



National Unit specification

General information

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

Unit code: F1JM 10

Superclass: CB

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Version: 02

Unit purpose

This Unit introduces learners to digital media applications and the various media elements used within these applications. Learners will develop the fundamental skills to gather, create and edit digital media elements including images, audio and video files for inclusion in a multimedia application. In addition, learners will be introduced to the use of various hardware peripherals for the capture of media elements. This Unit will provide learners with a fundamental knowledge of these media elements and copyright issues related to them.

This Unit is suitable for 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 digital media elements.
- 3 Edit a range of digital media elements.
- 4 Integrate media elements into a multimedia application to a specified brief.

Credit points and level

1 National Unit credit at SCQF level 4: (6 SCQF credit points at SCQF level 4)

National Unit specification: General information (cont)

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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 09 *Information and Communication Technology* (SCQF level 3)
or H3LJ 09 *Computer Basics* (SCQF level 3)

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 4
Working with Others (SCQF level 4)
Communication (SCQF level 4)

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.

National Unit specification: Statement of standards

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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 basic file formats for a range of digital media elements.
- (b) Describe the purpose of digital media elements.
- (c) Describe different types of file compression.
- (d) Describe different types of storage media.
- (e) Describe basic copyright issues related to digital media elements.

Outcome 2

Produce digital media elements.

Performance Criteria

- (a) Find a range of digital media elements including audio, video and graphic from legitimate sources.
- (b) Capture a range of digital media elements using appropriate devices.
- (c) Create at least one digital media element using appropriate software.
- (d) Acknowledge copyright for relevant digital media elements.

Outcome 3

Edit a range of digital media elements.

Performance Criteria

- (a) Use appropriate software tools to edit a range of digital media elements.
- (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 given application correctly.
- (c) Display all media elements successfully.

National Unit specification: Statement of standards (cont)

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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 the learner's own work. Assessors should assure themselves of the authenticity of learner 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.

The evidence must show that learners can as a minimum:

- ◆ **describe different** purposes for at least three digital media elements
- ◆ **identify at least two** file formats used for different digital media elements
- ◆ **describe at least two** different types of storage media and **two different types of file compression**
- ◆ **describe two** basic copyright issues relating to digital media elements

Outcomes 2, 3 and 4

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

The given brief must be substantial enough to allow the learner to produce all the required evidence.

National Unit specification: Statement of standards (cont)

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The evidence must show that the learner can:

- ◆ obtain a range of digital media elements to include audio, video and graphic from legitimate sources
- ◆ capture at least two types of digital media elements using appropriate devices
- ◆ create at least one digital media element using appropriate software
- ◆ acknowledge copyright for relevant digital media elements
- ◆ use appropriate software tools to edit at least two types of digital media elements.
- ◆ store the digital media elements using appropriate file formats
- ◆ select digital media elements to include audio, video and graphic to meet the requirements of a specified brief
- ◆ integrate selected digital media elements into a given application correctly
- ◆ demonstrate all working media elements within the application

National Unit Support Notes

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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 source, edit and store a range of digital media elements and integrate them into a multimedia application. The learner should be introduced to the software tools required to create and edit digital media elements and gain familiarity with the hardware devices involved in capturing digital media elements.

Outcome 1

Learners should be aware of the range of file formats that they might encounter when sourcing, creating or using different digital media elements. These may include:

Bitmap graphics: psd, jpeg, gif, bmp, png

Audio: mp3, wav, aiff, raw

Video ppj, mov, avi, mp4, flv , ogg, webM

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

- ◆ bitmap formats include: support for compression, editable, colour depth and support for transparency
- ◆ audio formats include: support for compression, editable, sample rates, mode, bit depth
- ◆ video formats include: support for compression, editable, frame rate, frame size, colour depth

Learners should be given simple descriptions of compression, including both lossy and lossless compression. It would be useful if they were able to identify the differences between each type and categorise a given compression type.

The media selection for file storage should also be covered and should include: CD, DVD, memory stick/flash drive, hard drive, tape drive, and cloud.

Learners should be given simple descriptions of copyright issues to include: using elements created by another author both nationally and internationally, obtaining permission to use copyrighted elements, acknowledging copyright, restrictions in the use of copyrighted elements, key copyright legislation, applying copyright to self made assets.

National Unit Support Notes (cont)

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Outcome 2

Learners should be introduced to the various legitimate sources for media elements. Learners should also be introduced to a variety of different devices for the capture of media elements. These could include, eg microphones, CDs and digital cameras. Learners should be aware of appropriate sampling rates when capturing media elements. For an image an appropriate resolution and colour mode should be selected and use could be made of a scanner or a digital camera. Learners should understand the implications of using different file formats in storing captured digital elements.

Use software tools to create at least one type of media element

The creation of a bitmap graphic, for example, can be carried out by any appropriate software tool (eg MS Paint, Adobe Fireworks, Adobe Photoshop, GIMP, pixlr.com). The bitmap graphic should have the relevant resolution, graphic dimension and colour mode selected. Learners should understand the implications of any choices they might have of file format when saving the media element. Centres can select any other media type for creation if this is preferred.

Edit different types of media elements

Learners should be introduced to appropriate software tools that provide the capability of altering through editing or manipulation. For the audio clip, editing could be at least one of: cut, copy, paste, duplicate, trim, alter amplitude, splice and clip. For the video clip editing could be at least one from: cut, copy, paste, duplicate, trim and splice. For the bitmapped graphic editing could be at least one of: crop, re-size, cut, copy, paste, duplicate, rotate or compress.

Use appropriate file formats for the editable and published versions of media elements

Learners should be aware of the **native** file format for each of the software tools being used. Some examples are: PSD — Photoshop, FLA — Flash, PPJ — Premiere, AI — Illustrator, PPT — Powerpoint. They must also be familiar with the common formats used for interchange of digital information, such as JPEG, GIF, PNG, TIFF, SWF, MP3, MP4, WAV.

Storing files on appropriate media

Learners should be made aware of the implications of media selection for file storage such as: CD, DVD, hard drive, memory stick/flash drive or cloud.

Integration of digital media elements into a multimedia application

Learners should be given a multimedia application that is capable of holding and displaying the range of digital elements created, sourced or captured in this Unit. This could be a PowerPoint presentation or simple web page.

Media elements must be error free

Learners should assure themselves that the media elements both display and play accurately at the required level of quality in the presentation. It is strongly recommended that learners are required to playback the presentation to ensure that it is fully functional and error free.

National Unit Support Notes (cont)

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Acknowledge copyright for all media elements used in the multimedia presentation

Learners should be introduced to standard procedures and formats for establishing copyright, obtaining copyright clearance and acknowledging copyright.

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. The learner will require individual access to computer hardware and software throughout this Unit.

This Unit provides fundamental knowledge of digital media elements and the skills needed to use their respective applications. Materials and practical tasks must be pitched at this level. Outcomes 2 and 3 should be delivered first to allow Outcome 4 to be completed successfully. It is recommended that delivery of Outcome 1 should be left until all other Outcomes are completed, to allow learners to develop the knowledge and understanding required for successful completion of the Unit.

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 learners an accurate indication of what is used by specialists in the interactive media and web industries. Learners should concentrate on the use of one package to publish media elements. Throughout the Unit the learners should gain the necessary skills to integrate the media elements into the chosen application for the multimedia presentation. It would be useful if learners were given the opportunity to work collaboratively in setting up computer hardware and software to capture video, sound and images.

The use of a log would be a suitable approach to recording 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:

- ◆ that the learner has successfully sourced, created or captured each required media element
- ◆ that the learner has successfully edited 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.

National Unit Support Notes (cont)

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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 graphics 12 hours
- ◆ Sound and video 14 hours
- ◆ File formats, integration and publishing.; copyright 8 hours

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 should be assessed separately, 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. Achievement can be decided by use of a cut-off score.

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
- ◆ 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 application using digital media elements previously created/sourced/captured/edited which are integrated into a simple multimedia application is required. At least **one** instance of each of the following digital media elements: audio clip, video clip, bitmap graphic should be used. The assembled application must include media elements which function correctly and are error free.

National Unit Support Notes (cont)

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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.

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.

Opportunities for developing Core and other essential skills

In this Unit learners are required to interpret a given brief for a presentation which includes digital media elements. This is a good opportunity for developing aspects of the Core Skill in *Information and Communication Technology (ICT)* as well as aspects of the Core Skills in *Communication*. Learners may also work collaboratively to set up computer hardware and software to capture video, sound and images thus providing opportunities to develop aspects of the Core Skill of *Working with Others*.

Broader skills development could also be available in the areas of enterprise, employability, sustainable development and citizenship, particularly if centres decide to develop their own assessments. These skills could be addressed through different assessment scenarios should this be the case.

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
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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 introduces you to digital media applications and the various media elements associated with these applications. You will develop the fundamental skills to generate images, audio and video files for inclusion in a multimedia application. In addition, you will be introduced to the use of various hardware peripherals for the capture of media elements. This Unit will also provide you with a fundamental knowledge of these media elements and copyright issues related to them.

To achieve this Unit you will work through a series of practical tasks to provide evidence of sourcing, capturing, creating, editing, and storing a range of digital media elements. You will then use these media elements and integrate them into a multimedia application that displays some of them in an appropriate setting. In addition you will be assessed on your knowledge and understanding of these digital media elements including file formats, properties, etc. The assessments could be the form of a short knowledge test and a practical assignment.

Throughout the Unit you will also develop your Core Skills in the use of *Information and Communication Technology (ICT)* and possibly *Working with Others* and *Communication* during the practical tasks.