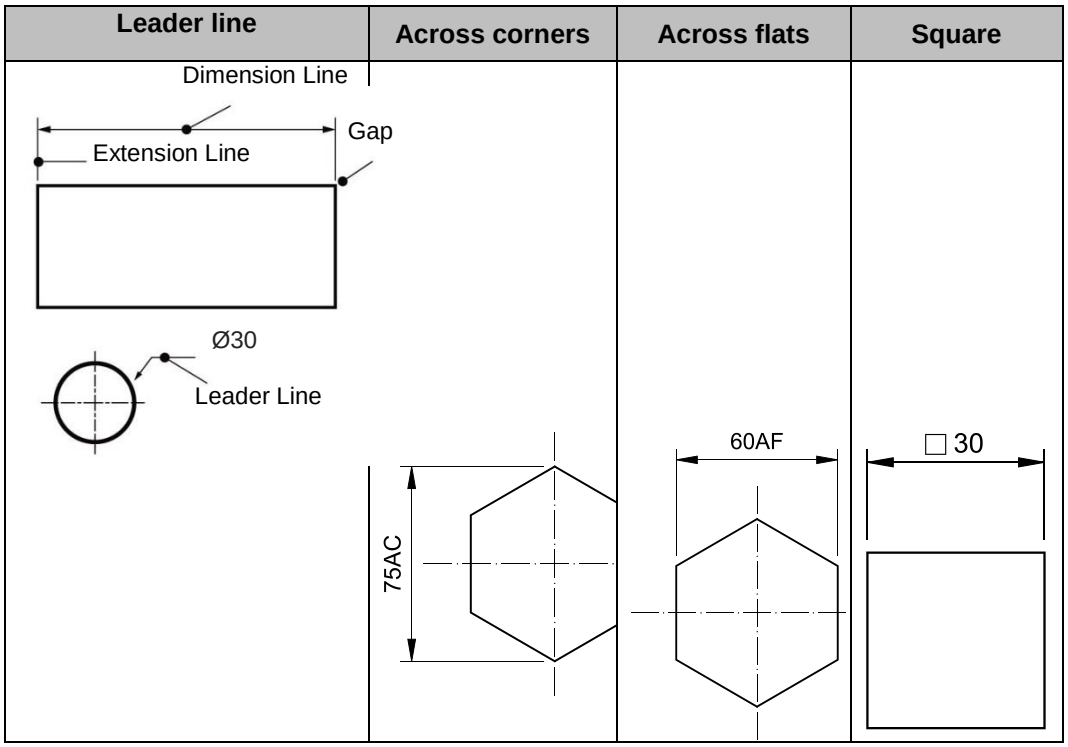
You must use the following technical graphic line types in your work.

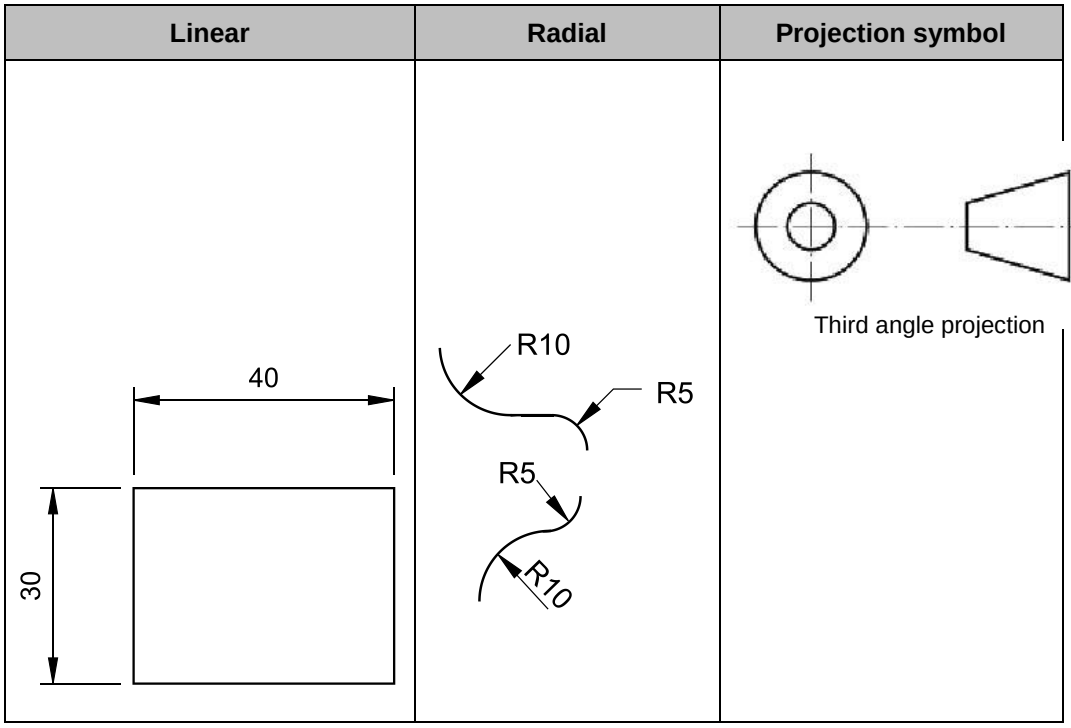
Outline solid	Projection line	Hidden detail line	Centre line
Continuous thick line for visible edges and outlines.	Continuous thin line for projecting between views.	Dashed thin line for hidden detail.	Long dash, dot, chain line for centres of symmetry. **Note**: BS 7308 (long dash, short dash chain) is also acceptable.

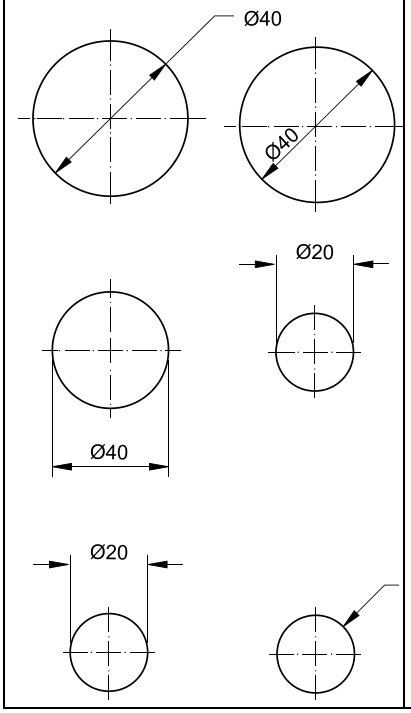
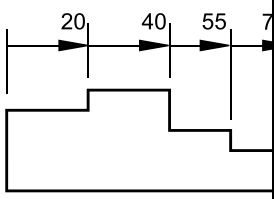
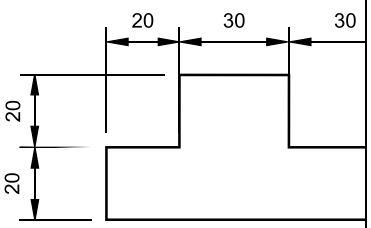
Fold line	Cutting plane
Thin long dash, double dot, chain line to indicate folds on surface developments. **Note**: BS 7308 (long dash, short double dash chain) is also acceptable.	 Long dash dotted thin line, thick at ends. **Note**: BS 7308 (long dash, short dash chain line, thick at ends) is also acceptable.

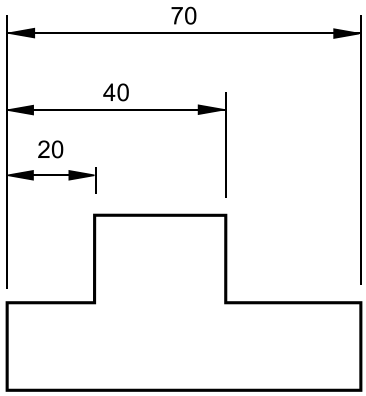
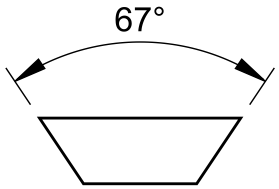
Dimensioning conventions

These are the conventions for technical graphic dimensioning that you must use in your work.





Diameter	Running	Chain
		

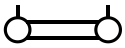
Parallel	Angular dimension
	

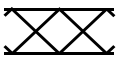
Building drawing symbols

These symbols are from the British Standard (BSI). You may be required to use these symbols in your unit work.

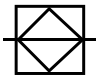
Lamp	Switch	Socket	Radiator
			

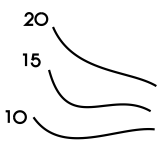
Shower tray	Bath	Wash basin	Sink	WC
				

Sinktop	Heated towel rail	Concrete	Brickwork
			

Door	Wood sawn, any type	Insulation board	Block work
			

Fixed window	Window — hinged at side	Window — hinged at top	Window — hinged at bottom
			

Window — pivoted, horizontal axis	Window — sliding horizontally	Drainage	North point
			

Existing tree	Existing tree — to be removed	Proposed tree	Contours
			

Administrative information

Published: August 2019 (version 3.0)

History of changes to Unit Support Notes

Version	Description of change	Authorised by	Date
1.1	Minor changes to assessment information.	Qualifications Development Manager	July 2013
2.0	'Computer aided Design/Draughting' replaced with 'Computer aided Design' throughout the document.	Qualifications Manager	May 2015
3.0	Appendix 3 added: standards and conventions — information and support for candidates	Qualifications Manager	August 2019

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Unit Support Notes

Unit Support Notes — 2D Graphic Communication (National 4)

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Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the *2D Graphic Communication* (National 4) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- the *Unit Specification*
- the *Course Specification*
- the *Added Value Unit Specification*
- the *Course Support Notes*
- appropriate assessment support materials

General guidance on the Unit

Aims

The general aim of this Unit is to develop the learner's skills and creativity in producing and interpreting 2D graphics. It will enable the learner to initiate, develop, and communicate ideas and solutions using graphic techniques in simple and familiar contexts. The learner's experiences should allow them to gain and apply knowledge and understanding in practice across a range of graphic contexts using a range of graphic skills.

Learners will develop skills in both manual and electronic two-dimensional graphic communication techniques. They will acquire knowledge and understanding of two-dimensional graphic terms, standards, protocols, conventions, and applied techniques which will also support computer aided design and DTP (desktop publishing). They will learn how graphic communication technologies impact on our environment and society. The Unit supports learners in developing transferable skills in creativity and problem solving in a graphic communication context.

This Unit can be delivered:

- as a stand-alone Unit
- as part of the National 4 Graphic Communication Course

This Unit is a mandatory Unit of the National 4 Graphic Communication Course.

Progression into this Unit

Entry into this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- National 3 Design and Technology Course or relevant component Units

Learners may also have gained relevant skills and knowledge through other education systems or from their own interests and informal learning

Centres should satisfy themselves that learner's prior learning will support the likelihood of success.

Skills, knowledge and understanding covered in this Unit

Information about skills, knowledge and understanding is given in the National 4 Graphic Communication *Course Support Notes.*

If the Unit is being delivered as part of the National 4 Graphic Communication Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Added Value Unit Specification* for detailed content.

If this Unit is being delivered on a free-standing basis, teachers and lecturers are free to select the skills, knowledge, understanding and contexts which are most appropriate for delivery in their centres.

Progression from this Unit

On successful completion of this Unit, the following Units and Courses may provide appropriate progression pathways for learners:

- Graphic Communication: 2D Graphic Communication (National 5) Unit
- other technological subjects at National 5

This Unit may support a learner's access to further education or employment as part of a wider entrance portfolio.

Centres should take account of the learner's strengths and the appropriateness of this Unit for entry to other Courses or programmes of study.

Approaches to learning and teaching

The National 4 Graphic Communication Course is designed around graphic skills development partnered with a high degree of personalisation, choice and expression. This *2D Graphic Communication* Unit focuses on communicating ideas, technical, informative, and expressive information using two-dimensional graphic designs and responses. During the Unit, learners will be working and learning in a range of graphic formats and contexts. Centres should plan thoroughly to ensure that the experience is a connected one rather than a 'bit-piece' approach.

Information with regard to knowledge and skills can be found in the *Added Value Unit Specification* which will provide a useful guide to centres as to what content must be covered. Most centres will be very familiar with the content described and are likely to have existing resources which can be used for teaching. While many of these resources will be in paper format, centres might consider how they might be utilised or adapted using electronic methods where a learner's preference dictates. For example, where the learner is demonstrating knowledge rather than process, alternative methods may be able to reveal evidence of learning — view identification, errors, omissions or standards and conventions might not always require a paper-based resource or activity. Where process-based or skill demonstration is required, the centre may wish to consider a mixture of response techniques including manual and/or electronic. The purpose is to introduce greater flexibility in learning and teaching and personalisation and choice but without loss of rigour. In both cases, electronic or manual, centres must ensure that where fundamental knowledge and principles are being developed, the methodology that best supports effective learning is used.

Spatial awareness, cognition and reasoning can be approached in a number of ways which support the activity of graphic communication. Holding, rotating, disassembling, re-assembling, folding, photographing, predicting, formal drawing, and sketching are all useful techniques to build learners' capacity and understanding.

2D orthographic drawing[2]: learners should experience more than a single approach to creating two-dimensional drawings. The principles of orthographic projection can be learned in a multitude of ways, utilising a variety of learning and teaching resources and methodologies. Graphical literacy and proficiency can be developed by using computers, tablets, digital pens, sketching, board work, paper and pencil, use of graphic instruments and equipment, block work, plotting and drawing. It is anticipated that when the principles of projection and spatial awareness are sufficient, the learner will learn to integrate these methods and personalise learning to match their own preferences.

Sketching[3]: the development of skills in sketching will support many aspects of the Unit and subsequently the Course. It is a quick and effective means of

[2] Drawing, unless otherwise dictated by Outcome, refers to manual and/or electronic methods.
[3] Sketching, unless otherwise dictated by Outcome, refers to manual and/or electronic methods.

recording, developing and communicating ideas graphically. As a problem solving and creative tool, analytical and developmental sketching skills are important. Where possible, sketching should be tackled freehand and some of the orthographic projection principles should be incorporated into free sketching work. The emphasis would be on using construction techniques and in establishing good proportion and line quality. Sketching may involve the use of digital materials, applications, and devices as well as pencils, pens, templates or guides in completing the sketch. Learners should be aware of the options available. Learners may wish to maintain a sketch book which records information and techniques for practice and reference. Teachers and lecturers should ensure that the content of the sketch book is accurate and where applicable adheres to recognised convention.

Graphic design skills in project work: at the core of the Unit is the principle that learners will develop skills and acquire knowledge which they will use to create 2D graphics and to aid the development of problem solving and graphic design skills. Contexts carefully selected for learning should support this principle.

Themed or short self-contained project work: presenting the Unit's skills and knowledge around a theme will, for some learners and centres, aid learning by highlighting the connections between graphic styles and techniques via a single extended project. It may also prepare learners for progression through subsequent Graphic Communication Courses. Similarly, presenting project work as a series of short, self-contained projects may encourage learners by setting shorter, more achievable goals and allow centres to adapt and refresh project work to suit the learner. Both approaches are acceptable. Centres must ensure that the Unit's Assessment Standards can be met when planning for learning and teaching. Careful and strategic planning will ensure that learners are able to be successful in achieving those Assessment Standards.

Electronic learning
There are a number of online resources which will be familiar to most centres. These provide a range of step-by-step tutorials from relative novice to advanced user. Centres might consider these for school and out-of-school learning activities to support development of skills and understanding and in accelerating the production of graphics.

Sequence of Outcomes
There is no prescribed order in which centres must deliver the Unit Outcomes. Resources and techniques will vary between centres and so it is likely that a preferred approach will emerge quickly or might follow an existing well-proven strategy within the centre. Where this Unit is being delivered as part of the Course, it is likely that aspects will be delivered alongside or integrated with the *3D and Pictorial Graphic Communication* Unit. This common sense approach will support the development of transferable skills and a richer learning experience.

There are three Outcomes to this Unit. Broadly speaking:

1 Produce and interpret simple 2D sketches[4] and drawings
2 Produce preliminary 2D colour designs and illustrations for single-page promotional displays
3 Create simple 2D promotional graphic layouts

The selection of a theme or context for learning is likely to determine how the Unit is delivered. It is unlikely that each Outcome will be either delivered in order or delivered discretely as the skills and knowledge and their application permeates all three Outcomes. Centres may decide to deliver Outcomes 1 and 2 in parallel to develop the skills and knowledge together. Outcome 3 is more likely, although not necessarily, to follow or (with applicable work pieces) 'feed in' where required from Outcomes 1 and 2.

Whatever approach is adopted, centres must satisfy themselves that the planned delivery best supports their own needs and in particular those of their learners. More information is given in the *Course Support Notes* to assist in strategies for cross-Unit planning — with particular reference to tasks.

Meeting the needs of all learners
The National 4 Graphic Communication Course is designed to be hierarchical. This should support multi-level teaching where required. It is likely that most centres will be familiar with many strategies for multi-level approaches in graphic communication from existing good practice.

Many of the skill sets between National 4 and National 5 are similar, with National 4 generally requiring less depth of treatment and complexity. Introductory skills development, tuition and demonstration will serve both levels, with National 5 being extended. Attention is drawn to the terms used in the Outcome descriptions for National 4, eg 'simple', 'good', and tolerances for accuracy, etc. In addition, National 5 description of Outcomes reveals extended content coverage.

In each of the Outcomes there are some key differences in the expectations of learners between National 4 and National 5 .These key differences can be found in the detail of the *Unit Specifications* for both National 4 and National 5.

In each of the Outcomes it is likely that common activities with opportunities for enrichment and development will support learners in meeting the required standards of the working levels Such differentiation would include materials, study resources, time planning and independent learning tasks.

It is also likely that set and similar themes or contexts will support learners undertaking National 4 and National 5 in the same class. Centres are discouraged from repeating the same theme or context where a learner is likely to progress from National 4 to National 5 in subsequent academic sessions to avoid the potential for repetition. This might suggest bi-annual themes.

[4] Drawing and sketching, unless otherwise dictated by Outcome, refers to manual and/or electronic methods

Developing skills for learning, skills for life and skills for work

Learners are expected to develop broad generic skills as an integral part of their learning experience. The *Unit Specification* lists the skills for learning, skills for life and skills for work that learners should develop through this Unit. These are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and must be built into the Unit where there are appropriate opportunities'. The level of these skills will be appropriate to the level of the Unit.

The table below highlights opportunities to develop these skills during this Unit.

2	**Numeracy**	
2.2	Money, time and measurement	♦ Measurement, dimension

4	**Employability, enterprise and citizenship**	
4.2	Information and communication technology (ICT)	♦ Using graphic packages ♦ Digital input and graphic devices

5	**Thinking skills**	
5.1	Remembering	♦ Terms, concepts, commands
5.2	Understanding	♦ Techniques and their application, impact of graphic activities
5.3	Applying	♦ Graphic knowledge to simple problems and in communicating ideas

Approaches to assessment and gathering evidence

The National 4 Graphic Communication Course is intended to be very flexible in the approaches that centres may take to gather and record evidence of learners' competence. What follows are merely suggestions, and there are many formats in which the evidence can be obtained and presented by learners. Centres are encouraged to be flexible and innovative in their approaches, making best use of resources and information technology where appropriate.

Outcome 1

The learner will:

1 Produce and interpret simple 2D sketches and drawings by:

1.1 Producing well-proportioned orthographic sketches of good line quality of simple everyday objects and/or geometric shapes and forms
1.2 Producing orthographic drawings and details of simple everyday objects, buildings, structures and/or geometric shapes and forms to within an accuracy of 2 mm
1.3 Extracting information from given drawings to inform new drawing work
1.4 Identifying and using appropriate drawing standards, symbols and conventions where these apply, including third angle projection, dimensioning, line types and use of simple scale
1.5 Identifying basic computer aided design commands, techniques and practice

Notes on Outcome 1
Outcome 1 could be assessed via a range of Outcome tasks which will, in part, contribute to the production of a folio[5] of evidence. Strategies might include key drawing and sketching skills or knowledge acquisition activities/tasks which lead learners to specific assessment tasks and can demonstrate a required standard. A suitable method might be an activity set of Unit-standard drawings which can be selected and completed at times best suited to the learner.

It is expected that the work will draw on a broad range of skills and demonstrate that a range of methodologies, approaches and resources have been used.

Orthographic drawings, however produced, could be assessed on a topic-by-topic basis. Centres should ensure that these provide the necessary rigour to be valid. These could be known as a Unit-standard task.

Attention is drawn to tolerances at National 4 and National 5 which are 2mm and 1mm respectively.

Evidence may be obtained from a variety of sources and need not necessarily always be in drawing or written response format.

[5] Folio refers to a collection of evidence which satisfies the standards

Outcome 2

The learner will:

2 Produce preliminary 2D colour designs and illustrations for single-page promotional displays by:

2.1 Illustrating 2D sketches or drawings of simple everyday objects to convey surface texture, tonal change and colour
2.2 Planning and justifying the choice of colours, layout and presentation techniques in simple promotional graphic displays
2.3 Explaining basic aspects of colour theory including primary and secondary colours, tints and shades, warm and cool colours, creating contrast and harmony
2.3 Planning and justifying the choice of informational graphics to suit a given scenario
2.4 Identifying the design principles and elements used to create promotional layouts and displays

Notes on Outcome 2
In gathering evidence for Outcome 2, centres may take a broad approach. Key words are: illustrating, explaining, planning, and identifying. While there is no need to gather evidence specifically in this Outcome of drawing and sketching abilities, it is likely that the learner will be encouraged to continue to develop their sketching and drawing skills though activities in this Outcome. Where a learner has demonstrated difficulties in achieving the skills required in Outcome 1, resources may be supplied to them in order that they might demonstrate their competence in illustration for Outcome 2. It is acceptable for evidence to be in manual and/or digital format where this assists effective learning.

Outcome 3

The learner will:

3 Create simple 2D promotional graphic layouts by:

3.1 Producing single-page displays or layouts that have visual impact and incorporating recognised desktop publishing techniques including: a main feature and text; reasonably consistent and effective use of contrast, harmony, alignment, unity, and depth
3.2 Producing informational graphics that transmit statistical information and have relevant visual impact
3.3 Identifying basic DTP terms used in the design and production of promotional and information graphics
3.4 Identifying the impact of graphic communication technologies on our environment and society

Notes on Outcome 3
Evidence for Outcome 3 is likely to include a small collection of best work, or form part of a learner's graphic communication portfolio or collection of evidence. In addition, centres may consider short assessment tasks to determine the learner's ability to identify DTP terminology. These need not be written tasks. Activities such as short research activities and reports or presentations may well provide adequate evidence in identifying the impacts of graphic communication technologies.

In general, Unit assessment will take a variety of forms and will be internally assessed on a pass/fail basis. Internal assessment should be guided by assessment criteria and exemplification. In recording evidence a collection of graphic tasks and responses will inform and provide a record of assessment decisions. This might include one best example of each topic identified within it. The Unit portfolio can also contain 2D sketches (orthographic layouts and circular and rectilinear shapes) illustrations, displays, written evaluation, promotional and preliminary design work with justification of choice.

Learners who do not respond successfully to Unit-standard task would benefit from constructive feedback and additional practice before tackling an alternative Unit-standard task. The assessments should be informal and as far as possible should feel, to the learner, like a contiguous part of the learning process. Learning and assessment should continue throughout the Unit. Teachers should note that the processes and journey the learner follows in arriving at their solution is as important as the solution itself. The teacher's judgement in determining the learner's input is crucial.

Centres should be very clear on what represents the capability and creativity of the learner and that of the software when making assessment judgments. Software wizards for items like templates are not representative of the learner's work and should not be accredited to the learner.

Descriptions and justifications, although likely to be in written form, may be presented in a range of ways — video, blogs, short essay or report, audio commentaries or discussions and debates. Centres should take care to ensure that softer evidence is of equal rigour.

All evidence gathered is required to demonstrate that the learner has achieved the Assessment Standard. Where a broad range of techniques and activities have been used in teaching and learning, it is likely that the learner will have benefited from a rich and meaningful experience. This should be partnered with a clear record of how the evidence has been obtained and how and what it is evidencing.

Combining assessment within Units

The assessment most likely to be combined within the Unit is knowledge and its application to graphic tasks. Evidence may be gleaned through activities planned across the Outcomes. For example, knowledge developed in the identification of drawing standards, symbols, conventions, recognised terms and commands could be found in the application of those to planning and justification activities required for effective graphic production. This is likely to ease the learner's burden of assessment. The evidence may be selected over any number of drawings (manual and computer aided design), illustrations and activities.

A knowledge checklist may assist in tracking the progress of the learner. A single Unit assessment may assist in confirming the learner's attainment where there are gaps in evidence although it is unlikely that this will be used to assess the entire Unit. Centres might wish to use an Outcome assessment activity as a failsafe approach to ensure evidence is complete or decide against it where it is clear that cross-Outcome activities are a sufficient means to gather rigorous evidence.

Where Assessment Standards are met in a collection of project work, it is more likely that the burden of assessment will be reduced; the principle being that quality takes precedence over quantity and that reducing the number of evidence items allows the learner to spend more time developing and refining skills underpinned by solid knowledge and understanding.

Unit assessment
The learner must demonstrate attainment of **all** of the Outcomes and their associated Assessment Standards. Assessment must be valid, reliable and fit for purpose.

SQA does not specify the methods of assessment to be used; teachers should determine the most appropriate method for their learners. In many cases, evidence (which may be oral or observational) will be gathered during normal classroom activities, rather than through formal assessment instruments.

Centres are expected to maintain a detailed record of evidence, including oral or observational evidence. Evidence in written or presentation format should be retained by the centre for verification.

Authentication of evidence
All evidence should be gathered under supervised conditions.

In order to ensure that the learner's work is their own, the following strategies are recommended:

- personal interviews with learners where teachers can ask additional questions about the completed work
- asking learners to do an oral presentation on their work
- ensuring learners are clear about acknowledging sources
- using checklists to record the authentication activity

Further information is given on the SQA secure website for Unit Assessment Support if assessing on a Unit-by-Unit basis.

Equality and inclusion

The in-built flexibility of production methods both encourages learning through the entire range of graphic skills and also supports those who might experience some difficulties. Methods can be tailored to suit preferences and ICT undoubtedly has an important supporting role to play.

The choice in setting briefs specific to the learners' needs or to the local environment and local expertise can support learning through personalising the learning process.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Unit Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

Alternative approaches to Unit assessment to take account of the specific needs of learners can be used. However, the centre must be satisfied that the integrity of the assessment is maintained and that the alternative approaches to assessment will, in fact, generate the necessary evidence of achievement.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled learners and/or those with additional support needs) — various publications on SQA's website: http://www.sqa.org.uk/sqa/14976.html
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- *Principles and practice papers for curriculum areas*
- *Research Report 4 — Less is More: Good Practice in Reducing Assessment Time*
- *Coursework Authenticity — a Guide for Teachers and Lecturers*
- *SCQF Handbook: User Guide (published 2009)* and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*
- SQA Guidelines on e-assessment for Schools
- SQA Guidelines on Online Assessment for Further Education
- SQA e-assessment web page: www.sqa.org.uk/sqa/5606.html

Administrative information

Published: May 2015 (version 2.0)

History of changes to Unit Support Notes

Version	Description of change	Authorised by	Date
1.1	Minor changes to assessment information.	Qualifications Development Manager	July 2013
2.0	Computer aided Design/Draughting' replaced with 'Computer aided Design' in Outcome 1 and throughout the document.	Qualifications Manager	May 2015

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Unit Support Notes

Unit Support Notes — 3D and Pictorial Graphic Communication (National 4)

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Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable).

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the *3D and Pictorial Graphic Communication* (National 4) Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- the *Unit Specification*
- the *Course Specification*
- the *Added Value Unit Specification*
- the *Course Support Notes*
- appropriate assessment support materials

General guidance on the Unit

Aims

The general aim of this Unit is to develop the learner's skills and creativity in producing and interpreting 3D and pictorial graphics. It will enable the learner to initiate, develop, and communicate ideas and solutions using graphic techniques in simple and familiar contexts.

Learners will develop their presentation skills through the use of analysis and evaluative skills. They will develop their knowledge and understanding of graphic communication techniques and improve their skill in drawing, sketching[6] and 3D modelling. The Unit also develops transferable skills — application, creativity, numeracy and ICT in a graphic communication context.

This Unit can be delivered:

- as a stand-alone Unit
- as part of the National 4 Graphic Communication Course

This Unit is a mandatory Unit of the National 4 Graphic Communication Course.

Progression into this Unit

Entry into this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- National 3 Design and Technology Course or relevant component Units

Learners may also have gained relevant skills and knowledge through other education systems or from their own interests and informal learning.

Centres should satisfy themselves that learner's prior learning will support the likelihood of success.

Skills, knowledge and understanding covered in this Unit

Information about skills, knowledge and understanding is given in the National 4 Graphic Communication *Course Support Notes.*

If the Unit is being delivered as part of the National 4 Graphic Communication Course, the teacher should refer to the 'Further mandatory information on Course coverage' section within the *Added Value Unit Specification* for detailed content.

[6] Drawing and sketching, unless otherwise dictated by Outcome, refers to manual and/or electronic methods

Progression from this Unit

On successful completion of this Unit, the following Units and Courses may provide appropriate progression pathways for learners:

- National 5 Graphic Communication Unit: *3D and Pictorial Graphic Communication*
- other technological subjects at National 5

This Unit may support a learner's access to further education or employment as part of a wider entrance portfolio.

Centres should take account of the learner's strengths and the appropriateness of this Unit for entry to other Courses or programmes of study.

Approaches to learning and teaching

The National 4 Graphic Communication Course is designed around graphic skills development partnered with a high degree of personalisation, choice and expression. This *3D and Pictorial Graphic Communication* Unit focuses on communicating ideas, technical, informative, and expressive information using three-dimensional graphic designs and responses. During the Unit, learners will be working and learning in a range of graphic formats and contexts. Centres should plan thoroughly to ensure that the experience is a connected one rather than a 'bit-piece' approach.

Information with regard to knowledge and skills can be found in the *Added Value Unit Specification* which will provide a useful guide to centres as to what content must be covered. Most centres will be very familiar with the content described and are likely to have existing resources which can be used for teaching. While many of these resources will be in paper format, centres might consider how they might be utilised or adapted using electronic methods where a learner's preference dictates. For example, where the learner is demonstrating knowledge rather than process, alternative methods may be able to reveal evidence of learning — using real objects, photographs, discussions and experimental tasks. In both cases, electronic or manual, centres must ensure that where fundamental knowledge and principles are being developed, the methodology that best supports effective learning is used.

Where process-based or skill demonstration is required, the centre may wish to consider a mixture of response techniques including manual and/or electronic. The purpose is to introduce greater flexibility in learning and teaching and personalisation and choice but without loss of rigour. Manual and electronic methods each have their own distinct characteristics for learning and teaching. In this Unit some work can only be undertaken using electronic methods.

Spatial awareness, cognition and reasoning can be approached in a number of ways which support the activity of graphic communication. Holding, rotating, disassembling, re-assembling, folding, photographing, predicting, formal drawing, and sketching are all useful techniques to build learners' capacity and understanding.

ICT is an integral part of learning and teaching in graphic communication and should be utilised effectively and appropriately. As developments take place in technology, learning and teaching approaches may reflect and embrace the changes where they can assist learning in a positive way. For example, where a learner has the facility and desire to demonstrate sketching using electronic devices or applications, this should be encouraged. This development in learning can be captured and evidenced digitally using blogs, digital capture, e-mail or other methods.

3D models and pictorial drawing and sketching

Learners should experience more than a single approach to creating 3D and pictorial work. Although likely that most centres will use pencil work as a starting point to build skills and techniques, this might be transferred to or replaced by electronic sketching where expertise, equipment and resources provide such opportunities. Use of paint-styled packages or applications which allow the on-

screen placement of lines and the ability to trim would be worth considering. In such cases constructional work might be done in different colours from outline work. In National 4 these should be relatively simplistic, using everyday objects or geometrics mostly in straight sided form. Applications such as Google Sketchup or 2D drawing/sketch apps such as Autodesk Sketchbook Pro[7] may assist learners in getting to grips with the principles of 'sketching' for simple 3D objects in wireframe. This might then be advanced to more realistic representations using the range of solid and surface modelling software available. It is important that learners can identify the steps required to construct models and the associated commands. Reviewing and evaluating existing work alongside the related products will assist leaners in determining the effectiveness and role of these types of graphics as they communicate the visual aspects or detail of the product.

Pictorial and 3D colour illustrations
It is likely that when exploring the techniques and practices for conveying surface texture, tonal change and colour application, learners will probably use prepared examples to enable them to see the effects of different techniques on the same object — a simple rectilinear, straightedge form, rendered for different textures for example. Learners may attempt to predict the effects of lighting changes on the appearance of the objects and the applicability of colour to given situations. In beginning their own work, practice with a small variety of media will build skills in rendering. Centres may wish to use pre-prepared representations for learners to apply colour, tone and texture to, utilise the work already done by learners through traces or use software applications to render objects on-screen. In digital apps, opportunities to photograph sketches and apply colour, shade and tone 'on screen' are available and are an option and they can be emailed, saved, exported if required. Where learners are not familiar with such tasks using software, sufficient time must be built in the teaching to allow learners to reach competence. Work in colour and contexts will support the learners when considering, creating and applying appropriate background for their 3D model objects. It is important that learners can identify the steps required to render models and the associated commands.

Create simple pictorial *or* 3D promotional displays
Presenting the Unit's skills and knowledge around a theme or in short contained tasks will, for some learners and centres, aid learning by highlighting the connections between graphic styles and techniques as they apply to a given situation or problem. This might be approached in a mini-brief format. Such approaches will gradually build proficiencies in thinking, designing and applying graphic knowledge and skills in context.

Promotional displays might be a variety of formats which can demonstrate the necessary planning, skills and standards. This could be in paper or digital production or in the form of a simple card model. Centres are reminded that wizards do not reflect the learners' capabilities and should not be used to accredit learners.

[7] Other Apps and software will also support his kind of work

Electronic learning
There are a number of online resources which will be familiar to most centres. These provide a range of step-by step tutorials from relative novice to advanced user. Centres might consider these for school and out-of-school learning activities to support development of skills and understanding and in accelerating the production of graphics.

Sequence of Outcomes
There is no prescribed order in which centres must deliver the Unit Outcomes. Resources and techniques will vary between centres and so it is likely that a preferred approach will emerge quickly or might follow an existing well-proven strategy within the centre. Where this Unit is being delivered as part of the Course, it is likely that aspects will be delivered alongside or integrated with the *2D Graphic Communication* Unit. This common sense approach will support the development of transferable skills and a richer learning experience.

There are three Outcomes to this Unit. Broadly speaking:

1 Produce and interpret simple pictorial sketches[8], pictorial drawings and 3D models
2 Produce simple pictorial and 3D colour illustrations
3 Create simple pictorial or 3D promotional displays

The selection of a theme or context for learning is likely to determine how the Unit is delivered. It is unlikely that each Outcome will be either delivered in order or delivered discretely as the skills and knowledge and their application permeates all three Outcomes. Centres may decide deliver Outcomes 1 and 2 in parallel to develop the skills and knowledge together. Outcome 3 is more likely, although not necessarily, to follow or (with applicable work pieces) 'feed in' where required from Outcomes 1 and 2. Outcome 3 may be taken entirely as an end point to the learner's Unit experience if desired.

Whatever approach is adopted, centres must satisfy themselves that the planned delivery best supports their own needs and in particular those of their learners. More information is given in the *Course Support Notes* to assist in strategies for cross-Unit planning — with particular reference to tasks.

Meeting the needs of all learners
The National 4 Graphic Communication Course is designed to be hierarchical. This should support multi-level teaching where required. It is likely that most centres will be familiar with many strategies for multi-level approaches in graphic communication from existing good practice.

Many of the skill sets between National 4 and National 5 are similar, with National 4 generally requiring less depth of treatment and complexity. Introductory skills development, tuition and demonstration will serve both levels, with National 5 being extended. Attention is drawn to the terms used in the Outcome descriptions for National 4, eg 'simple', 'good', and tolerances for accuracy, etc. In addition, National 5 descriptions of Outcomes demonstrate extended content coverage.

[8] Drawing and sketching, unless otherwise dictated by Outcome, refers to manual and/or electronic methods

In each of the Outcomes, there are some key differences in the expectations of learners between National 4 and National 5 .These key differences can be found in the detail of the *Unit Specifications* for both National 4 and National 5.

In each of the Outcomes, it is likely that groups of learners will be following common activities. At National 5, and in line with the Assessment Standards, it is likely that well planned enrichment and development activities will provide the additional materials and learning for National 5 learners. Such differentiation would include materials, study resources, time planning and independent learning tasks.

It is also likely that set and similar themes or contexts will support learners undertaking National 4 and National 5 in the same group. Centres are discouraged from repeating the same theme or context where a learner is likely to progress from National 4 to National 5 in subsequent academic sessions to avoid the potential for repetition. This might suggest bi-annual themes.

Developing skills for learning, skills for life and skills for work

Learners are expected to develop broad generic skills as an integral part of their learning experience. The *Unit Specification* lists the skills for learning, skills for life and skills for work that learners should develop through this Unit. These are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and must be built into the Unit where there are appropriate opportunities. The level of these skills will be appropriate to the level of the Unit.

The table below highlights opportunities to develop these skills during this Unit

2	**Numeracy**	
2.2	Money, time and measurement	♦ Measurement, dimension

4	**Employability, enterprise and citizenship**	
4.2	Information and communication technology (ICT)	♦ Using graphic packages ♦ Digital input and graphic devices

5	**Thinking skills**	
5.1	Remembering	♦ Terms, concepts, commands
5.2	Understanding	♦ Techniques and their application, impact of graphic activities
5.3	Applying	♦ Graphic knowledge to simple problems and in communicating ideas

Approaches to assessment and gathering evidence

The National 4 Graphic Communication Course and its component Units are intended to be very flexible in the approaches that centres may take to gather and record evidence of learners' competence. What follows are merely suggestions and there are many formats in which the evidence can be obtained from and presented by learners. Centres are encouraged to be flexible and innovative in their approaches, making best use of resources and information technology where appropriate.

Outcome 1
The learner will:

1 Produce and interpret simple pictorial sketches, pictorial drawings and 3D models by:

1.1 Using graphic communication equipment to create pictorial sketches of simple everyday objects and/or geometric forms in common pictorial formats that are well proportioned and with good line quality
1.2 Using graphic communication equipment to produce straight-sided pictorial drawings and 3D models of simple everyday objects, buildings, structures and/or geometric forms to within accuracy of 2 mm
1.3 Using drawing standards, protocols and conventions which are appropriate to the purpose – including projection methods
1.4 Identifying basic computer aided design commands, techniques and practice employed in the production of 3D graphics and models, using appropriate terminology
1.5 Identifying and describing the main types of pictorial graphic communication employed in the design, manufacturing and marketing of a product

Notes on Outcome 1
Outcome 1 could be assessed via a range of Outcome mini-tasks. While some are used to develop proficiencies, others can be focused on assessment of the Standard. It may genuinely be the case that the quality of work in the proficiency tasks overtakes the Assessment Standard. If this is the case, then these could be used for evidence. In supporting learners to overtake the Standard, centres are required to ensure that the work set is not overly complex.

At National 4, the standards require 'simple' everyday objects and/or geometric forms. Sketches, drawings and models should be 'straight-sided'. There is no need to assess curves and radiused edges for example. (This is not to say that during learning and teaching they might not be attempted by the learners.) Accuracy of work needs to be no less that 2 mm, which can be physically measured from a produced paper drawing or by a dimension tool on screen.

Centres should be flexible in their approach to this and look for generally consistencies in the learner's work. Standards and conventions are likely to be observed in the learner's work as they progress their learning, and the centre can derive their own methodology for recording this evidence. It may be a checklist, commentary, written or graphical work. In the identification of the main types of graphic communication used in a product's design, manufacture and marketing,

evidence might even take the form of a group presentation or short research and report activity, among other possibilities.

Centres are reminded that evidence may be obtained from a variety of sources and need not necessarily be in drawing or written response format.

It is expected that the work will draw on a broad range of skills and demonstrate that a range of methodologies, approaches and resources have been used.

Orthographic drawings, however produced, could be assessed on a topic-by-topic basis. Centres should ensure that these provide the necessary rigour to be valid. These could be known as a Unit-standard task.

Outcome 2
The learner will:

2 Produce simple pictorial and 3D colour illustrations by:

2.1 Illustrating pictorial sketches or drawings of simple everyday objects to convey surface texture, tonal change and colour
2.2 Creating rendered 3D computer aided designed models of simple everyday objects to interpret the light source, surface texture and materials
2.3 Using graphic communication software to create a background to complement the main model in context
2.4 Identifying the basic computer aided design commands, techniques and practice employed in the production of 3D illustrations using appropriate terminology

Notes on Outcome 2
In this Outcome it is probable that the learner will produce a concise or mini-portfolio or best work collection to demonstrate that they have overtaken the Standards. This might not necessarily be the case where aspects of the evidence can be gleaned from other Outcomes. Models produced in Outcome 3, for example, may demonstrate fully the requirements for the creation of rendered 3D computer aided designed models in Outcome 2.

Centres should look to the quality and application of rendering techniques which can suggest texture in an object, tonal change and appropriate colour. These need not be shown in isolation and may be incorporated into single pieces if desired. This aside, it should be clear from the evidence that the features are demonstrated. Applying all three features to one object may be detrimental to the overall visual appearance of the work.

Outcome 3

The learner will:

3 Create simple pictorial or 3D promotional displays by:

3.1 Creating, in response to a brief or theme, preliminary designs for a single-page promotional layout to display a rendered 3D computer aided designed model and title with relevant visual impact
3.2 Using graphic communication equipment to produce a single-page promotional document incorporating a rendered 3D computer aided designed model and textual information

Notes on Outcome 3
There are two main aspects to Outcome 3 — creating preliminary designs and producing a promotional document.

Key features include that the learning must respond to a brief. Outcome 3, in essence, brings together Outcomes 1 and 2. The evidence is likely to take the form of a planning document accompanied by a graphic product.
It would be useful to the learner if both of these elements followed the same theme — or themes developed during Outcomes 1 and 2.

Centres will be looking for evidence which not only confirms the learner's graphic ability, but that reflects the planning that has taken place beforehand. This is 'promotional' and so does not require 'significant' technical detail. The 3D computer aided designed model for the promotional document should demonstrate aspects of Outcome 2 — namely texture, tonal change, colour and simple textual information.

Centres should be very clear on what represents the capability and creativity of the learner and that of the software when making assessment judgments. Software wizards for items like templates are not representative of the learner's work and should not be accredited to the learner.

Descriptions and justifications, although likely to be in written form, may be presented in a range of ways — videos, blogs, short essays or reports, audio commentaries or discussions and debates. Centres should take care to ensure that softer evidence is of equal rigour.

All evidence gathered is required to demonstrate that the learner has achieved the Assessment Standard. Where a broad range of techniques and activities have been used in teaching and learning, it is likely that the learner will have benefited from a rich and meaningful experience. This should be partnered with a clear record of how the evidence has been obtained and how and what it is evidencing.

Combining assessment within Units

Centres are encouraged to devise their own assessment structure and timetable. Integrating assessment across Outcomes also supports a learner's higher order skills development through application of knowledge and evaluative skills in a creative project-based learning experience. Centres may also find the combination of assessments across Units beneficial to a learner's development as this supports the links in learning between the Units of work in graphic communication.

Unit assessment
The learner must demonstrate attainment of **all** of the Outcomes and their associated Assessment Standards. Assessment must be valid, reliable and fit for purpose.

SQA does not specify the methods of assessment to be used; teachers should determine the most appropriate method for their learners. In many cases, evidence (which may be oral or observational) will be gathered during normal classroom activities, rather than through formal assessment instruments.

Centres are expected to maintain a detailed record of evidence, including oral or observational evidence. Evidence in written or presentation format should be retained by the centre for verification.

Authentication of evidence
All evidence should be gathered under supervised conditions.

In order to ensure that the learner's work is their own, the following strategies are recommended:

- personal interviews with learners where teachers can ask additional questions about the completed work
- asking learners to do an oral presentation on their work
- ensuring learners are clear about acknowledging sources
- using checklists to record the authentication activity

Further information is given on the SQA secure website for Unit Assessment Support if assessing on a Unit-by-Unit basis.

Equality and inclusion

The in-built flexibility of production methods both encourages learning through the entire range of graphic skills and also supports those who might experience some difficulties. Methods can be tailored to suit preferences and ICT undoubtedly has an important supporting role to play.

The choice in setting briefs specific to the learners' needs or to the local environment and local expertise can support learning through personalising the learning process.

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Unit Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

Alternative approaches to Unit assessment to take account of the specific needs of learners can be used. However, the centre must be satisfied that the integrity of the assessment is maintained and that the alternative approach to assessment will, in fact generate the necessary evidence of achievement.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled learners and/or those with additional support needs) — various publications on SQA's website: http://www.sqa.org.uk/sqa/14976.html
- *Building the Curriculum 4: Skills for learning, skills for life and skills for work*
- *Building the Curriculum 5: A framework for assessment*
- Course Specifications
- Design Principles for National Courses
- *Guide to Assessment* (June 2008)
- *Principles and practice papers for curriculum areas*
- *Research Report 4 — Less is More: Good Practice in Reducing Assessment Time*
- *Coursework Authenticity — a Guide for Teachers and Lecturers*
- *SCQF Handbook: User Guide (published 2009)* and SCQF level descriptors (to be reviewed during 2011 to 2012): www.sqa.org.uk/sqa/4595.html
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work*
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool*
- SQA Guidelines on e-assessment for Schools
- SQA Guidelines on Online Assessment for Further Education
- SQA e-assessment web page: www.sqa.org.uk/sqa/5606.html

Administrative information

Published: May 2015 (version 2.0)

History of changes to Unit Support Notes

Version	Description of change	Authorised by	Date
1.1	Minor changes to assessment information.	Qualifications Development Manager	July 2013
2.0	Computer aided Design/Draughting' replaced with 'Computer aided Design' in all Outcomes and throughout the document.	Qualifications Manager	May 2015

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