National Unit specification

General information

Unit title: Information Literacy (SCQF level 6)

Unit code: H7E9 46

Superclass: CX

Publication date: July 2014

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

This Unit is designed for non-specialists who want to acquire advanced knowledge and skills in using information. It aims to educate citizens in the location, curation and evaluation of information. Learners undertaking this Unit will develop critical thinking skills and become active participants in the information society.

Information literacy relates to a range of 'hard' and 'soft' skills, and the associated underpinning knowledge and understanding. The hard skills relate to competencies in using information tools to locate, curate and share information; the soft skills relate to (basic) information theory and critical thinking. At this level, advanced knowledge and skills are covered.

On completion of this Unit, learners will possess a wide range of information skills and understand the role information plays in contemporary society. A key aspect of this Unit is to develop a deep understanding of the value of information and appreciate how to critically evaluate the quality of information.

Outcomes

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

1 Explain the value of information.
2 Curate information using information tools.
3 Solve complex problems using information.

National Unit specification: General information (cont)

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Credit points and level

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

Recommended entry to the Unit

Whilst entry is at the discretion of the centre, it would be beneficial if learners have completed the following Unit:

Information Literacy (SCQF level 5)

or equivalent qualifications or experience.

Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill	Information and Communication Technology at SCQF level 6 Problem Solving at SCQF level 6
Core Skill component	None

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.

This Unit may be offered stand-alone or as part of the National Progression Award in *Digital Passport* at SCQF level 6. If offered as part of this Group Award, there may be opportunities to combine and integrate teaching and learning across Units. There may also be opportunities to combine Evidence Requirements and integrate assessments.

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

Explain the value of information.

Performance Criteria

(a) Explain the distinction between data, information and knowledge.
(b) Explain the growth of information.
(c) Explain the value of information to individuals, communities, organisations, societies and nations.
(d) Describe rights and responsibilities relating to information including ethical responsibilities.
(e) Descriptions and explanations use the correct terminology.

Outcome 2

Curate information using information tools.

Performance Criteria

(a) Describe the stages in curating information.
(b) Describe the tools that can be used to curate digital information.
(c) Use search strategies to locate and select digital assets.
(d) Use curation tools to collect, classify, store, secure and preserve digital assets.
(e) Use tools safely, responsibly and ethically.

Outcome 3

Solve complex problems using information.

Performance Criteria

(a) Analyse the problem and identify its information requirements.
(b) Locate appropriate sources of information.
(c) Select sources by critically evaluating each source.
(d) Organise, analyse, synthesise, remix and visualise the information.
(e) Share the solution in an appropriate format.
(f) Evaluate the solution by demonstrating critical thinking skills.

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. However, sampling may be used in certain circumstances (see below) where the sample is sufficiently random and robust to clearly infer competence in the full domain.

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. It is recommended that evidence is collected for the **Unit as a whole** and is a naturally occurring by-product of teaching and learning.

Evidence is required for two types of competence: evidence of **cognitive competence** (knowledge and understanding) and evidence of **practical competence** (practical abilities). In certain circumstances (see below), the evidence of cognitive competence may be sampled; the sample must be sufficiently random and robust to clearly infer competence in the entire knowledge domain. For example, if a traditional test is used to assess a candidate's knowledge and understanding, the test may sample across the knowledge domain; however, if a portfolio approach is taken then it would not be appropriate to sample, and evidence of every cognitive competence would be required. Evidence of practical competence cannot be sampled; however the amount of evidence is left to the professional judgement of the assessor and should be the minimum compatible with the requirements of this Unit. Outcome 2, Performance Criterion (e) may be evidenced by exception. In this circumstance, there is no requirement to provide evidence of competence; evidence is only required to demonstrate the absence of competence (unsafe or irresponsible or unethical use of information tools).

Evidence must be produced under controlled conditions. However, the amount of control will vary from context to context. For example, evidence of cognitive competence could take the form of a test, which would permit highly controlled conditions. Alternatively, evidence could be generated through the use of web log, written over an extended period of time at varying locations, which would not permit such tight control. In every case, assessment must be controlled to some extent. Where the amount of control is low, the amount of authentication is high. 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 candidate to verify the work as their own, and also state any necessary sources and permissions. The *Guide to Assessment* provides further advice on methods of authentication.

National Unit specification: Statement of standards (cont)

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Evidence of practical competence may be produced over an extended period of time, notwithstanding any Performance Criteria relating to duration or time. Consideration should be given to the use of e-portfolios.

It is recommended that the evidence is generated naturally, as a by-product of teaching and learning, and integrated into as few assessment tasks as possible. The *Guidelines on Approaches to Assessment* (see the Support Notes section of this specification) provide concrete examples of instruments of assessment that seek to do this.

If an e-portfolio is used, the folio would include (in digital format) all of the descriptions, explanations, selections and evaluations required in the Performance Criteria, together with (digital) evidence of practical competence, which may include screenshots, photographs, videos and other digital artefacts.

The problem (Outcome 3) must be complex and unfamiliar. The evidence for this Outcome would be the solution to the problem, which would be assessed using the Performance Criteria. Examples of appropriate problems are given in the Support Notes (*Guidance on Approaches to Assessment of this Unit*).

National Unit Support Notes

Unit title: Information Literacy (SCQF level 6)

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 general context for this Unit is the 'information age'. Young learners (Prensky's 'digital natives') may not have experience of the pre-digital age; more mature learners (Prensky's 'digital immigrants') may not appreciate the scale of digitisation that is presently taking place; neither demographic may appreciate the scale of information creation currently occurring. Using historical context for each Outcome may reinforce the scale of change. For example, using historical context for Outcome 2 (which relates to curation tools) would illustrate the (massively) increased sophistication of contemporary tools compared to the past.

The purpose of this Unit is to deliver advanced knowledge and skills in the use of information. This Unit is intended for **non-specialists** and should be delivered in that context.

At this level (SCQF level 6), the treatment of each topic should be relatively sophisticated and non-trivial. Examples should be related to real life contexts. It should be expected that learners possess some knowledge of culture, history and politics.

A key aspect of this Unit is that learners should see information as a **resource** with **value**. This may be a particular challenge to young learners who may not have the necessary life experience to appreciate the personal, economic and political value of information.

Outcome 1: This Outcome relates to the value of information, which may be a difficult concept for learners to grasp.

The distinction between data, information and knowledge should be explained (Performance Criterion (a)). While a deep epistemological treatment of this is not appropriate at this level, learners should be clear about the distinction between what is and what is not possible to know.

The exponential growth of information (Performance Criterion (b)) should be emphasised. The concept of 'datafication' should be introduced and linked to the growth of information. This Performance Criterion requires the learner to **understand** (not simply describe) the growth of information.

Datafication can also be linked to the value of information (Performance Criterion (c)). This PC should encompass the **use** and **value** of information. The personal, community, organisational, societal and national/political uses of information should be covered. Its political value should be linked to its vital role in democratic decision making. Learners, particularly young learners, may not appreciate the value of information to organisations and societies/nations and how it can be used to solve social problems and for economic benefit. There is scope within this Outcome to discuss the business models behind social networks; learners may have difficulty understanding the huge market capitalisation (but low asset value) of online services such as Facebook™ when the use of the service is free. At the time of writing, a major change in the use of information is taking place. 'Big data' will significantly increase the value of data. At this level, learners should be introduced to the concepts behind, and uses of, big data and the emerging discipline of data science. Big data has epistemological implications (Performance Criterion (a)). Some social applications of big data (such as its use in health and crime) have the potential to extend the bounds of [current] human knowledge (such as predicting future epidemics or predicting future crime). The ethics of these social applications of data science should be discussed.

Performance Criterion (d) provides an opportunity to discuss online rights and responsibilities. Rights include the legal protection afforded to citizens as well as the 'moral' expectation of fair treatment when online. Responsibilities include the legal constraints on individuals when using information (such as intellectual property rights) as well as the 'societal' expectation of behaviour. This Performance Criterion also encompasses ethics — the moral and professional expectations that exist over-and-above the legal constraints. At the time of writing, there has been considerable discussion about the use of information made by state security services, which, while legal, has raised ethical concerns. The tension between the national uses of information, which includes security, and ethical considerations, which includes the rights to privacy, should be explored.

At this level, learners are required to possess a highly developed technical vocabulary (Performance Criterion (e)) and use the correct terminology at all times. This grammar would not only embrace technical terms (such as those used to measure information) but also the language used to describe economic/societal/political issues.

Outcome 2: This Outcome is about the tools that can be used to curate digital information (and the associated knowledge). It is expected that learners will be exposed to a range of digital curation tools but particular attention should be paid to tools designed for this purpose. This includes bespoke e-portfolio systems and generic 'note-taking' apps. It is expected that, at the end of this Outcome, the learner will have developed a pool of digital assets using whatever curation tool(s) they choose to use. For example, if the learner's activities focus on the use of a tool such as Evernote™ then it is expected that s/he will have a large number of stored, tagged and organised assets using that system.

Performance Criteria (a) and (b) are about the stages in curating [digital] information and the associated [digital] tools that can be used at each stage. The stages in curating information are: identify, select, collect, classify, secure and preserve (or similar models). The tools that can be used to carry out curation may be general purpose (such as generic search engines) or bespoke (such as note-taking apps) or a mixture of both.

National Unit Support Notes (cont)

Unit title: Information Literacy (SCQF level 6)

Learners are required to use these tools to locate and curate digital assets (Performance Criteria (c) and (d)). At this level, their use should be fairly sophisticated and the accumulated assets should represent a non-trivial collection of digital artefacts (URLs, webpages, screenshots, text, images, videos, etc). It is important that this includes the classification of each asset, which may be achieved through tagging. It is expected that a number of tools will be used to curate information, including some generic tools (such as a search engine) and some more specific tools (such as a note-taking app). At this level, learners are expected to take ethical considerations into account (this is not required at lower levels). This provides an opportunity to discuss morals and ethics as they apply to digital curation.

Learners are expected to develop advanced search skills (Performance Criterion (c)) to find and select digital assets, such as images, sound and, of course, text. This would include highly developed skills in using a search engine (including knowledge of its grammar) and use a relatively sophisticated search strategy, which would include knowledge of authority and triangulation.

Outcome 3: This Outcome is about solving problems using information. The problem must be complex and unfamiliar. Examples include: researching a complex topic such as the pros and cons of euthanasia; making a decision about a personal issue (such as what university to attend); or learning a new skill (such as computer programming). The critical aspect is not the problem (although it must be complex) but the use of information to solve (or partially solve) it. So, for example, if the problem related to learning to program, then the information assets would include e-books, websites, podcasts, personal learning networks, videos and interactive training materials required to learn to program (in this case, the 'solution' would not be mastery of any programming language but simply the commencement of that particular learning journey).

The Performance Criteria are self-evident and require little explanation. The key aspect of this Outcome is that learners appreciate the critical importance of information when solving problems and, also, appreciate that there is a sequence of steps required when doing so. Most learners will have approached problem solving in an *ad hoc* way so the advantages of using more formal methods may need to be introduced. The formality of Performance Criterion (a), in particular, may not be common practice among some learners.

Learners will require significant guidance about the location and selection of sources of information (Performance Criteria (b) and (c). This is linked to the concept of authority and triangulation (see previous Outcome). For example, in resolving a specific problem (say the best treatment for a medical condition), learners would be expected to consider several sources of information and use one, or more, of these based on authority.

The resulting information will be non-trivial and will require some processing (Performance Criterion (d)). For example, medical advice will have to be organised (stored, tagged, etc), analysed and synthesised (reviewed and revised), mixed (combined), and visualised (graphed or another visual representation). It is anticipated that the solution will be multi-media. For example, the medical solution might involve video (such as a YouTube™ video), audio (such as a podcast) and text.

The resulting solution must be shared (Performance Criterion (e)). This will involve selecting the medium/media and format(s). It is anticipated that the solution will be multimedia so multiple media and multiple formats will be employed. For example, if the problem related to choosing a university then the media/formats would include the videos, audio recordings, text and graphics relating to the learner's search for information about universities. Sharing the solution will depend on the nature of the solution. For example, if the problem was solved using a discussion forum (perhaps one relating to the choice of university) then the URL of the forum would be sufficient.

Learners are required to evaluate the solution (Performance Criterion (f)) using their own critical thinking skills. **It is a vital Outcome of this Unit that learners acquire critical thinking skills.** The critical evaluation of their solution should include: a critique of their problem solving methodology, a critique of their sources, and the strengths and weaknesses of their solution. The evaluation must clearly demonstrate an objective analysis of their solution.

Guidance on approaches to delivery of this Unit

A practical, hands-on approach to learning should be adopted in order to engage learners and exemplify key concepts. However, all practical activities should be underpinned with appropriate knowledge before learners commence these activities. The maturity, and life experience, of learners should be taken into account. Young learners may have particular difficulty in understanding the uses, and value, of information.

At this level, learning should be should be learner-centred. It is anticipated that some initial introduction and explanation will be required for each Outcome, but, thereafter, it can be expected that learners will undertake independent research and learning.

Case studies (including video presentations) could be used to provide concrete examples of how information can be used.

The distribution of time over the three Outcomes is at the discretion of the centre and thus will be influenced by a number of factors such as the actual technologies utilised. However a possible distribution is as follows:

- Outcome 1: 10 hours
- Outcome 2: 12 hours
- Outcome 3: 18 hours

A significant proportion of the time is given to Outcome 3 because of the scope of the problem that learners are expected to address.

Throughout this Unit learner activities should relate to their personal or vocational interests. Learners should be encouraged to become confident with as wide a range of digital technologies as possible.

National Unit Support Notes (cont)

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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.

The Outcomes can be assessed in a variety of ways. A traditional approach would involve the testing of knowledge through a selected response test. It is recommended that if this approach is adopted then **all** of the knowledge and understanding in this Unit is combined into a **single test** that **samples** from the knowledge domain, with an appropriate pass mark. The remaining practical competencies could be assessed through observation of candidate activity throughout the duration of the Unit (and recorded on an observation checklist).

Another approach to assessment would be the creation and maintenance of a web log, which would record candidate activity throughout the Unit. This would log, on a daily or weekly basis, what candidates learn and what they do. However, their posts would have to satisfy the relevant Performance Criteria. So, for example, the post(s) that relates to Outcome 1, Performance Criterion (b), would have to adequately describe the value of information to the specified groups. It is anticipated that this would take place over an extended period of time, involving several posts. Practical activities could also be recorded *via* the blog. For example, the post relating to Outcome 2, Performance Criterion (c), would have to describe appropriate learner activities relating to the curation of digital assets. For example, an appropriate post might describe how the learner captured a photograph using a smartphone's camera (including, of course, the digital photograph itself). When practical activity is recorded on a blog (narratively), authentication could involve a photograph or video of candidate activity (which would be part of the post). Not every practical task would require authentication; at this level it is acceptable for some posts to be a simple description of appropriate practical activities. When necessary, separate authentication (such as oral questioning) could be used for verification purposes. The critical aspect is that the blog is an **overall** accurate reflection of the practical activities (and, therefore, the associated skills) carried out by the learner during the life of the Unit.

Another approach would involve the creation and maintenance of an e-portfolio. The e-portfolio would include all of the descriptions, explanations, selections and evaluations necessary to satisfy the criteria relating to cognitive competencies, together with digital artefacts that provide evidence of their practical abilities. The latter [digital artefacts] would include screenshots, digital photographs, audio and video recordings, etc that collectively illustrate candidates' competencies. Some form of authentication would be required for the gathered items. This could be as simple as a statement of originality, signed by the candidate and the assessor. The e-portfolio software could be bespoke or generic.

It is recommended that the learner is permitted to select the problem in negotiation with the assessor.

National Unit Support Notes (cont)

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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**.

National Unit Support Notes (cont)

Unit title: Information Literacy (SCQF level 6)

Opportunities for developing Core and other essential skills

This Unit provides opportunities to deliver some of the following Core Skills:

- *Information and Communication Technology (ICT)* (SCQF level 6)
- *Problem Solving* (SCQF level 6)
- *Numeracy* (SCQF level 6)

Most of the Core Skills in *Information and Communication Technology (ICT)* can be addressed in this Unit. Depending on delivery, the entire Core Skill may be covered. There are opportunities to select and start application software (such as desktop browsers and smartphone apps), enter and edit data, locate and extract information, apply a complex search strategy, evaluate information and strategy, present information, and keep data secure. The main omission relates to hardware and software problems.

Some of the Core Skills in *Problem Solving* can be addressed in this Unit. There are opportunities to analyse and identify solutions, work out an action plan, choose and obtain resources, carry out an action plan, choose criteria to judge effectiveness, gather evidence, decide effectiveness, and make recommendations.

One or more of the Core Skills in *Numeracy* can be addressed in this Unit. There are opportunities to use numerical or statistical theory, extract/analyse/interpret information, and select graphical forms through visualisations.

In addition to Core Skills, this Unit provides opportunities to develop citizenship skills and critical thinking skills.

This Unit has the Core Skill of Information and Communication Technology and Problem Solving embedded in it, so when candidates achieve this Unit their Core Skills profile will be updated to show that they have achieved Information and Communication Technology and Problem Solving at SCQF Level 6.

History of changes to Unit

Version	Description of change	Date

General information for learners

Unit title: Information Literacy (SCQF level 6)

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 aims to develop your information skills so that you can use a wide range of information processing tools to find, curate and share information. It will also give you a deep understanding of the critical importance of information in contemporary society and show you how to critically evaluate information.

The Unit seeks to make sense of the changes in society that are being caused by the 'information age', which we are currently experiencing. You will gain knowledge of what these changes are and what you need to know in order to cope with these changes. You will gain skills in using a wide range of information tools to help you work with, and take advantage of, information in your personal, social and work life.

The Unit is at an **advanced** level. You should have knowledge and experience of using computers before you begin this Unit. It is also recommended that you already have an appreciation of how information is used in social, commercial and global settings.

The Unit covers a wide range of knowledge and skills including:

- the growth of information
- the changes taking place as a result of the information age
- the value of information to you, your community and society
- how to search for information using advanced techniques
- how to critically evaluate information
- how to curate information
- how to use information for researching or learning
- your rights and responsibilities
- the ethics of information
- datafication, big data and data science
- threats and opportunities posed by the information age

This Unit is appropriate for all learners. It is particularly suitable for the 'digital citizen' — the person who needs to learn about computers and networks to participate in the 'information society'.

The assessment may take different forms. It will be straight-forward and not take much time away from your learning. It may involve a short test of your knowledge and some practical tasks, or it may simply be a record of your activities during the Unit. But the focus of the Unit is on learning — not assessing.

The key goal of this Unit is to teach you to be a knowledgeable, responsible and active user of information technologies so that you can confidently use them for personal, social or educational purposes. **On completion of this Unit you will be able to use digital curation tools to develop a portfolio of digital assets and also appreciate how to critically evaluate information.**

On completion of this Unit you could progress to Higher National Units in the fields of information science or computer science.