
3D and Pictorial Graphic Communication

SCQF: level 5 (9 SCQF credit points)

Unit code: H27W 75

Unit outline

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

Learners will develop skills in both manual and electronic graphic communication techniques. They will acquire knowledge of terms and techniques in computer-aided design. The Unit also develops transferable skills in creativity and problem solving in a graphic communication context.

Learners who complete this Unit will be able to:

1. Produce and interpret pictorial sketches¹, pictorial drawings and 3D models
2. Produce pictorial and 3D illustrations
3. Create pictorial or 3D promotional displays

This Unit is available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in the *Unit Assessment Support*.

¹ Drawing and sketching refers to manual and/or electronic methods unless otherwise stated.

Recommended entry

Entry to 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 4 Graphic Communication Course or relevant component Units

Equality and inclusion

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Unit Support Notes*.

Standards

Outcomes and assessment standards

Outcome 1

The learner will:

- 1 Produce and interpret pictorial sketches, pictorial drawings and 3D models by:**
 - 1.1 Using graphic communication equipment to create pictorial sketches of everyday objects and/or geometric forms in common pictorial formats that are accurate, well-proportioned and with very good line quality
 - 1.2 Using graphic communication equipment to produce pictorial drawings and 3D computer-aided design models of everyday objects and/or geometric forms to within an accuracy of 1 mm
 - 1.3 Using drawing standards, protocols and conventions which are appropriate to the purpose, including correct projection methods and use of scale
 - 1.4 Describing a range of computer-aided design commands, techniques and practices employed in the production of 3D graphics and models, using appropriate terminology
 - 1.5 Identifying and describing types of pictorial graphic communication used in the design, manufacturing and marketing of a product

Everyday objects will generally consist of combinations of geometric shapes and forms covered in the Unit.

Outcome 2

The learner will:

- 2 Produce pictorial and 3D colour illustrations by:**
 - 2.1 Illustrating pictorial sketches or drawings of everyday objects to convey surface texture, tonal change and colour
 - 2.2 Creating rendered 3D computer-aided design models of everyday objects to interpret the light source, surface texture and materials
 - 2.3 Using computer-aided design or illustration software to create shadows or reflections of the 3D model on a surface
 - 2.4 Describing using appropriate terminology, basic computer-aided design commands, techniques and practice employed in the production of 3D illustrations, using appropriate terminology

Everyday objects will generally consist of combinations of geometric shapes and forms covered in the Unit.

Outcome 3

The learner will:

3 Create 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 pictorial or 3D graphic and extended textual information with relevant visual impact
- 3.2 Using graphic communication equipment to produce a single-page promotional document incorporating a rendered pictorial or 3D graphic and extended textual information

Evidence requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

In this Unit, Evidence Requirements are as follows.

Evidence may be a combination of written, oral and graphical.

In general, Outcomes may be met using either manual graphics techniques or electronic techniques, or a combination of both manual and electronic. Of course, when an Outcome or assessment standard specifically refers to a task that can only be carried out using manual techniques or electronic techniques, then those must be used.

Evidence may be presented for individual Outcomes or it may be gathered for the Unit as a whole through combining assessment holistically in one single activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

For this Unit, learners will be required to provide evidence of:

- ◆ skills in pictorial and 3D graphics, including drawing, sketching, and illustration
- ◆ skills in creating pictorial and 3D promotional graphics
- ◆ knowledge and understanding of appropriate drawing standards, protocols and conventions
- ◆ knowledge and understanding of techniques and terminology involved in the production of 3D graphics and 3D graphic displays
- ◆ knowledge and understanding of 3D computer-aided design /DTP techniques and terminology
- ◆ knowledge and understanding of how graphic communication technologies impact on our society and the environment

Exemplification of assessment is provided in the *Unit Assessment Support*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes*.

Assessment standard thresholds

If a candidate successfully meets the requirements of the specified number of Assessment Standards they will be judged to have passed the Unit overall and no further re-assessment will be required.

The specific requirements for this Unit is as follows:

- ◆ 7 out of 11 Assessment Standards must be achieved.

It should be noted that there will still be the requirement for candidates to be given the opportunity to meet all Assessment Standards. The above threshold has been put in place to reduce the volume of re-assessment where that is required.

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

2 Numeracy

2.2 Money, time and measurement

4 Employability, enterprise and citizenship

4.2 Information and communication technology (ICT)

5 Thinking skills

5.2 Understanding

5.3 Applying

5.4 Analysing and evaluating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

Appendix: Unit support notes

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing this Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- ◆ the *Unit Specification*
- ◆ the *Unit Assessment Support packs*

Developing skills, knowledge and understanding

Teachers and lecturers are free to select the skills, knowledge, understanding and contexts which are most appropriate for delivery in their centres.

Approaches to learning, teaching and assessment

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 should not be accredited to the learner.

Centres may consider short assessment tasks to determine the learner’s ability in outcomes 1.4, 1.5 and 2.4.

Printed copies of digital evidence must be supplied for verification.

Skills, knowledge and understanding for the assessment of this unit

The following provides details of skills, knowledge and understanding sampled in the unit assessment:

Skills, knowledge and understanding	
Graphic types	Skills in producing and knowledge and understanding of effective preliminary, production and promotional graphic communications.
Manual and/or computer-aided techniques	Skills in selecting and applying manual and/or computer-aided graphic techniques and processes, using graphic communication applications and a range of common graphic media, equipment and/or devices, to produce effective and informative graphic communications.
Computer-aided techniques	<p>Knowledge and understanding of the role of computer-aided techniques:</p> <ul style="list-style-type: none"> ◆ describing processes, stages and generic commands applied (or to be applied) in producing 3D graphic solutions and 3D illustrations ◆ ranges, features and uses of graphic hardware and software and computer systems file management ◆ digital input and output devices and the advantages and limitations of computer-aided design (CAD) ◆ application of light source, surface texture and materials in 3D CAD illustrations
Drawing standards, protocols and conventions	<p>Skills in applying recognised drawing standards, protocols and conventions, while producing responses and/or solutions to a pictorial graphic communication problem or situation:</p> <ul style="list-style-type: none"> ◆ line types: outline, projection, dimension, ◆ symbols and conventions ◆ correct projection system for view chosen ◆ use of scale

Geometric shapes and forms and everyday objects	<p>Skills in producing pictorial graphics representing everyday objects, based upon geometric shapes and forms:</p> <ul style="list-style-type: none"> ◆ common geometric forms and everyday objects consisting of squares, rectangles, circles, hexagons, octagons, right prisms, pyramids, cones and cylinders ◆ partial or single cuts to these forms ◆ components based on geometric forms ◆ combinations of two components
Views and techniques	<p>Skills in the appropriate selection and use of 3D and pictorial views and techniques, to produce graphic communications:</p> <ul style="list-style-type: none"> ◆ pictorial assembly drawings and exploded isometric views (minimum of three parts) ◆ pictorial views: one- and two-point perspective, isometric (including curves), oblique (including curves) and planometric
Creativity in producing effective promotional documents	<p>Skills in applying creative and effective techniques to generate ideas and to produce effective promotional graphic responses to a graphic communication problem or situation:</p> <ul style="list-style-type: none"> ◆ using design elements and principles: alignment, dominance, unity, depth, contrast, line, the use of colour (warm, cool, contrast, harmony, advancing, receding, mood, tints, shades, primary, secondary and tertiary), reflection and shade ◆ using a range of manual and electronic techniques in promotional documents
Techniques in sketching	<p>Skills in applying electronic and/or manual sketching techniques:</p> <ul style="list-style-type: none"> • proportion, line quality, vanishing points, pictorial views and single- and two-point perspective • representations of geometric forms and everyday objects in supporting the production of graphic communications
Illustration techniques using manual and computer-aided formats	<p>Skills in using illustration techniques to create effective and informative graphic communications:</p> <ul style="list-style-type: none"> ◆ representations of light, shade, shadow, reflection, tone, gradient, material, texture, colour and layout ◆ visual enhancement techniques in supporting the production of graphic communications
Computer-aided design	<p>Skills in applying techniques and generic drawing and editing commands and terms to produce 3D CAD models and views:</p> <ul style="list-style-type: none"> ◆ import and export ◆ 3D modelling features: extrusion and revolve/revolved solids ◆ 3D modelling edits: shell, subtraction, fillet and chamfer ◆ assemblies (mate, align and centre axis)

	<ul style="list-style-type: none"> ◆ techniques in producing pictorial views using CAD ◆ CAD libraries
Desktop publishing	<p>Skills in applying desktop publishing (DTP) techniques when planning and producing graphic layouts:</p> <ul style="list-style-type: none"> ◆ copy/cut/paste, text box, handles, colour fill, margin, single-page format, title, extended text (more than one word), cropping, text wrap, flow text along a path, serif and sans serif font styles, bleed, transparency, drop shadow, rotate, justification, paper sizing, reverse, column, gutter, caption, header and footer, line, grid, snap to grid, guidelines and snap to guidelines ◆ thumbnails and annotation
Safe working	Using safe working practices and systems which support graphic communication activities in studios and other such working environments.

Combining assessment within Units

Assessment could be combined in this Unit by holistically assessing all the Outcomes of the Unit in a single assessment. When assessment within the Unit is holistic, teachers and lecturers should take particular care to track the evidence for each individual Outcome.

Administrative information

Published: September 2018 (version 1.1)

Superclass: CE

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
1.1	Unit Support Notes added.	Qualifications Manager	September 2018
1.2	Assessment standard thresholds added.	Qualifications Manager	September 2018

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