



National Unit Specification

General information

Unit title: Computing: Website Design and Development (SCQF level 5)

Unit code: HW52 45

Superclass: CB

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Unit purpose

The purpose of this unit is to develop knowledge of, and skills in, web design and development. The unit is appropriate for learners seeking to develop basic web design and development skills. No previous experience is required; however, it would be beneficial if learners possessed digital literacy skills.

The unit covers planning, design, implementation, testing and evaluation of web pages and websites. The knowledge covered includes knowledge of contemporary web design techniques and formal testing methods that can be performed on web pages and websites. The unit also develops practical skills in the process of developing websites. Although the focus is on practical skills, learners will also acquire essential underpinning knowledge.

On completion of this unit, the learner will be able to use formal techniques to plan, design, develop, test and evaluate web pages and websites. Learners may progress to the National Progression Award in Software Development (GLW4 46) or Professional Development Award in Software Development (GL15 47) at SCQF level 6.

Outcomes

On successful completion of the unit, the learner will be able to:

- 1 Plan for a website to meet the requirements of a given brief.
- 2 Design a website to meet the identified requirements.
- 3 Construct web pages to meet the requirements of a design.
- 4 Test the operation of the finished website.
- 5 Evaluate the finished website against the requirements of the given brief.

National Unit Specification: General information (cont)

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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

While entry is at the discretion of the centre, learners should possess basic digital literacy skills and an awareness of basic web design. This may be evidenced by possession of relevant Computing and/or ICT skills at SCQF level 4 or above.

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the support notes for this unit specification.

There is no automatic certification of Core Skills or Core Skill components in this unit.

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.

This unit is part of the National Progression Award in Web Design at SCQF level 5. As such, it may be delivered alongside other component units such as HW51 45 *Computing: Interactive Multimedia* and H614 45 *Computing: Website Graphics*. In this circumstance, teaching, learning and assessment may be integrated across the units. Further details are provided in the support notes.

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: Website Design and 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

Plan for a website to meet the requirements of a given brief.

Performance criteria

- (a) Identify the purpose of the proposed website for the given brief.
- (b) Identify the target audience of the website for the given brief.
- (c) Identify the requirements of the website for the given brief.
- (d) Identify the hardware and software required to develop the site.
- (e) Produce a plan for a website to meet the requirements of the given brief.

Outcome 2

Design a website to meet the identified requirements.

Performance criteria

- (a) Design the overall structure of the website.
- (b) Design the layout of the web pages using a contemporary design technique.
- (c) Apply good design practice with regard to consistency, accessibility, information architecture, visual layout and readability.
- (d) Identify assets required for the successful implementation of the design.

Outcome 3

Construct web pages to meet the requirements of a design.

Performance criteria

- (a) Acquire content for the website to meet the requirements of the design.
- (b) Create content for the website to meet the requirements of the design.
- (c) Construct the pages required for the website following the design.
- (d) Construct the pages using HTML code.
- (e) Link web pages to form a website matching the structure.

Outcome 4

Test the operation of the finished website.

Performance criteria

- (a) Compare the finished website against the design produced to ensure consistency with the brief.
- (b) Test the website to ensure that it functions correctly.
- (c) Record test results.
- (d) Rectify any identified errors.

National Unit Specification: Statement of standards (cont)

Unit title: Computing: Website Design and Development (SCQF level 5)

Outcome 5

Evaluate the finished website against the requirements of the given brief.

Performance criteria

- (a) Evaluate the finished website against the requirements identified in the plan.
- (b) Evaluate the finished website with respect to its consistency, accessibility, information architecture, visual layout and readability.
- (c) Evaluate the finished website in terms of its adherence to legal requirements.

Evidence requirements for this unit

Evidence is required to demonstrate that learners have achieved all outcomes and performance criteria.

Learners will need to provide evidence to demonstrate their knowledge and/or skills across all outcomes by planning, designing, implementing, testing and evaluating a website.

The evidence requirements for this unit will consist of two types of evidence: knowledge evidence and product evidence.

The knowledge evidence will relate to all outcomes and performance criteria. It may take any appropriate format (including oral). The evidence will relate to explicit knowledge (such as Outcome 1, Performance Criterion (a)) and underpinning knowledge (such as Outcome 2, Performance Criterion (c)). The focus of the knowledge evidence is breadth, not depth, so the amount of evidence should be the minimum consistent with the performance criteria. It may be produced with access to reference materials over the life of the unit.

Sampling of knowledge is permissible in certain contexts, such as when traditional testing is used to generate the evidence. When sampling is used, the sampling frame must be broad enough to ensure that every outcome is covered (but not every performance criterion in every outcome). In this circumstance, the test must be carried out under controlled, supervised and timed conditions, without access to reference materials.

The product evidence will take the form of **at least one** complete website with **at least five** web pages. The finished website must satisfy the given brief. It may be produced under loosely controlled conditions and may be constructed over an extended period of time. Authentication will be required to ensure that the product is the work of the learner.

Product evidence is required to demonstrate that the learner has satisfied the specified brief in the following respects:

- ◆ Website planning, including purpose, target audience, at least three website requirements and hardware and software required.
- ◆ Website design, including its overall structure and the layout of each page.
- ◆ Use of at least one contemporary design technique.
- ◆ Implementation of good design practice, ensuring consistency, good information architecture, accessibility, readability and usability to meet the requirements of the given brief.

National Unit Specification: Statement of standards (cont)

Unit title: Computing: Website Design and Development (SCQF level 5)

- ◆ Assets required for successful implementation of website.
- ◆ Construct web pages using HTML code, with structure and layout tags, paragraph and heading tags, internal and external links and at least one form of multimedia per page.
- ◆ Formatting and styling web pages using a contemporary style sheet language.
- ◆ Testing, including the results of navigation testing, the testing of content and a comparison with design.
- ◆ Record testing results and rectify any errors identified.
- ◆ Evaluation of the website.
- ◆ Awareness of legal implications.

The Assessment Support Pack (ASP) for this unit provides sample assessment material including an instrument of assessment for the knowledge and a specified brief. Centres wishing to develop their own assessments should refer to the assessment support pack to ensure a comparable standard.



National Unit Support Notes

Unit title: Computing: Website Design and 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

The overall aim of this unit is to develop learners' design and development skills in the context of web pages and websites. Emphasis should be made on the cyclical and iterative nature of the design process.

Please note that the following guidance is not a teaching syllabus and does not seek to explain each performance criterion, which is left to the professionalism of the teacher. This section seeks to clarify the statement of standards where it is potentially ambiguous. It also focuses on non-apparent teaching and learning issues that may be over-looked, or not emphasised, during unit delivery. As such, it is not representative of the actual time spent teaching or learning specific competences or the relative importance of each competence.

If this unit is delivered as part of the National Progression Award in Web Design at SCQF level 5, there is significant potential for teaching, learning and assessment to be integrated across the component units.

Outcome 1: The content of Outcome 1 should focus on learners' planning skills. Learners should be introduced to the importance of determining the purpose of a website, eg promotional, e-commerce, educational, etc and the target audience of the site. Target audience may be referenced in terms of age, gender, computing experience, interests, etc. Learners should understand the importance of carrying out this task well before they begin implementation.

The specific requirements of a website will vary depending on its purpose. However, some reference could be made to the visual layout of the site, most likely in terms of the identified target audience (eg a site designed for 5 year-olds would be laid out differently to a site designed for 50 year-olds), browser compatibility (eg compatible with the latest browsers) and device compatibility (eg use on mobile devices). There may also be additional functional or end-user requirements that could be identified, depending on the brief supplied.

The hardware and software will vary depending on the resources available to the learner, but learners should be able to demonstrate an awareness of both the hardware and the software that they have been using to develop their site. This could include, but is not limited to, technology, at the time of writing, such as mouse, keyboard, processor, backing storage, monitor, text editor, operating system and browser.

The plan produced could relate to collating the information gathered for the other performance criteria of Outcome 1 and ensuring that it is presented in a coherent and organised manner.

National Unit Support Notes (cont)

Unit title: Computing: Website Design and Development (SCQF level 5)

Outcome 2: This outcome focuses on learners' design skills. Learners should be able to articulate their design using contemporary design techniques. There are two different designs that must be produced. The first is the overall structure of the site, for example a linear, hierarchical or multi-level site. The second is the layout of each page, this would be most commonly done through the use of wireframing.

The wireframes produced by each learner should follow conventions used in wireframing and include as much detail as possible. Emphasis should be placed on the ability of someone else to come along and create the web page just by following the design. This level of detail is likely to include, for example, the position of each element (heading, text, graphic, link, etc.) and annotations explaining the background colour of the page, font, size and colour of text, etc. These wireframe designs may be produced by hand or by using software tools.

Good practice in design should be demonstrated by learners. This good practice should relate to making sure that each page on the site is consistent, accessible, effectively labelled, readable and uses an appropriate visual layout for the target audience. These concepts appear again in Outcome 5 as part of the evaluation of the site.

Asking the learner to list the assets needed encourages them to think, at the design stage, about all the resources that they will need to construct each of their pages. This list will include any text files that they have used for content (myFile.txt), along with the file names and file types of all the multimedia assets used, eg graphics (cat.jpg), video (dog.mp4) or audio (elephant.mp3).

Outcome 3: This outcome should develop the learner's coding skills. Learners should make use of a text editor to produce their pages and use HTML code. There are numerous open-source, freeware and commercial software options to choose from.

When coding, learners should make appropriate use of basic HTML tags and, as a minimum, should demonstrate the use of the following on each of their pages:

- ◆ Structure and layout tags
- ◆ Paragraph and heading tags
- ◆ Links — internal and external
- ◆ At least one form of multimedia per page — graphic, audio, video

All page formatting and styling should be carried out using Cascading Style Sheets (CSS).

Websites produced do not need to be complex. However, learners' experience should not be limited to only using these tags, it is expected that learners will have a wider knowledge than this.

A significant emphasis should be placed on learners following a design and ensuring that their finished pages and designs match exactly.

Outcome 4: This outcome allows learners to use their analytical skills to test websites. Testing should focus on both the correct operation of the site and to what extent it matches with the design. Learners should be able to evidence the results of their testing and record these results in a test report.

National Unit Support Notes (cont)

Unit title: Computing: Website Design and Development (SCQF level 5)

As well as a comparison with the design, functional testing should also be carried out. Functional testing will consist of ensuring that all hyperlinks (internal and external) work correctly and that page content displays correctly. Page content could include graphics displaying as intended and/or audio/video playing on the page. Depending on the complexity of the site, there may be other tests that can be carried out, such as the operation of JavaScript code.

Outcome 5: This outcome provides learners with the opportunity to use their evaluative skills to evaluate their own work and the work of others against a list of given criteria.

The first criteria is to compare the site against the requirements identified. This includes purpose, target audience and any other specific requirements of the brief. Learners should be able to produce detailed responses with reasoning to justify why or why not a requirement has been successfully met.

The next set of criteria relates to the design of the site. Again, the learner should be able to give a detailed explanation of why they consider the site to be consistent, accessible, effectively labelled, readable and have an appealing and appropriate visual layout. If a learner thinks that one of these criteria has not been met by the site, then they should be able to suggest areas for development to improve this aspect of the site.

When evaluating the site in terms of contemporary legal requirements, particular attention should be paid to copyright law. At the time of writing, this would be the Copyright, Designs & Patents Act. Again, learners should be able to justify their findings using appropriate terminology, such as the name of the law(s) applicable and why it has or has not been breached.

Guidance on approaches to delivery of this unit

It is recommended that this unit is delivered in a practical context through exemplification of principals and practice of skills. Learners will require individual access to the internet and appropriate hardware and software throughout this unit. Specifically, learners will need access to a text editor or web authoring software, examples, at time of writing, include Notepad, Notepad++, Microsoft Expressions Web and Adobe Dreamweaver.

It is advisable that outcomes are delivered in sequence and in an integrated manner.

Learners will benefit from examining existing websites to determine their purpose, structure and layout before selecting appropriate site structures and layouts for their own websites. Learners should also have experience of evaluating existing websites or websites/pages of others in terms of their consistency, accessibility, visual layout and readability before being asked to evaluate their finished site.

Learners should be encouraged to follow the website design and development process and be familiar with its iterative nature. Practical activities should be used to allow learners to practice and develop their coding skills with HTML and CSS. There are many online resources which can be utilised by learners to develop these skills independently or as reference materials to allow them to integrate more complex pieces of code into their own work. Examples include W3 Schools, Code Academy and Khan Academy. Learners should be encouraged to expand their knowledge beyond the basic HTML tags required into the use of other tags and further into the use of different levels of CSS.

National Unit Support Notes (cont)

Unit title: Computing: Website Design and Development (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.

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.

A traditional approach to assessment would comprise a test (for knowledge evidence) and a practical assignment (for the product evidence).

The knowledge assessment should take place towards the end of unit. The test could consist of a number of selected response questions, chosen from all of the outcomes and performance criteria. Not every performance criterion should be tested but every outcome could be tested by a number of questions. For example, a multiple-choice test, consisting of 25 items, each with four options, could be used. In this case, the pass mark would be 15 out of 25. The test would be timed and carried out under controlled conditions, without access to reference material. Where re-assessment is required it should contain a significantly different sample selected from the range of mandatory content.

It is recommended that a holistic approach is taken to the production of product evidence, and that all outcomes (1–5) are assessed as a single practical project undertaken over a period of time. This could be by a learner following one brief/task through all the stages of the website design and development process.

This brief/task should be supplied by the assessor and need not be overly complex. However, it should give the learner the opportunity to design and develop a small website (minimum five pages) that covers all of the evidence required. Ideally, learners should be given a broad enough brief that allows them to produce a website in the context of the learner's preferred subject area of interest, for example: sport, computer games, music etc. There may also be opportunities to relate the task to enterprise, employability or citizenship skills.

An assessor observation checklist could be used to record that the assessment tasks for all the outcomes have been undertaken successfully by the learner. An assessor should sign and date each learner's checklist.

Authentication may take various forms including, but not limited to, oral questioning and plagiarism checks. Some form 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.

Formative assessment could be used to assess learners' knowledge at various stages in the unit. An ideal time to gauge their knowledge would be at the end of each outcome. This assessment could be delivered through an item bank of selected response questions, providing diagnostic feedback to learners (when appropriate).

National Unit Support Notes (cont)

Unit title: Computing: Website Design and Development (SCQF level 5)

If the unit is being delivered as part of the National Progression Award in Web Design at SCQF level 5, then it may be an advantage to learners if the assessment of this unit is combined with the assessment of other component units of this award.

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 Digital Literacy due to the variety of software that they may use. Opportunities are also provided for learners to develop skills in planning, design, testing and evaluation.

Enterprise, employability and citizenship could also be incorporated depending on the nature of the brief for the website project.

History of changes to unit

Version	Description of change	Date

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General information for learners

Unit title: Computing: Website Design and 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 website design and development process. You will learn about planning, designing, coding, testing and evaluating a website from a website brief.

You will develop your practical skills in coding by constructing a website.

To achieve this unit, you will be assessed on your ability to plan, design, code, test and evaluate a website by carrying out a practical assessment, following the website design and development process for a website brief.

This unit will provide you with opportunities to develop Core Skills in Digital Literacy. Depending on the nature of the brief you are given, you may also be able to demonstrate enterprise, employability and citizenship skills in the production of your website.

You do not need experience of web design or development before attempting this unit, however it would be beneficial if you possessed basic digital literacy skills.

On completion of this unit you will be able to:

- 1 Plan for a website to meet the requirements of a given brief.
- 2 Design a website to meet the identified requirements.
- 3 Construct web pages to meet the requirements of a design.
- 4 Test the operation of the finished website.
- 5 Evaluate the finished website against the requirements of the given brief.

On completion of this unit, you may progress to the National Progression Award in Software Development (GLW4 46) or Professional Development Award in Software Development (GL15 47) at SCQF level 6.