



## National Unit Specification

### General information

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

**Unit code:** F1KS 11

**Superclass:** CB

**Publication date:** November 2013

**Source:** Scottish Qualifications Authority

**Version:** 02

### Unit purpose

This Unit is designed to enable learners to develop their skills working with the various digital media elements that can be used within multimedia applications. Learners will develop the skills to source, capture, create and manipulate digital media elements such as images, 2D animations, audio and video files for inclusion in a multimedia application. This Unit will provide learners with knowledge of these media elements and the copyright issues related to them.

This Unit is suitable for anyone who already has basic skills and knowledge of digital media elements and wants to extend them or anyone wishing an introduction to digital media elements and their inclusion in multimedia applications.

### Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Describe a range of digital media elements.
- 2 Produce a range of digital media elements.
- 3 Manipulate a wide range of digital media elements using different software tools.
- 4 Integrate media elements into a multimedia application to a specified brief.

### Credit points and level

1 National Unit credit at SCQF level 5: (6 SCQF credit points at SCQF level 5)

## National Unit specification: General information (cont)

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

### Recommended entry to the Unit

While entry is at the discretion of the centre, it would be beneficial if learners possessed basic IT skills. This may be evidenced by possession of:

F3GC 10 *Information and Communication Technology (SCQF level 4)*  
F1JM 10 *Computing: Digital Media Elements for Applications (SCQF level 4)*

or equivalent qualifications or experience.

### Core Skills

There is no automatic certification of Core Skills in this Unit.

The Unit provides opportunities for learners to develop aspects of the following Core Skills:

*Information and Communication Technology (ICT)* at SCQF level 5  
*Problem Solving* (SCQF level 5)  
*Communication* (SCQF level 5)

These opportunities are highlighted in the Support Notes of this Unit specification.

### Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

### 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.

Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements).

## **National Unit specification: Statement of standards**

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

### **Outcome 1**

Describe a range of digital media elements.

#### **Performance Criteria**

- (a) Identify file formats for a range of digital media elements.
- (b) Describe properties of file formats.
- (c) Describe different types of compression.
- (d) Describe copyright issues relating to digital media elements.

### **Outcome 2**

Produce a range of digital media elements.

#### **Performance Criteria**

- (a) Find a range of digital media elements from legitimate sources.
- (b) Capture a range of digital media elements using appropriate devices.
- (c) Create a range of digital media elements using appropriate software.

### **Outcome 3**

Manipulate a wide range of digital media elements using different software tools.

#### **Performance Criteria**

- (a) Manipulate a range of digital media elements using appropriate software.
- (b) Store digital media elements using appropriate file formats.

### **Outcome 4**

Integrate media elements into a multimedia application to a specified brief.

#### **Performance Criteria**

- (a) Select digital media elements to meet the requirements of the specified brief.
- (b) Integrate selected digital media elements into a multimedia application successfully.
- (c) Acknowledge copyright for relevant digital media elements.

## National Unit specification: Statement of standards (cont)

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

### Evidence Requirements for this 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.

Evidence is required to demonstrate that learners have achieved all Outcomes and Performance Criteria.

The evidence for this Unit may be written, oral, performance based, product or a mix of these. Evidence may be stored in a range of media. Evidence may be captured, stored and presented in a range of media (including audio and video) and formats (analogue and digital). Particular consideration should be given to digital formats and the use of multimedia.

Learners are encouraged to use the internet in any research however, the evidence produced must be their own work. Assessors should assure themselves of the authenticity of learners' evidence.

### Outcome 1

For Outcome 1 evidence is required which demonstrates that the learner has achieved the standard specified in the Outcome and Performance Criteria. The instrument of assessment should provide opportunities for the Outcome to be fulfilled by means of sampling across the range of the content of Outcome 1. Where re-assessment is required it should contain a different sample from the range of mandatory content.

### Outcomes 2, 3 and 4

Product evidence is required which demonstrates that the learner has achieved Outcomes 2, 3 and 4. The evidence must include:

- ◆ At least **one of each** of the following **obtained** from legitimate sources: audio clip, video clip, bitmap graphic, vector graphic and 2D animation.
- ◆ A minimum least **one of each** of the following **captured** using appropriate devices: audio clip, video clip and digital image.
- ◆ At least **two different types** of digital media elements **created** using appropriate software: bitmap graphic, vector graphic, audio clip, video clip, or 2D animation.
- ◆ one of each of the following range of digital media elements manipulated using appropriate software tools: audio clip, video clip, bitmap and vector graphic.
- ◆ Appropriate selection and use of appropriate file formats for the editable and published versions of any media elements.

## National Unit specification: Statement of standards (cont)

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

- ◆ A correctly functioning multimedia application integrating a relevant selection of digital media elements. At least **one** instance of each of the following digital media elements should be integrated: audio clip, video clip, bitmap graphic, vector graphic, 2D animation.
- ◆ Acknowledgment of copyright for **all** media elements used in the multimedia application.

## National Unit Support Notes

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

Unit Support Notes are offered as guidance and are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

### Guidance on the content and context for this Unit

The overall aim of this Unit is to give learners the skills and knowledge to be able to develop a short multimedia application incorporating a range of media elements that they have either sourced, created or captured. The learner should be introduced to the software tools required to create and manipulate digital elements and gain familiarity with the hardware devices involved in capturing digital media elements.

#### Outcome 1

This Outcome introduces learners to a range of digital media elements and covers file types used with digital media elements, and their characteristics, and the need for file compression including compressed file types.

Learners should be aware of the range of file formats that they might encounter when sourcing or creating digital elements. These could include some or all of the following, as well as new formats since the time of writing:

Bitmap graphics : psd, jpeg, gif, bmp, png, tiff, raw  
Vector graphics : ai, svg, swf, fla, emf, wmf  
Audio : mp3, wav, aiff, raw, 3gp, wma, ogg  
Video : ppj, mov, avi, mpeg 4, flv, fla, wmv  
2D animation : fla, gif89a, mov, swf, exe

In addition learners should be aware that different file formats are used for different purposes and hence provide different support for the editing and storage of digital elements. For example:

- ◆ bitmap and vector formats may support compression, editing, varying colour depth and transparency
- ◆ audio formats may support compression, editing, varying sample rates, mode and bit depth
- ◆ video and animation formats may support compression, editing, varying frame rate, frame size and colour depth

## National Unit Support Notes (cont)

### Unit title: Computing: Digital Media Elements for Applications (SCQF level 5)

Learners should be made aware of the native file format for each of the software tools being used. Some examples at the time of writing are psd — Photoshop, fla — Flash, ppj — Premiere, ai — Illustrator, mid — Midisoft, mswmm – Movie Maker. They must also be familiar with the common formats used for interchange of digital information such as jpeg, gif, png, swf, mp3, wav, mp4, avi.

Learners will be given simple descriptions of compression, including both lossy and lossless compression. They should be able to identify the benefits and drawbacks of each type and categorise a given compression type. They should also be able to give a simple explanation of why compression is required.

Learners will become aware of copyright issues to include using elements created by another author both nationally and internationally, obtaining permission to use copyrighted elements, acknowledging copyright, key copyright legislation, applying copyright to self made assets.

#### Outcome 2

This Outcome concerns sourcing, capturing and creating a range of media elements. Learners will produce short (30–60 seconds) video and audio clips.

The audio clip could be captured using microphone, CD, mobile phone or any other appropriate device. The typical capture settings that learners can apply are sample rate, bit depth and mode.

The short video could be captured using a digital video camera, mobile phone or other appropriate device. The typical capture settings that learners can apply are frame rate, colour depth and frame size.

The image could be captured using either a scanner, digital camera, mobile device or any other appropriate device. The typical capture settings that learners can apply are appropriate resolution and colour mode.

Learners should understand the implications of using different file formats in storing captured digital media elements.

This Outcome also introduces learners to the use of software tools to create different types of media elements. The creation of a bitmap graphic, vector graphic, simple 2D animation, audio clip and video clip can be carried out using any appropriate software tool.

The animation could include both motion tween and shape tween. The bitmap or vector graphic could be a logo or other design element and should include a relevant resolution, graphic dimension and colour mode.

## National Unit Support Notes (cont)

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

### Outcome 3

Learners should be introduced to appropriate software tools that provide the capability of manipulation. Learners should use software tools (possibly same as those used for creation or capture of digital media elements) to manipulate or transform digital media elements. Here are some examples of suitable manipulations:

Audio:	pitch, reverb, echo, flange, any other effects, and changing file format
Video:	alpha, filters, transitions, graphic effects and changing file format
2D animation:	scale, rotate, fade/alpha and changing file format
Bitmapped graphic:	scale, rotate, filters, effects, colour balance and changing file format
Vector graphic:	scale, rotate, filters, effects and changing file format

Learners should understand the implications of the choices of file format used when saving the different types of digital media elements. The sound clip could be in the range of 30 seconds and use of the captured sound could be made. This could be a piece of narration, sound effect, music loop. The MIDI file could be a short piece of music, e.g. 20 seconds. This could be incorporated with the other sound.

Learners should be aware of the implications of media selection for file storage such as hard drive (both internal and external), flash drive/memory stick, CD, DVD.

### Outcome 4

This Outcome involves learners being introduced to multimedia software that is capable of holding and displaying the range of digital elements created, sourced or captured in this Unit. Typical multimedia applications could be web authoring, multimedia authoring, or PowerPoint presentation.

Learners should ensure that the application is error free. Although testing is beyond the scope of this Unit learners may be introduced to the use of a test pro-forma and its use in testing that the media elements both display and play accurately at the required level of quality.

Learners should be aware of the standard procedures and formats for establishing copyright, obtaining copyright clearance and acknowledging copyright.



## National Unit Support Notes (cont)

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 4)

### Guidance on approaches to delivery of this Unit

A practical hands-on approach to learning should be adopted to engage the learner and exemplify key concepts. However, all practical activities should be underpinned with appropriate knowledge before the learner commences these activities. Learners will require individual access to computer hardware and software throughout this Unit.

This Unit forms the fundamental knowledge and skills for digital media elements and the use of their respective applications. Materials and practical tasks must be pitched at this level. The Unit should be taught on a holistic basis. The four Outcomes could be delivered in an integrated way rather than sequentially.

Throughout this Unit, the learner should be exposed to a variety of hardware devices and software packages relevant to the media elements, through practical demonstrations and practical exercises. This will help to give the learner an accurate indication of what is used by specialists in the interactive media and web industries. Learners should concentrate on one multimedia application, although the learner should have experience of more than one package to edit, manipulate/transform and publish the various media elements. Throughout the Unit the learner should gain the necessary skills to integrate the media elements into the chosen application.

The use of a learner log would be a suitable approach to recording their activity and could reinforce the learning activity. If this approach is adopted it could consist of a first person log of learner activity over an extended period of time, including what the learner has learned while undertaking this Unit. The log could be used to record, for example:

- ◆ That the learner has successfully sourced, created or captured each required media element
- ◆ That the learner has successfully manipulated each required media element
- ◆ That the learner has selected the appropriate file format(s)

As an alternative, a simple Assessor Checklist could be used to record learner achievement of each task within the Unit. This can be left to the discretion of the centre.

The amount of time spent on each area of content will vary depending on the teaching methodology used and the ability and prior experience of the learners. However the following times are suggested as a rough guide. Time for assessment and re-assessment is included in these suggested time allocations.

- ◆ Introduction to digital media 6 hours
- ◆ Bitmap and vector 12 hours
- ◆ Sound, video and 2D animation 14 hours
- ◆ File formats, integration and publishing; copyright 8 hours

## National Unit Support Notes (cont)

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

### Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Outcome 1 could be closed-book and assessed separately under supervised conditions, towards the end of the Unit to enable learners to acquire the knowledge through the practical activities covered in other Outcomes. Outcome 1 lends itself to the use of an objective test. The instrument of assessment should provide opportunities for the Outcome to be fulfilled by means of sampling across the range of the content of Outcome 1. Where re-assessment is required it should contain a different sample from the range of mandatory content.

If a centre is presenting Outcome 1 of these assessments online the following assessment methods, where appropriate, may be selected:

- ◆ Multiple-choice
- ◆ Drag and drop
- ◆ Multiple response
- ◆ Mix and match
- ◆ Or a combination of the above

Outcomes 2, 3 and 4 require the learner to produce a number of media elements and integrate them into a multimedia application. This evidence could be gathered through a single extended task, which could be a particular theme or topic. Where this approach is used, the brief for this should be issued to learners early on in the Unit.

An activity log sheet could be completed by the learner to show that they have undertaken all the tasks. An assessor must endorse each learner activity log with their name, signature and the relevant date(s). An assessor observation checklist could be used to record that all the tasks have been undertaken correctly by the learner. An assessor should sign and date each learner's checklist.

The assessment for Outcomes 2, 3 and 4 is open-book and learners will have access to notes, reference materials and on-line help for this assessment. Whether this need be under supervised or unsupervised conditions is at the discretion of the assessor and the centre; however evidence must be produced under controlled conditions whenever possible and where appropriate. The amount of control will vary from context to context. However, in every case, the conditions of assessment must be controlled to some extent. Where the amount of control is low, the amount of authentication should rise. It is not acceptable to produce evidence in lightly controlled conditions with little authentication.

Authentication may take various forms including, but not limited to, oral questioning and plagiarism checks. Some forms of evidence generation (such as video recordings) have intrinsic authentication and would require no further means of verification. Where evidence is not generated under closely controlled conditions (for example, out of class) then a statement of authenticity should be provided by the learner to verify the work as their own, and also state any necessary sources and permissions.

## **National Unit Support Notes (cont)**

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(SCQF level 5)

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

### **Opportunities for e-assessment**

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at [www.sqa.org.uk/e-assessment](http://www.sqa.org.uk/e-assessment).

### **Opportunities for developing Core and other essential skills**

In this Unit learners are required to interpret a given brief for an application which includes digital media elements. This is a good opportunity for developing aspects of the Core Skill in *Information and Communication Technology (ICT)*, *Problem Solving* as well as aspects of the Core Skills in *Communication*.

Broader skills development in the areas of enterprise, employability, sustainable development and citizenship may also be included depending on the task scenario selected.

## History of changes to Unit

Version	Description of change	Date
02	Updated to reflect changes in technology; streamline Outcome statements and Evidence Requirements in line with current guidelines.	25/11/13

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## General information for learners

**Unit title:** Computing: Digital Media Elements for Applications  
(SCQF level 5)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit is designed to enable you to develop your skills working with the various media elements used within multimedia applications. You will develop the skills to generate images, 2D animations, audio and video files for inclusion in a multimedia application. This Unit will provide you with knowledge of these media elements and the copyright issues related to them. In addition, you will capture and manipulate a selection of these media elements. Finally, you will integrate these media elements into a multimedia application such as a web site, multimedia presentation, or interactive application.

To achieve the Unit, you will complete a practical assessment where you will be required to acquire a range of digital media elements using various methods including sourcing, capturing, and creating. You will then be required to manipulate some of these media elements using a range of software tools and then integrate the digital media elements into a multimedia application. In addition you will be assessed on your knowledge of a range of digital media elements.

During this Unit you will have the opportunity to develop your Core Skills in *Information and Communication Technology (ICT)* and *Problem Solving* as well as aspects of *Communication*.