

SQA Advanced Unit Specification

General information for centres

Unit title: Internet: Theory and Practice

Unit code: HV6P 48

Unit purpose: This Unit is about the theory, terminology and practical applications of the internet for research and communication purposes. This is an introductory level Unit, intended to offer entry level skills of internet usage for candidates across a range of subject disciplines.

On completion of the Unit the candidate should be able to:

1. Explain the structure, operation and terminology of the internet
2. Use a web browser to navigate, search and manage information on the internet
3. Use e-mail facility to communicate and manage communications via the internet
4. Use the internet to research a topic

Credit value: 1 SQA Credit at SCQF level 8: (8 SCQF credit points at SCQF level 8)

SCQF (the Scottish Credit and Qualifications Framework) brings Scottish qualifications into a single framework of 12 levels ranging from SQA National 1 to doctorates. The SCQF includes degrees; SQA Advanced Certificate/Diplomas; SQA National Qualifications; and SVQs. Each SQA Unit is allocated a number of SCQF credit points at a specific level. 1 SCQF point = 10 hours of learning. Candidates are normally expected to input a further number of hours, matched to the credit value of the Unit, of non-contact time or candidate-led effort to consolidate and reinforce learning.

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre, but it would be beneficial if the candidate had competence in basic level skills in the operation of a computer, as shown by possession of:

- ◆ National Unit D968 11 *Computer Applications Software – Text* (National 5)
- ◆ Core Skill Information Technology at SCQF level 4

Core skills: There may be opportunities to gather evidence towards core skills in this Unit although there is no automatic certification of core skills or core skills components.

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.

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Assessment: There is considerable scope for integration of assessment, both within this Unit and between this and other Units within a group award.

Outcome 1 assesses knowledge while Outcomes 2, 3 and 4 focus principally on practical tasks and performance evidence. While the assessment of Outcomes should broadly follow in sequence, the delivery and formative assessment of Outcome 1 may be integrated with Outcome 2, whereby candidates are given the opportunity to develop the skills of navigation and searching on the internet while researching information about its structure and elements. This would also provide formative assessment work for Outcome 4.

Outcomes 2 and 3 may be integrated in a single set of tasks, conducted in conditions where arrangements have been put in place to assure the authenticity of the candidate's work. There is also considerable opportunity to use computer assisted or online strategies for the assessment of these Outcomes, through assessment materials delivered online, through an intranet, or stored locally on the computer. For practical purposes it may, however, be considered preferable to conduct the assessment of Outcomes 2 and 3 over two or more assessment sessions.

The assessment of Outcomes 2 and 4 offers further opportunity for integration with other Units within a group award. In each case the candidate may be asked to carry out search and research tasks for materials required by the relevant Outcomes of these Units.

Given the possibilities for online or computer assisted delivery of assessment it may also be considered desirable to take a flexible approach to assessment for each candidate. It will not be necessary for all candidates to undertake assessments at the same time, and it may therefore be considered appropriate to offer assessment on demand for each candidate.

An Assessment Exemplar pack for this Unit has been produced to indicate the national standard of achievement required at SCQF level 8.

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SQA Advanced Unit specification: statement of standards

Unit title: Internet: Theory and Practice

The sections of the Unit stating the Outcomes, knowledge and/or skills, and evidence requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Explain the structure, operation and terminology of the internet

Knowledge and/or skills

- ◆ Structure of the internet
- ◆ Software and hardware elements needed for internet connection and usage
- ◆ Bandwidth
- ◆ Possible platforms for internet connection
- ◆ Types and operation of search engines — hierarchical, directory
- ◆ Main services provided by the internet — world wide web, e-mail, chat, newsgroups, search facilities
- ◆ Key terminology

Evidence requirements

The candidate will need written and/or oral evidence to demonstrate his/her knowledge and/or skills by showing that he/she can explain the structure and operation of the internet, and explain key terminology. The candidate's answers should cover the five following areas:

- ◆ an explanation of the structure of the internet. This should briefly define the internet, outline the principal features of its architecture, including networks, servers, ISPs, explain the hardware and software elements by which a PC connects to the internet, and explain the bandwidth issues involved in different types of connection
- ◆ an explanation of the main services provided by the internet — the world wide web, e-mail, chat, newsgroups, search facilities
- ◆ an explanation of the range of possible platforms for internet connection, other than PC – these would currently include mobile phone, digital television, games consoles
- ◆ an outline explanation of the method of functioning of a search engine, and a brief description of three main types of search engine or search method – spider, hierarchical/directory and metasearch
- ◆ a definition of key internet terminology

The first four items in evidence requirements should be covered in full, without sampling of any elements. The final item — internet terminology — given that it is potentially very wide, should be covered through sampling, with the following terms as mandatory: HTTP, HTML, ISP, URL, Plug-in, Multi-media. A cut-off score of 70% should be applied. The assessment should be carried out in closed-book conditions.

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Assessment guidelines

This assessment is ideally suited to delivery using CBT or similar methods, or to a combination of conventional and computer-aided strategies. The first four items may be covered by a series of structured questions. The first of these may require the candidate to explain the key features of a diagram of the internet and its connection to a PC. The subsequent three items would then be covered by further structured questions. The final item – internet terminology could be assessed via multiple choice or short answer questions. While this last item may be separated from the preceding four for practical reasons, it is preferable that the five items should comprise a single assessment. The candidate could be presented with between 12 – 15 structured and multiple choice questions, including the mandatory six items.

This assessment should be carried out first within the assessment strategy, as the knowledge that it represents provides the underpinning structure for subsequent Outcomes. However, the delivery and formative assessment of Outcome 1 may be integrated with that of Outcome 2.

Outcome 2

Use a web browser to navigate, search and manage information on the internet

Knowledge and/or skills

- ◆ Navigation to web sites using URLs and hyperlinks
- ◆ Navigation within and between web sites using standard browser tools
- ◆ Use of search engines to find web sites
- ◆ Bookmarking of sites
- ◆ Retrieval of bookmarked URLs

Evidence requirements

The candidate will need performance evidence and written and/or oral evidence to demonstrate his/her knowledge and/or skills by showing that he/she can use a web browser to navigate, search and manage information on the internet in the form of a practical assignment or assignments. The candidate should be required to carry out the following tasks to show that he/she can.

- ◆ navigate to a given set of web sites, using both hyperlinks and URLs. The candidate should be required to navigate to a minimum of four web sites using given URLs and to navigate between a minimum of two sites using a hyperlink
- ◆ navigate within a web site using standard browser tools. The candidate should be required to navigate within a minimum of one large web site, using forward and back buttons
- ◆ navigate between web sites using the History function of the browser software, on a minimum of two occasions
- ◆ bookmark and retrieve URLs. The candidate should be required to demonstrate the ability to store URLs and to return to these sites using the Favourites facility of the browser on a minimum of two occasions
- ◆ use search engines to access websites. The candidate should be required to use search engines to carry out three different types of search – search by key word, search by directory or hierarchical engine, search using a metasearch engine. In each case a minimum of two searches should be carried out

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The assessment should be carried out by means of a practical assignment, conducted in conditions where arrangements have been put in place to assure the authenticity of the candidate's work. While performance evidence is being generated here, it should be supported by written and/or oral evidence.

The assessment of Outcome 2 may be carried out as a single combined assignment, or in separate, smaller groups of tasks, carried out over a number of sessions. While performance evidence is being gathered, this needs to be supported by written and/or oral evidence, and a practical way to collect this may be through the use of a worksheet, which the candidate is required to complete, giving information collected from the web sites to which he or she navigates. The worksheet may be completed by hand or on computer and printed out.

In order to ensure that all of the required navigation and storage and retrieval tasks are completed, it may be necessary for the assessor to prepare the content of the browser memory, or to complete the assessment over consecutive sessions. For example, it may be considered appropriate to insert chosen URLs into the memory of a browser, to assess the candidate's ability to access this either through Favourites or History, or both. In order to ensure that URLs are bookmarked the assessor should also either check the Favourites list of the browser used by the candidate, or require the candidate to print off this list.

In the use of search engines the candidate be required to find certain pieces of information, and URL's found from searches. This may, for example, take the form of being required to suggest a certain number of URLs on a particular topic found through the use of the appropriate search. When navigating sites using browser functions, the candidate should be sent to a website where such navigation is necessary in order to collect items of information. An example of a sufficiently large site might be the BBC's, at www.bbc.co.uk.

The assessment of Outcome 2 may be integrated with the assessment of Outcome 3, and there is also potential for the integration of this assessment with Outcomes from other Units, where the research of information is required.

Outcome 3

Use e-mail facility to communicate and manage communications via the internet

Knowledge and/or skills

- ◆ Composing and sending e-mail
- ◆ Retrieval of e-mail message
- ◆ Use of reply facility
- ◆ Storage of e-mail message

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Evidence requirements

The candidate will need performance evidence and written and/or oral evidence to demonstrate his/her knowledge and/or skills by showing that he/she can use an e-mail facility to communicate and manage communication via the internet in the form of a practical assignment or assignments. The candidate should be required to carry out the following tasks:

- ◆ to compose and send an e-mail on one occasion
- ◆ to retrieve and reply to an e-mail on one occasion
- ◆ to store received e-mail in an appropriate folder

The assessment should be carried out by means of a practical assignment or assignments, in conditions where arrangements have been put in place to assure the authenticity of the candidate's work. The performance evidence generated here will be supported by assessor observation and by product evidence, in the form of generated e-mails.

Assessment guidelines

The assessment of Outcome 3 may be integrated with the assessment of Outcome 2, in which case it would form part of a set of assessed practical tasks. Alternatively it may be assessed independently, and this may prove to be a more practical option from the point of view of assessment management.

The candidate should be required either to use e-mail software set up within the assessment centre, or a web e-mail facility, such as Hotmail. In the latter instance this would require the candidate to set up an account prior to undertaking the assessment. This may, however, be common practice with the candidate group in question, and will encourage candidates to utilise e-mail facilities.

The assessor should provide the candidate with an e-mail address to which a message should be delivered. A printout of received messages by the assessor could constitute product evidence. Similarly, the assessor should send a message to the candidate, to which the candidate should reply, and again the printout of received messages would constitute product evidence. The final task, storage of e-mail message in appropriate folder, may be assessed by observation.

Outcome 4

Use the internet to research a topic

Knowledge and/or skills

- ◆ Internet search techniques
- ◆ Use of a range of search engines and/or portal sites
- ◆ Evaluation of online resources
- ◆ Retrieval and storage of online research

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Evidence requirements

The candidate will need product and written and/or oral evidence to demonstrate his/her knowledge and/or skills by showing that he/she can use the internet to research a topic and produce research findings in the form of printed materials and recommended web sites. The candidate should produce the following materials:

- ◆ a list of recommended web sites as information sources for the given topic. Each URL should be accompanied by a brief description and rating of the site in terms of its usefulness for research purpose, approximately 50 – 100 words per site
- ◆ a set of sample research materials from further sites not contained within the recommended list. The candidate should produce samples from a minimum of four further sites. The printed materials, should, in each case, represent significant secondary research material for the given topic.

The successful completion of the research task will then provide performance evidence of an understanding of search techniques. The assessment should be conducted in conditions, where arrangements have been put in place to assure the authenticity of the candidate's work.

Assessment guidelines

The assessment evidence for Outcome 4 may be presented as a folio of materials. In this instance it would be advisable to give candidates a pro forma for the list of recommended and annotated websites, which would either be in a printed, or a computer-based format.

The selection of topic may be negotiated between candidate and assessor. It would not be necessary for each candidate to research the same topic, and it may be advisable to avoid this in order to reduce the possibility of duplication of material by different candidates. However, where the Unit is delivered as part of a group award, it may be possible to integrate the assessment of this Outcome with a research task for another Unit within the group award, and this approach should be encouraged where possible. It would be an acceptable strategy for the assessor to provide a topic or list of approved topics for research.

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Administrative Information

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SQA Advanced Unit specification: support notes

Unit title: Internet: Theory and Practice

This part of the Unit specification is offered as guidance. The support notes 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 Unit is intended to introduce the candidate to the internet, as a communication and research tool. However it is important if candidates are to use the internet to its fullest potential, now and at a later stage, that they should also understand how the internet is structured and operates.

This, then, is the logical starting point for the Unit. By describing the structure and development of the internet it will be possible to give candidates a fuller understanding of the services offered by the internet — e-groups, newsgroups, chat, e-mail and, of course, the world wide web — and thereby the ability to use these more fully. If candidates have a comprehension of the mechanism by which the internet operates, particularly in connecting to this as a user, they will be in a better position to make informed choices about connection and platform options, and where necessary to be able to fault find. The same principles apply to the use of search engines. Understanding the different types and, broadly, how these operate will assist candidates in making better and more efficient searches.

Finally, understanding internet terminology is also an important part of using the internet better and more efficiently. For example, understanding what a URL is, and how it works, can help a candidate to search for and navigate within sites more effectively, and it is an important part of understanding the internet to understand certain key terms.

However, it is not intended that Outcome 1, which contains the main theoretical content, should be taught in isolation from the other Outcomes, in particular Outcome 2, which develops the practical use of browser software, and navigation and search skills. This is a practical Unit, and should be approached as such. An integrated, and largely practical approach to the delivery of the Unit should be the preferred strategy. Wherever possible links should be made from theoretical concepts to practical applications, and the internet itself may become a tool for carrying out research into ideas while building up practical skills. Outcome 2, the practical use of browser software to navigate and search the internet, should be taught against the background of the theory of the internet, not with theory in the foreground.

Although the use of e-mail is, strictly speaking, something which can be separated from internet usage, it has become a key component of communication via the Net, and something which adds functionality to its use. It would be hard to exploit the internet to its fullest without the requirement to use e-mail, and as a modern communication method it is also an important tool. Again the stress here should be on the practical use of e-mail. The delivery of Outcome 3 need not, however, be separated from the preceding two Outcomes, and should be integrated where possible.

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The choice of a topic of research for Outcome 4 should be given a good deal of thought, and should offer candidates a practical and worthwhile research project, not simply an exercise in using search engines. There will be an opportunity at this point to cover search techniques in more depth, and to introduce some of the more advanced ways of using key terms in searching.

One approach to choice of research topic may be to select an area relevant to the vocational study of the candidate group. It may also then be possible to integrate this research with work carried out for an Outcome within another Unit, and where possible and practical this should be attempted. However, it may be considered important for some candidate groups to develop a better understanding of some of the issues of legislation and control which surround internet usage. This has not been made a knowledge/skill component of this Unit, as it may not be an appropriate element for all candidate groups, but it could well be seen as a desirable addition to the content of the Unit for some groups. Where this is so then a suitable strategy may be to select internet legislation and regulation as the research topic for Outcome 4. The same topic need not necessarily be given to all candidates within a group – the general topic of legislation and control could be broken down further into subsets, and these divided amongst a group.

Guidance on the delivery and assessment of this Unit

In general the delivery and assessment of this Unit should focus on practical strategies wherever possible, in order to reinforce and develop the skills of internet use. The ordering of the Outcomes within this Unit follows a logical progression and while this should largely be maintained there is considerable scope for integration of Outcomes in both delivery and assessment.

There is also the possibility for a flexible approach to delivery and assessment within this Unit. Clearly there is a need for assessor exposition at many points, but more flexible delivery strategies, such as the use of online or open learning, may be adopted, and may be appropriate to parts of the Unit. For example, the material for Outcome 1 could form a discrete online or open learning component, leaving the assessor more time to give individual attention to candidates working on the skills of navigating and searching the internet. Strategies may also be adopted which will allow the candidate to undertake assessment components at his/her own pace, rather than as a class group. This would certainly be the case for Outcome 1, and may be possible for some or all of the other Outcomes as well.

A potential learning/teaching approach to Outcomes 1 and 2 would be to integrate delivery where possible. It may prove more satisfactory to move quickly from a very general theoretical overview of the internet to sessions in the practical use of a browser, and internet navigation. These sessions could then be used to research more material about the development and scope of the internet, information which would be collected by the candidate. The candidate would thereby acquire searching and navigation skills at the same time. At this stage it would not be necessary to look at the more advanced aspects of searching the internet – these could be taught and developed as a lead into Outcome 4.

The assessment of Outcome 1 offers an opportunity to use either online assessment or a similar computer-supported technique. It would not only be feasible, but also preferable for the instrument of assessment for Outcome 1 to be completed by the candidate entirely on computer - both the structured questions and the multiple choice questions. However, if this does not prove practical it would be perfectly acceptable to use conventional assessment methods here, or perhaps to mix the two, using CBT for the multiple choice element alone. Nor is it necessary

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for these two parts of the assessment to be carried out with a single session. The delivery of a multiple choice component of the assessment will, in any circumstances require the development of a bank of potential questions, containing both core and sampled items. The minimum number for this should be 30.

Outcome 3 may also be integrated with Outcome 2, although this is more likely to be effective in assessment than in delivery. For the sake of clarity it would be preferable to teach the use of e-mail as a separate technique, and to look at how it fits within internet usage as a tool. However, there certainly are possibilities for integration. For example, it may prove necessary for candidates to set up free e-mail accounts using some form of web mail, such as Hotmail. In this case the searching for and utilising web mail sites can be used as teaching/learning strategy, or as formative assessment exercise. The assessment of Outcome 3 could certainly be a part of the assessment of Outcome 2, although consideration should be given to whether this would produce difficulties in the assessment length, or in the management and monitoring of assessment.

As Outcome 4 requires the candidate to have developed more sophisticated skills of navigation and search on the internet its natural pace is towards the end of the Unit. However the fundamentals of searching will have been taught at an earlier stage, and it may also be advisable to alert candidates to the content of Outcome 4 well in advance, in order that they can consider and choose topics. As has already been indicated there are possibilities for integration between the assessment of this Outcome and assessment within other Units, so this should also be considered in the planning and scheduling.

Open learning

Given the subject matter of this Unit it should provide an excellent opportunity for adaptation to open learning approaches. As has already been indicated, there are substantial parts of the Unit which would adapt well to this approach, both from the point of view of delivery and assessment. There are a range of technologies, from open-learning to CBT which could be used to help with delivery and assessment, and to allow candidates to study the Unit flexibly, if required. Arrangements should be in place to assure the authenticity of candidate work.

For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 — publication code A1030).

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.

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General information for candidates

Unit title: Internet: Theory and Practice

The internet is one of the most important tools that any candidate can use – for communicating, for learning and for researching. This Unit will help you to understand how to use the internet to get the best out of it, and to be able to do the things you want to.

You will learn how to navigate the internet, how to search, how to use the facilities of your browser for storing and managing information, and how to communicate over the internet using e-mail. Since the internet is the most powerful modern tool for research you will go on to use it for researching a topic which you will negotiate with your assessor.

The Unit will focus mainly on the practical skills of internet use, but you will also look at the structure and development of the internet, in order to be better able to understand it and ultimately to be better able to use it.

There are four assessments in this Unit:

1. You will be asked to explain the structure and operation of the internet, and explain key terminology, in the form of answers to structured and multiple-choice questions. The questions will cover the following areas:
 - ◆ the structure of the internet
 - ◆ the main services provided by the internet – the world wide web, e-mail, chat/newsgroups, search facilities
 - ◆ the range of possible platforms for internet connection, other than PC
 - ◆ how search engines work and what types there are
 - ◆ definitions of key internet terminology

The assessment will be carried out in closed–book conditions.

2. You will be asked to use a web browser to navigate, search and manage information on the internet in the form of a practical assignment or assignments. You will be asked to visit certain websites, collect information, store addresses and use search engines to find information. The assessment will be carried out in conditions where your assessor can be sure the work is your own.
3. You will be asked to use e-mail to communicate and manage communication via the internet in the form of a practical assignment or assignments. You will send, retrieve, reply to and store e-mail messages. The assessment will be carried out in conditions where your assessor can be sure the work is your own.
4. You will be asked to use the internet to research a topic and produce research findings in the form of printed materials and recommended web sites. You will be asked to research:
 - ◆ a list of recommended web sites as information sources for a given topic. Each URL should be accompanied by a brief description and rating of the site in terms of its usefulness for research purpose

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- ◆ a set of sample research materials from further sites not contained within the recommended list

The topic chosen for your research will be negotiated with your assessor. The assessment will be carried out in conditions where your assessor can be sure the work is your own.

On completion of the Unit you should be able to:

1. Explain the structure, terminology and operation of the internet
2. Use a web browser to navigate, search and manage information on the internet
3. Use e-mail facility to communicate and manage communications via the internet
4. Use the internet to research a topic.