



National Unit specification

General information

Unit title: Network Literacy (SCQF level 4)

Unit code: H7EA 44

Superclass: CB

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Unit purpose

This Unit is designed for non-specialists who want to acquire knowledge and skills in using computer networks, such as the internet, and network devices, such as smartphones. It aims to educate citizens in the productive and responsible use of digital technologies. Learners undertaking this Unit will enhance their digital skills and become more active participants in the networked society.

Network literacy relates to a range of 'hard' and 'soft' skills, and the underpinning knowledge and understanding. The hard skills relate to technical competencies in using network devices and network systems; the soft skills relate to using software to access and use network resources (including e-safety). At this level, only basic knowledge and skills are covered.

On completion of this Unit, learners will possess basic digital skills in using network systems (such as the internet) and network devices (such as tablets), and have an appreciation of their applications and implications for the individual.

Outcomes

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

- 1 Describe network systems.
- 2 Connect to a network.
- 3 Use network resources.

Credit points and level

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

National Unit specification: General information (cont)

Unit title: Network Literacy (SCQF level 4)

Recommended entry to the Unit

Entry is at the discretion of the centre. No previous experience is required.

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill	None
Core Skill component	Accessing Information at SCQF level 4

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

This Unit may be offered stand-alone or as part of the National Progression Award in *Digital Passport* at SCQF level 4. 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

Unit title: Network Literacy (SCQF level 4)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Describe network systems.

Performance Criteria

- (a) Describe the growth of networks.
- (b) Describe common uses of networks.
- (c) Identify online rights and responsibilities.
- (d) Describe the basic operating principles of networks.
- (e) Describe the hardware and software components in a network.
- (f) Descriptions and identifications use the correct terminology.

Outcome 2

Connect to a network.

Performance Criteria

- (a) Explain the importance of online safety.
- (b) Explain the need for personal security.
- (c) Describe the process of connecting to a computer network.
- (d) Describe common errors, and their resolution, when connecting to a network.
- (e) Connect to a range of networks using hardware and software.

Outcome 3

Use network resources.

Performance Criteria

- (a) Describe a digital footprint and online identity.
- (b) Describe common network resources.
- (c) Explain the uses of network resources for personal and educational purposes.
- (d) Access network resources to find, capture, store and share information.
- (e) Use networks for social and learning purposes.
- (f) Use network resources safely.
- (g) Adhere to netiquette.

National Unit specification: Statement of standards (cont)

Unit title: Network Literacy (SCQF level 4)

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. Bloom's Taxonomy has been used to select the verb in each Performance Criterion, and this taxonomy should be referenced when applying Performance Criteria.

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, 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. For certain Performance Criteria, competence 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. The Performance Criteria that may be evidenced by exception are: Outcome 3, Performance Criteria (f) and (g).

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 (which would include closed-book assessment). 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 close 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)

Unit title: Network Literacy (SCQF level 4)

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.

The evidence must span a range of device types and types of information. The precise number is left to the discretion of the assessor but it would not be acceptable to generate evidence of competence (cognitive and practical) on one network device (such as a smartphone) using one type of information (for example, text). Competence should be demonstrated using a number of network devices (such as a smartphone, tablet and desktop PC) and information types (such as text, audio and video).

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 specific examples of instruments of assessment that seek to do this.



National Unit Support Notes

Unit title: Network Literacy (SCQF level 4)

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 'network society', which we are presently experiencing. Young learners (Prensky's 'digital natives') may not have experience of the pre-network age; more mature learners (Prensky's 'digital immigrants') may not appreciate the scale of networking that is presently taking place; neither demographic may appreciate the effects of these changes on individuals, groups and societies. Using historical context for each Outcome may reinforce the scale of change currently taking place.

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

Throughout the Unit, terminology such as 'network system' is used to stand for common digital communication systems, such as the internet or the telephone network, and 'network device' is used to stand for common communication devices, such as smartphones, laptops or wearable technology. 'Connecting a network device to a network system' can be as simple as connecting a smartphone to a 4G network.

At this level (SCQF level 4) treatment of **every** topic should be basic. Teaching should focus on imparting **key** knowledge and skills.

Outcome 1: This Outcome is designed to provide foundation knowledge of network systems and network devices. It should be presumed that the learner has little, or no, prior knowledge of such systems.

A key aspect of this Outcome is for learners to appreciate that they use network systems and network devices daily; that common devices such as smartphones, smart TVs and smart watches are network devices; and that their home, school, workplace and local shopping centre provide network infrastructure.

In the context of this Outcome, the network systems studied should be the most common ones in current use. At the time of writing, this is the Internet and telecommunication (3G/4G) systems. Similarly, the network devices studied should be the most common devices in current use. At the time of writing, this would be smartphones, tablets and traditional PCs, but any device with an IP address (which currently includes Smart TVs and a growing number of other domestic appliances) is a network device, and it is a critical Outcome of this Unit that they are seen as such. This should be linked to the emerging Internet of Things (IoT), which will significantly increase the scale and reach of computer networks.

National Unit Support Notes (cont)

Unit title: Network Literacy (SCQF level 4)

At this level, tutors may have to provide many of the descriptions involved in this Outcome. The descriptions should be high level and straight-forward, avoiding technical complexity whenever possible. However, an important part of this Outcome is that learners develop a technical vocabulary (Performance Criterion (f)). Learners must use terminology correctly, and in context, and should be encouraged to use the appropriate terminology at every opportunity.

Only basic descriptions are required. For example, the description of the hardware and software components of a network (Performance Criterion (e)) should be little more than their names and brief functional descriptions. Similarly, the description of the operating principles of networks (Performance Criterion (d)) should be straight-forward descriptions of how networks work (servers, clients, communication medium, network control software and network protocols).

Many learners may be unaware of the rapid growth of networks (Performance Criterion (a)), and the associated exponential growth in information that this has facilitated. There is no requirement to explain this phenomenon but an appreciation of the rapid growth of networked systems is expected. This may be linked to the embryonic Internet of Things (IoT), which will result in a rapid expansion in the growth of network devices.

The treatment of online rights and responsibilities (Performance Criterion (c)) should be light. It is important to discuss this topic in a balanced and objective manner, neither over-emphasising threats nor opportunities. At this level, learners may have little grasp of their online rights or responsibilities. Young learners, in particular, may be unaware of fundamental aspects of network systems such as their potential to easily copy and share comments and media (such as photographs), which are subject to the same legal constraints as other publishing media. Learners are expected to simply state the basic legal requirements that may constrain their use of network systems as part of this Performance Criterion. There is an opportunity here, particularly for young learners, to discuss issues such as cyberbullying and online safety (see also Outcome 3, Performance Criterion (f)). At the time of writing, there is a global debate about online privacy and state/corporate surveillance: learners' rights to privacy, or lack thereof, would be an important part of this Outcome.

Outcome 2: This Outcome is designed to provide basic skills in accessing network systems and network devices. It also encompasses the associated underpinning knowledge.

The descriptions and explanations should be high-level and straight-forward. For example, the description of the process of connecting to a network (Performance Criterion (c)) would simply list the stages in accomplishing this task (such as the stages involved in connecting a new phone to a telecommunication network for the first time). Learners at this level may be unaware of the need for personal security (Performance Criterion (b)) and this should be explained in basic terms.

The sort of errors that learners need to know about (Performance Criterion (d)) should be simple and common errors that may occur when connecting a device to a network, such as 'network not found' errors and log-in authentication problems.

National Unit Support Notes (cont)

Unit title: Network Literacy (SCQF level 4)

The practical skills should also be basic (Performance Criterion (e)). The type of networks used would include a local area network (such as the school LAN), a wide area network (such as the internet) and a telecommunication network (such as the 3G network). This may include connecting a smartphone to a 3G network, a tablet to a college network, and a laptop to the internet.

A key part of this Outcome is online safety (Performance Criterion (a)). Learners should be made aware of potential network threats and the steps that they can take to reduce their risk. At the time of writing, the main threats include cyberbullying, grooming, fraud, and identity theft.

At this level, the discussion on security (Performance Criterion (b)) should be straight-forward but learners, particularly young learners, may need to be persuaded of the need for personal security. There is an opportunity to widen the discussion to the more general topic of cyber security for organisations and nations.

On completion of this Outcome, learners should be comfortable connecting a network device, such as a laptop, to a network system, such as a public wi-fi system.

Outcome 3: This Outcome is designed to provide foundation skills in accessing and using network resources. It encompasses the associated underpinning knowledge.

At the time of writing, network resources (Performance Criterion (b)) include communication services (such as instant messaging), sharing services (such as cloud computing), and collaboration services (such as social networks). At this level, the descriptions and explanations should be basic. For example, the description of network resources should be no more than what they are and what they do.

The use of social and learning networks (Performance Criterion (e)) should be basic. For example, learners' use of social networks may simply involve posting status updates or sharing information; their use of personal learning networks may involve seeking an answer to a question using any one of a number of social media tools. The size of the social network is not important. If learners are already members of a social network then this Performance Criterion would be satisfied by them using their existing network for these purposes. It is less likely that learners will be members of a learning network (at least not knowingly). The use of social networks and other social media for learning should be introduced. At this level it is sufficient for learners to be exposed to the ways that such networks can be leveraged for learning.

The maintenance of an online identity (Performance Criterion (a)) is simply an awareness of the information trail (the 'digital exhaust') that is generated whenever learners use a network. This can be illustrated by a simple search for their names. The critical aspect is that learners are made aware of the trail left behind whenever they use network systems. The implications of this for future employment and personal relationships should be explored. This Performance Criterion is linked to the other Performance Criteria related to e-safety.

An important part of this Outcome is the safe use of network resources (Performance Criterion (f)). This is linked to Outcome 1, Performance Criterion (c). Young learners, in particular, should be introduced to online safety, which includes topics such as cyberbullying and grooming. More mature learners may be concerned about identity theft and fraud.

National Unit Support Notes (cont)

Unit title: Network Literacy (SCQF level 4)

Learners should be introduced to the behavioural norms expected of them when they use networks (Performance Criterion (g)) and the protocols expected when they use specific network services (such as online forums or instant messages). For example, 'text-speak' is acceptable in text (SMS) messages but would not be acceptable in an educational discussion board.

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. Learners should acquire transferable skills so all teaching should be delivered with this in mind and not made too specific to a single network device or system.

At this level, most learning may need to be tutor-led. Learners may lack confidence in their own knowledge and abilities, and confidence building is a vital Outcome. Opportunities should be taken to motivate learners through the use of engaging technology such as multimedia (such as music and video), social media (such as social networks and blogs) and computer games.

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: 10 hours
- ◆ Outcome 3: 20 hours

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.

There are many online resources available to aid teaching and learning. Many of the topics included in this Unit are well served by videos, podcasts and other forms of online learning, which can be used to enliven learning and relate it to real life situations. There are also opportunities for learners to form discussions group, facilitated by the tutor, given the subjective nature of some of the topics (such as online safety and personal privacy).

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: Network Literacy (SCQF level 4)

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 do and what they learn. However, their posts would have to satisfy the relevant Performance Criteria. So, for example, the post(s) that relates to Outcome 1, Performance Criterion (a), would have to provide an adequate description of the growth of networks. Practical activities could also be recorded *via* the blog. For example, the post relating to Outcome 2, Performance Criterion (e), would have to describe appropriate learner activities (connecting to networks). When practical activity is recorded on a blog (narratively), authentication could involve a photograph or video of candidate activity (which would be included as 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 and explanations 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 evidence candidates' competencies. Some form of authentication would be required for the gathered items, but this could be as simple as a statement of originality, signed by the candidate and the assessor.

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: Network Literacy (SCQF level 4)

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 4).

There is limited coverage of this Core Skill. Security risks, and counter measures, are covered in Outcome 2 and Outcome 3.

Some other *Information and Communication Technology (ICT)* Core Skills may be covered, depending on delivery. There are opportunities in this Unit to cover the selection and start-up of software (when using networks), using (network) tools, naming and organising folders (both local and network folders), entering and editing data (when using networks for social or learning purposes), and searching and selecting information (as part of their network activities).

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

This Unit has the Accessing Information component of Information and Communication Technology embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Accessing Information at SCQF level 4.

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: Network Literacy (SCQF level 4)

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 educate you in the productive and responsible use of digital technologies.

The Unit is about the **basic** knowledge and skills that you need to help you understand and use a range of digital technologies in a network environment. It covers essential knowledge and skills about network devices, such as smartphones and PCs, and network systems, such as the internet, so that you are able to confidently use these devices on a daily basis for personal or social purposes.

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

- ◆ how smartphones and the internet works
- ◆ what you can use networks for
- ◆ how to connect a smartphone to the internet
- ◆ how to set-up a smartphone or laptop computer or other device
- ◆ how to communicate and share on a network
- ◆ how to use social networks (such as Facebook™)
- ◆ how to use networks for learning
- ◆ your rights and responsibilities
- ◆ how to behave on a network
- ◆ how to protect your privacy and protect yourself from online threats

No previous knowledge or experience is presumed. The Unit is designed for the **beginner** who wants to learn how to use a new smartphone or for someone who wants to use their PC for social or educational purposes. It is particularly suitable for the 'digital citizen' — the person who needs to learn about computers to participate in modern society (for shopping or learning for example) and access public services

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 digital 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 smartphones, tablets, PCs and other digital devices for a wide range of personal and social purposes, including accessing and using a variety of internet services.**

This Unit is part of a series of Units on network literacy. You may progress to the next Unit in the series (*Network Literacy at SCQF level 5*) on completion of this Unit if you wish to improve your knowledge and skills in this area.