



National Unit specification

General information

Unit title: Computing: Applications Development (SCQF level 5)

Unit code: H6S9 45

Superclass: CB

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Unit purpose

This Unit is designed to enable learners to develop basic skills in applications development. It covers how to plan a project and produce a project plan, then develop an application prototype. The Unit will enable the learner to develop practical skills in creating and testing an application using a suitable development environment which will involve a small amount of programming. Emphasis will be put on the process of application development and the importance of good planning and the learner will evaluate their own performance.

This Unit is suitable for learners who have experience of using computer application software and who wish to develop their knowledge and skills in developing computer applications.

This is a mandatory Unit within the National Certificate in Computing with Digital Media (SCQF level 5), but is also available as a free-standing Unit.

Outcomes

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

- 1 Create a project plan for the development of a simple application.
- 2 Create a basic application prototype using a suitable development platform.
- 3 Test the application.
- 4 Evaluate the process.

National Unit specification: General information (cont)

Unit title: Computing: Applications Development (SCQF level 5)

Credit points and level

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

Recommended entry to the Unit

Entry is at the discretion of the centre. Learners doing this Unit do not need prior knowledge or experience of application development. However, it would be beneficial for learners to have completed F1K0 10 *Computing: Programming in High Level Languages Fundamentals*.

Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill	Problem Solving at SCQF level 5
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Core Skill component	None
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There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of the Unit Specifications for this Course.

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

Unit title: Computing: Applications Development (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

Create a project plan for the development of a simple application.

Performance Criteria

- (a) Describe the purpose of the application.
- (b) Identify the key tasks required to develop the application.
- (c) Identify the resources required to develop the application.
- (d) Estimate the timescales required to complete each task.
- (e) Identify the end-product.

Outcome 2

Create a basic application prototype using a suitable development platform.

Performance Criteria

- (a) Select a suitable tool to create the application.
- (b) Create the application prototype.
- (c) Amend project plan as required.

Outcome 3

Test the application.

Performance Criteria

- (a) Carry out testing of the application to make sure it functions as required.
- (b) Record results of testing.
- (c) Rectify errors identified.

Outcome 4

Evaluate the process.

Performance Criteria

- (a) Compare the completed prototype with the aims of the project plan.
- (b) Identify strengths and areas for improvement in the project plan.
- (c) Identify strengths and areas for improvement in the development process.
- (d) Identify action points to improve the process of future application development.

National Unit specification: Statement of standards (cont)

Unit title: Computing: Applications Development (SCQF level 5)

Evidence Requirements for this Unit

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

Learners must demonstrate an understanding of the various stages of application development which includes planning, development of prototype and testing.

The evidence for this Unit may be written or oral or a combination of these. 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.

For all Outcomes evidence should be generated under open-book conditions. 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. Learners are allowed access to suitable online and offline materials during open-book assessments.

Outcome 1

The evidence must show that learners can produce a project plan for the development of a simple application, in response to a brief.

The project plan must be realistic, clearly structured and:

- ◆ describe the purpose of the application and the end-product.
- ◆ identify the key tasks required to develop the application.
- ◆ identify what resources are required to develop the application.
- ◆ identify the order in which the key tasks will be carried out.
- ◆ estimate the timescales required to carry out the key tasks.

Outcome 2

The evidence must show that learners can carry out the tasks identified in their project plan in order to create a simple working application prototype using a suitable development platform.

The prototype created could be a business application, mobile application, game or any other type of application that requires the learner to use a development platform that includes basic programming constructs.

Any amendments to the original project plan must be recorded.

National Unit specification: Statement of standards (cont)

Unit title: Computing: Applications Development (SCQF level 5)

Outcome 3

The evidence must show that learners can test the application prototype for errors, record results and debug as required.

Outcome 4

The evidence must show that learners can evaluate the process of carrying out application development. The evaluation must include:

- ◆ What learners set out to achieve.
- ◆ What learners actually achieved.
- ◆ Identification of strengths and areas for improvement in the project plan.
- ◆ Identification of strengths and areas for improvement in the development process.
- ◆ Identification of at least one action point to improve the process of future application development.



National Unit Support Notes

Unit title: Computing: Applications Development (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

This is a mandatory Unit within the NC in Computing with Digital Media (SCQF level 5), but is also available as a free-standing Unit.

This Unit is designed to introduce learners to the stages involved in the planning and development process of simple computer applications

Learners should be able to read a short brief for a computer app and determine the tasks that they will need to undertake to develop the app. They should be able to order the tasks correctly and estimate a timescale for each task. Learners may record the project plan in a simple list or table format; however a spreadsheet or any other suitable software may also be used.

The type of app and development tools used for this Unit can be chosen by the centre and will vary depending on the resources available to the centre and the focus of the programme within which the Unit is delivered.

The Unit gives opportunities for development of a simple game, mobile app, business app, web app or any other type of appropriate application. Learners are not expected to develop strong programming skills within this Unit, however they should be exposed to the basic programming constructs, eg variables, functions, selection, loops, etc. This should be within the development tools being used.

Learners should be encouraged to follow a project plan during development of an app and reflect on how the development process went, so that they can improve their skills and timing in any similar project.

National Unit Support Notes (cont)

Unit title: Computing: Applications Development (SCQF level 5)

Guidance on approaches to delivery of this Unit

Learners should be given the opportunity to examine various project briefs for simple applications to help them understand the tasks, resources and timescales involved in applications development. Looking at examples of completed simple applications will help in this process.

Learners should be encouraged to produce a formal and structured project plan using suitable software which will allow easy update. Use of a spreadsheet or a table in a word processed document would be sufficient for this Unit.

Learners should be encouraged to follow their project plan and make a note of any changes to the order in which they carried out the key tasks and alterations to the estimated timescales.

The app could be developed in whatever development tool is deemed suitable by the centre as long as it allows access to basic programming conventions. Suitable development tools could include Alice™, Gamemaker™, Scratch™, etc. Learners should be given the opportunity to become confident in using the development environment and basic programming constructs before being given out the assessment.

On completion of the project learners should be encouraged to reflect on the end product and the development process to help improve future projects.

Below is a rough guide to how the 40 hours should be split up based on teaching, learning and assessment for each Outcome.

Outcome 1 — 10 hours

Outcome 2 — 18 hours

Outcome 3 — 6 hours

Outcome 4 — 6 hours

Centres will need to consider resource/facility/staff issues when timetabling this Unit and this may require well-defined briefs that provide learners with realistic opportunities for success.

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.

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.

National Unit Support Notes (cont)

Unit title: Computing: Applications Development (SCQF level 5)

The evidence for all Outcomes should be generated under open-book conditions, 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.

Evidence may be produced at appropriate points throughout the Unit rather than on one assessment occasion. It is recommended that a holistic approach to assessment is taken, and that Outcomes 1 to 4 are assessed as a project undertaken over a period of time.

The brief for the app should be supplied by the assessor and should be complex enough to cover all Evidence Requirements.

Assessors must authenticate each learner's work. An assessor observation checklist could be used to indicate that the app prototype is completed, tested and working.

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

This Unit will provide opportunities for learners to develop Core Skills in *Problem Solving* and *Information and Communication Technology (ICT)*.

The Unit will also provide opportunities for learners to develop skills in planning, implementation, testing and evaluation. Enterprise, employability and citizenship could also be incorporated depending on the nature of the brief for the creation of the application.

This Unit has the Core Skill of Problem Solving embedded in it, so when candidates achieve this Unit their Core Skills profile will be updated to show that they have achieved Problem Solving at SCQF Level 5.

History of changes to Unit

Version	Description of change	Date
02	Performance Criteria clarified for Outcome 2	27/06/2014

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General information for learners

Unit title: Computing: Applications Development (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 will introduce you to the development of simple computer apps using a development tool. The apps that you will develop may be mobile apps, business apps, a simple game or a web app. You will learn about the importance of planning before starting work on development and you will be introduced to simple programming within the development tool that you will use.

You will be encouraged to follow your project plan in the order and times that you estimated for each task. Once your app is complete you will learn how to test your app and fix any errors. Finally you will reflect on the project and identify strengths and areas for improvement as well as actions to help you in future app development.

To achieve this Unit you will have to pass an assessment where you will plan, create and test an app, then evaluate how the development process went.

You do not need experience of app development in order to undertake this Unit. However, it would be beneficial if you had experience of a small amount of programming.

Outcomes

On completion of this Unit you will be able to:

- 1 Create a project plan for the development of a simple application.
- 2 Create a basic application prototype using a suitable development platform.
- 3 Test the application.
- 4 Evaluate the process.