Assessors handbook - Bronze INGOT 3 assessment criteria

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Bronze INGOT 3 (Entry Level 3)	Candidate Name:
Unit 1 - General Knowledge of Open Systems	Unit 2 - Operating IC
I know the term cross platform meaning that there are versions of the software that can run on more than one operating system and I can name two examples.	I can start up and sh energy
I know that sometimes it is easy and sometimes difficult to move information from one program to another.	I can use a range of keyboards, mouse, n
I know that some programs are free to be copied and distributed whereas others have copyright licenses that limit distribution.	I can name 6 differer my work.
I know that some software called Open Source allows people to freely modify the code to make improvements.	I can work out how t to ones that are usua
I have visited 3 web sites that provide free and open source programs for download and I have obtained new information about them	I can adjust the defa
I know that Open Source communities collaborate using digital communications to produce useful resources for everyone to use.	I keep my files in a s
I know that some standards are agreed by many interested parties whereas others are determined and controlled by individual interests.	I can use media stora information into and
I know that Open Standards are important to enable information from one program to be used in other programs from different suppliers	I can adjust my seati position.
I know that mobile telephones are small portable computers that can communicate effectively even though they run a variety of different software.	I am careful to keep
I know that telephone calls can be made over the internet to international destinations at much lower cost than with conventional dedicated lines.	I understand the nee
I understand the need to work safely and to respect the environment	I work cooperatively avoiding conflict.

Bronze INGOT 3 (Entry Level 3)	Candidate Name:
	www.theINGOTs.org

Assessors' Guide to Entry Level 3 criteria

General Information

- This is an Entry Level 3 qualification also known as Bronze INGOT 3.
- The definition of an entry level qualification is to recognize basic knowledge and skills and the ability to apply learning in everyday situations under direct guidance or supervision. Learning at this level involves building basic knowledge and skills and is not geared towards specific occupations.
- The Entry 3, Bronze 3 Award has three levels of success. Pass, Merit, Distinction. This helps provide a natural transition to the Level 1 and Level 2 qualifications.
- The criteria are designed to help promote numeracy, literacy and social skills as well as ICT capability.
- Bronze 3 is designed as a bridge to the Level 1 qualification extending practical skills and introducing knowledge associated with open systems. There are more opportunities to extend learning for higher attaining candidates and introduce concepts associated with open systems.
- The specification for the Entry Level 3 certificate provides an outcome framework for assessment and is not intended to dictate any particular context for learning.

Requirements

- Must be assessed by a trained Bronze Assessor or higher
- Assessors must, at a minimum, record assessment judgements as entries in the on-line mark book on the INGOTs.org certification site.
- It is expected that there will be routine evidence of work used for judging assessment

outcomes in the candidates' records of their day to day work.

- Different approaches to learning will be required in order to match differing needs, for example, the needs of gifted children will be different from the needs of average attainers.

- Completing the criteria for Bronze 3 entitles the candidate to the Award of the Entry Level 3 certificate in Open Systems and Office Applications. In general, the candidate should demonstrate that criteria of the type "I understand the need to work safely and to respect the environment" are sustained over time.

- The Bronze 3 is presented in 2 units. We expect at least 10 hours of guided study to be under-taken for each unit before the certificates are awarded to those new to computers but discretion can be used to take account of prior learning where this is sensible in individual cases. In terms of making the award, what matters is outcomes.

Optional general certificates

There is an optional general certificate for Bronze 3 which can be awarded by the assessor, using their discretion, as an added motivator. This increases the number of rewards that the assessor can provide to act as positive motivators. The general certificates can be printed at any time on any paper and there is no additional charge for them.

Assessment Method

Assessors can use the criteria to determine levels of prior learning through dialog with the candidate, direct observation and any other appropriate and relevant evidence. They can score each of the criteria 0,1 or 2. A zero indicates no observed capability. A one indicates some capability but some help still required. A two indicates self-sufficient capability. When the great majority of criteria are assessed as a two, the assessor uses the web site mark book to request the Awarding Body set tasks. These tasks are used to verify the criteria matching recorded by the assessor. They are completed under controlled conditions.

Details of the basis of the Award

The Bronze 3 Award is made up of two units. The first, “General knowledge of Open Systems", is knowledge based and the second, “Practical capability in using ICT systems, skills based. For each unit a process of criteria matching takes place such that all of the criteria have at least a "1" entered in the on-line mark book and the majority a "2" indicating self-sufficiency in each of the criteria. The assessors' criteria matching is then verified using controlled tests and tasks set by the Awarding Body, marked locally and checked externally.

Unit 1

There are 11 criteria to match. If the candidate matches all 11 with a "2" the assessor awards 5 marks. One mark is lost for each of the criteria not matched as a "2". The candidate must gain at least 1 of the assessor allocated marks before taking the Awarding Body set test. This test is 20 multiple choice questions. To pass the unit the candidate must achieve at least 15 out of 25 marks, up to 5 marks allocated from criteria matching and 20 marks from the test. For pass with merit 18 or more, pass with distinction, 21 or more.

Unit 2

There are 10 practical skills criteria to match for unit 2 plus one related to attitudes. Candidates should achieve a minimum of 16 marks for criteria matching from a possible 20 before being given the set tasks. They must match and sustain the criterion for attitudes and cooperation. Two practical tasks are set by the Awarding Body to verify the assessors' judgements against the criteria and provide up to 20 marks. To pass unit 2 the candidate should achieve at least 11marks on the set tasks and 27 marks overall. They must also meet the requirements for co-operation and safety. Pass with merit for 31 marks or more, pass with distinction for 36 marks or more.

If the candidate passes both Unit 1 and Unit 2 they achieve the full award. If both units are passed with merit or better the candidate passes with merit, if both units are passed with distinction, the candidate passes with distinction. If one unit is a pass and the other a pass with distinction, the candidate passes with merit.

Evidence and mark scheme for assessors matching criteria.

Unit 1 is deliberately designed to provide opportunities to stimulate and stretch higher attaining candidates. The final test is in keeping with the difficulty of an Entry 3 certificate because the range of questions is quite limited. The background here is provided to enable assessors to target their teaching on what might be a wide range of attainment. There is an on-line Moodle course at http://theingots.org/moodle/course/view.php?id=9 to support this unit and you are free to take this and modify it in any way you please. The quiz at the end is typical of the final Awarding Body set test. In unit 1 for criteria matching, the assessor should use on-going assessment against the criteria in accordance with the guidance below, encouraging self and peer assessment throughout the unit. There are 11 criteria statements. Each can be scored 0, 1 or 2. 0 if the candidate is unable to match the competencies described, 1 if they can with some help from others and 2 if they fully meet the competency unaided. Before taking the test, the candidate should score at least 1 on every criterion and 2 on at least 7. Candidates will be awarded 5 marks towards their final unit total for achieving a score of 22 for criteria matching, 4 marks if they achieve a score of 21, 3 marks if they score 20, 2 marks if they score 19 marks and 1 mark if they score 18. This derived mark of between 1 and 5 will be added to the test score thus weighting the coursework assessment at 20% of the unit total.

For the criteria matching by assessors in unit 2 the assessor should ensure that the candidate has the opportunity to demonstrate the capability to match the criteria during the course of their work. For each of the first 10 statements, the assessor should award 2 marks if the candidate fully meets the criterion, 1 mark if there are any minor weaknesses where the candidate needs help as for unit 1. The candidate should score at least 1 on each of the criteria and 2 in the majority before being given the tasks. For the final criterion relating to co-operation and safety, the candidate must show reasonable capability. Any significant issues related to lack of co-operation, respect or regard for safety should result in withholding the certificate until the candidate consistently demonstrates positive attitudes.

Expansion of the assessment criteria

In general, encourage candidates to find things out for themselves through asking each other questions, internet searches or from prepared material. This will provide opportunities to begin to learn how to evaluate the effectiveness of their own and others' uses of information sources and ICT tools. We are providing the basis for them to use the outcomes of experimentation and dialog to improve the quality of their work and to inform future judgements. At Entry Level they will need

support in doing this but it will enrich the learning experience providing a better starting point for progress in higher level certificates. The supervisor may read the Awarding Body set test and task questions to candidates and there is a Moodle course on the web site as optional additional support.

General Knowledge of Open Systems

I know the term cross-platform meaning that there are versions of the software that can run on more than one operating system and I can name two examples.

Background for assessors - Use www.wikipedia.org and search for Cross-platform

A computer platform is largely determined by the operating system software. Industry trends are moving towards applications that run on more than one computer platform. There are several reasons for this.

1. The internet provides a standardized environment that is independent of any particular operating system and many internet applications can be run on a variety of computers. If you want to develop cross platform applications, developing web based applications is a good starting point. See for example Google's on-line word processor and spreadsheet at Google docs and spreadsheets.

2. The software toolkits needed to port major applications between operating software are becoming widely available and make it easier to move applications from one platform to another.

3. Although many people only ever think of Windows on the desktop when considering a computer platform, there are an increasing number of computer devices including, games consoles, mobile telephones and PDAs (collectively they outweigh Windows desktops many times over) that have operating systems other than Windows. These are becoming increasingly powerful and can run applications that were previously confined to desktop computers.

A cross-platform application is one that runs on 2 or more different operating systems but the usual reference is to Windows, GNU/Linux and Apple Macintosh when dealing with conventional PCs. Good examples are the Firefox web browser and OpenOffice.org. The advantage of cross-platform applications is that they enable users to choose the computer operating system they want to use. If you want a web browser but don't want to run Windows, you can't choose Internet Explorer 6 because there are no versions of Internet Explorer for other platforms (There was an earlier version for the Mac but that is not now supported.) but you could use Firefox. If you have both Windows and Linux computers on your site and want a common Word Processor you can't choose MS Word because it won't run on GNU/Linux but you could choose OpenOffice.org Writer. Cross-platform applications make it easier for organizations to migrate from one platform to another or to adopt a mixed platform strategy. This is important in driving competition and avoiding lock-in to a single source of supply for the applications required. Competition generally lowers prices and forces development of better quality products. Monopolies tend to stifle competition and remove the incentive for companies to lower prices or improve products.

Open Source applications provide the means for anyone to port the software to any platform whereas closed source applications need the owner to be motivated to do it. In some cases there are strong business incentives not to do it. Even if you only have Windows based computers on your site, you can use a GNU/Linux live CD to demonstrate a different operating system without installing any software permanently on your computer and without having to pay any license fees. To do this on a Windows machine first download a live CD image (You need broadband to do this reasonably quickly since in most cases there is the need to download a full CD-ROM of programs and data). Discs can be downloaded freely from http://ubuntu.com/download. Download the iso image, burn it to a CD (you need to burn the image as an iso image, not simply copy the downloaded file to the disc, look for something like "create iso image" in your cd burning software), put the CD with the iso image in the computer's CD-ROM drive and start up the computer. It will take several minutes to start up the software but nowhere near as long as it would to install it. If the computer ignores the CD and boots up from the hard disc in the normal way, there are two possible reasons. One is that the CD-image was not made properly, the other is that the BIOS settings of the computer are set to boot first from the hard drive and then from the CD-ROM. To change the "BIOS" setting in your computer, hold the delete key down at start up and go into the settings that give the order of boot devices, making the CD-ROM the first device for the computer to use - or ask your tech support! Note that when up and running, the live CD does not install anything permanently on the computer, all the software runs from the CD. When you take the CD out of the drive and switch off, the computer is back to how it was before you started. This enables you to demonstrate another operating system without needing the technical skills to install one, buy any special software or make sure there is enough space on your hard drive etc. You can copy as many live CDs as you like and give them to the candidates since all the software is Open Source. Live CDs can be very useful in rescuing data from broken computers or those that are riddled with viruses because Windows viruses don't affect GNU/Linux or its applications. This is of course in addition to providing access to a wealth of free software applications. Note Linux is strictly speaking just the core of the operating system. GNU (pronounced ghunoo) provide many of the supporting applications to give a fully featured platform so GNU/Linux is sometimes used rather than just Linux to give credit to GNU for their work.

What candidates need to know

For the Entry level 3 Bronze 3 certificate it is sufficient that the candidate knows that there are alternative computing platforms and some applications eg OpenOffice, Firefox, GIMP and Audacity have versions that can run on different platforms. It would be useful to show them a Windows computer running, for example, OpenOffice.org Writer and a Linux or Apple computer with the same software so they can see how similar they are and have the practical experience of more than one operating system. Some programs only run on one platform eg Internet Explorer 6 on Windows and many very specific education software applications. They should understand that the internet makes it easier to use different computers that would have been considered "incompatible" a few years ago because the internet is based on published open standards so all manufacturers can design products to access the internet from an even footing.

I know that sometimes it is easy and sometimes difficult to move information from one program to another.

Background for assessors

Compatibility is an often misunderstood term. Candidates should have some understanding of the difference between an operating system platform like Windows, GNU/Linux or Mac OS X, the applications that run on these platforms eg MS Word or OpenOffice.org Writer and the data files produced by the applications eg Open Documents and MS proprietary documents. There are

different compatibility issues for each layer.

Files (eg letter.doc)
Application (eg Word)
Operating System (eg Windows)
The internet as the computer platform built on open standards

Openness in the layer above enables choice and competition in the layer below

While a Word .doc file can be read by OpenOffice.org, MS Office can not open OpenOffice.org document files even though they are an agreed ISO standard (ISO 26300). (There is at the time of writing a start on the development of a plug-in to enable MS Office to read Open Document format files so this situation will probably change). This is important with E-mail attachments. Sending a MS Publisher file as an attachment to someone who might not have Publisher is bad practice and not consistent with social inclusion because the person receiving the file might not have the money to buy MS Publisher and there are no other applications that understand Publisher files. The more those well off enough to afford to buy Publisher exchange files in this way the more they reinforce the digital divide. Where possible, files with fully documented open formats should be used to share information particularly if you do not know what software the receiver is using. Open file formats provide choice in the software tools used just as cross-platform applications provide choice in the operating system. Choice forces prices down and quality up through competition. Assessors should also be aware that patents and copyright restrictions can provide a degree of risk in whether the information they create actually belongs to the user or the supplier of the software they use. There is more on this at http://en.wikipedia.org/wiki/Proprietary_format.

What candidates need to know

Interoperability of files can be a complex subject and will be dealt later in more detail so stick to practically useful examples. Candidates should try opening some files in different applications to see what happens. Opening a Word document in OpenOffice Writer will probably be indistinguishable from opening it in Word. Attempting to open a MS Publisher document in MS Word is not likely to result in anything useful. Opening Word documents in MS Works does not work well even though Word and Works are both MS products. Candidates should appreciate that standard documents that can be opened reliably in many relevant applications are clearly desirable to enable the software of different vendors to share information reliably. (This is the goal of the Open Document file format). File formats that are open to everyone and not tied to any particular commercial interest reduce risk of lock-in to particular vendors. For example, if a candidate is using MS Works at home and MS Office at school, installing OpenOffice.org at home would give them better file compatibility with MS Office than MS Works and is much more powerful than MS Works. Since OpenOffice.org is free, it is difficult to see why anyone would pay money for an inferior tool when a free better alternative is available. This is a good example of strength of brand name blinding people to rational decision making. Candidates should be aware of the potential to obtain better value through increasing their knowledge and understanding. Education empowers greater freedom of choice. Aim to promote

learning that improves decision making about which technologies to use on a rational basis rather than in response to high budget marketing. Candidates should be able to start considering simple analysis of the requirements of their tasks and use this, to inform their choices and decisions about the technologies they use. An increase in competition will lower prices and motivate innovation and therefore provide better products.

I know that some programs are free to be copied and distributed whereas others have copyright that limits distribution.

Background for assessors - Use www.wikipedia.org and search for List_of_software_licenses

Software licensing is another complex subject and so for Bronze level 3 we only need a very basic introduction and we will revisit it again later. While licensing is rarely understood in any detail, lack of understanding puts the user at a severe disadvantage compared to the supplier. While on the face of it, the freedom to copy software might seem a straightforward issue, it goes a lot further than the simple convenience of not having to bother with license keys and saving some money. The rules and legalities of copying and distributing software are so complex that it's often the case that software resellers and distributors don't fully understand them. How reasonable is it to hold someone criminally liable for inadvertently breaking rules that are so complex that even those selling the products don't fully understand them? This might be an interesting discussion topic for some candidates in the context of citizenship and rights and responsibilities. Broadband Internet connections have revolutionized the convenience of simply being able to download software as needed or using applications directly on-line. Ubuntu Linux has an Add/Remove programs button that enables the user to find any application from the internet and install it with a couple of mouse clicks. No license keys. No need to go and buy a CD-ROM and no need to pay anything. This is beginning to have a significant effect with a gradual shift to software either being freely downloadable as described or provided as part of another product or service direct from the net eg Google Maps and Google Earth. Finding and using free software requires some knowledge and so started with the more technically literate - an example of how knowledge can save you money - but now the know-how is easily transferable to everyone. In the longer term its likely that the Internet itself will become the computer platform with most of the commonly used software tools available directly through a web browser as and when needed, probably paid for through service provision and advertising. This is the world for which we are preparing our candidates even though it might take a number of years to become fully established.

What the candidate should know

Candidates should appreciate that the person writing the software is the copyright holder and owner and they grant permission to others to use the software in various ways through licenses. it is perfectly legal to copy and give out any or all of the programs on the OpenCD (www.theOpenCD.org) to their friends but it is usually illegal to copy commercially licensed software such as MS Office or any component of it. Ensure that the candidate understands the basic legal position and that they can name a few programs that are free to be copied and some that are not. Examples of those that should not be copied without paying license fees are MS Word, MS Excel, MS Powerpoint, MS Publisher, MS Windows, Adobe Illustrator. Copying these without permission is often referred to as piracy. Examples of software that can be freely copied are OpenOffice Writer, OpenOffice Calc, OpenOffice Impress, Inkscape, Audacity, Scribus, Gimp and GNU/Linux. There is a temptation to believe that the free software must be inferior. The reality is that the most popular examples are certainly good enough for most people's needs, its simply that marketing budgets make the licensed software generally better known or it has established a monopoly around a file format and people believe there is no alternative. Again, the internet is changing this and candidates should be broadly aware of the changes taking place so that they can start to benefit from them. Candidates should be

aware that most if not all free and open source software is readily available from the internet. Also note, Open Source software is **NOT** free from copyright it's simply licensed liberally to allow users more freedom when using it.

I know that some software called Open Source allows people to freely modify the code to make improvements.

Background for assessors - Use www.wikipedia.org and search for Open Source

In practice most Open Source software is free of license fees but not all software that is free of charge is Open Source. If a company gave away its software for free but kept the source code from which the software was generated secret, the product would be free of charge but not Open Source. An example is Internet Explorer. While there are a number of Open Source licenses for software, most confer the freedom to view and modify the code and to produce new software using what has already been produced. This means that if someone wants to learn how code works they can see many examples in Open Source applications. For example, this would make it impossible for a software supplier to build malicious but secret functions into the code - eg to get personal data about users. If a programer has an idea to produce a new software application they don't necessarily need to start from scratch because they can use other Open Source code without worrying about license restrictions. The ability to re-use code leads to more efficient methods of development as it obviates the need to keep "reinventing the wheel" for each new application but it is not immediately intuitive as to where the money comes from for development. The details of the financial models for Open Source development are beyond the scope of this document but suffice it to say that a lot of Open Source software exists and it's growing in strength around the World. The Japanese Fruit Grower Fairy Tale on the web site in the resources section is a good introduction to the basic concepts and it is linked from the Moodle course too.

What the candidate should know

Open Source software is software that is free for anyone to use, whether just as a normal software application or where a programer wants to take the code, learn from it or develop new software. By letting everyone see how the program works we can be reasonably sure that there is nothing secret in the code that we might not like and bugs in the code can be spotted and even fixed by more expert users out in the community. New software can share code with tried and tested software making development quicker and less expensive. While at one time open source software was mainly associated with technical people, increasingly it's used by people who just know enough to take advantage of using it and it's now no more difficult than with any other software and can in some cases be easier.

I have visited 3 web sites that provide free and open source programs for download.

Simply make sure they have visited some Open Source web sites eg OpenOffice.org, Ubuntu, Mozilla, Gimp. Any 3 will do. Sometimes only the source code is made available but this is increasingly uncommon. Usually the site has a download section where the user can download and install the program directly from the internet with clear instructions about things like versions for different operating systems.

I know that Open Source communities collaborate using digital communications to produce useful resources for everyone to use.

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Background for assessors

Open Source communities are the people behind Open Source digital resources. The make up of the communities is quite varied. From individuals with a particular interest in a product to multinational corporations. In many ways the communities reflect society as a whole and they are as much a valuable resource as the products. Community members learn from one another while producing resources for the common good in a wide range of areas, not just about computer programming. There are native language projects for translating documentation introducing an international dimension, marketing, art work and so on. Each member gives a small amount but gets back the collective efforts of everyone else. The internet means that distributing the products is effectively free so mass distribution is perfectly feasible. Anyone can join an Open Source community. They can simply observe or take a lead role, the nature of the role largely depends on the motivation of the contributor and how worthwhile the contribution is judged by fellow community members. Communication between community members is mostly through E-mail lists and forums but there are physical meetings through conferences and conventions.

What the candidate should know

Open Source communities are made up from people around the world who have an interest in producing useful resources for everyone. People do this for a variety of reasons. Some are simply interested and like to meet others with similar interests and feel they are doing something useful. Some companies help develop open source resources because it is less expensive than doing all the work themselves or buying a lot of software licenses off other companies. Anyone can set up their own Open Source community. All they need to do is build a web site and get other people to help them develop some digital resources useful to others. If their site gets popular it can grow to almost unlimited size because people from all over the world can take part. The Japanese Fruit Grower Fairy Tale on the web site in the resources section is a good introduction to the basic concepts. It is linked to the Moodle course for BI 3 Unit 1 in the on-line courses section of the web site.

I know that standards are important to enable information from one program to be used in others from different suppliers

Background for assessors - Use www.wikipedia.org and search for standard

What the candidate should know

Standardization makes things more predictable and provides greater choice for users. 3 pin electrical plugs fit into wall sockets because there is an agreed standard and I know if I make a plug to that standard it will fit in every socket in every house in England. (In most other countries 2 pin plugs are used! This is why socket adapters are often needed for travel abroad) Compare this with the power chargers for mobile telephones which come in different shapes and sizes from each manufacturer in every country. Wouldn't it be easier if everyone's 'phone could use the same type of charger? New technologies tend towards standardization once the initial innovation settles down. When moving information between computers each program has to be designed to understand information presented in a particular way, if every program on the internet was different in the way mobile phone chargers are, the internet simply wouldn't work.

I know that some standards are agreed by many interested parties whereas others are determined and controlled by individual interests.

Background for assessors

A standard owned by a single company has some specific disadvantages. If your information is tied to that standard, you are in a vulnerable position if the company decides not to support the standard any longer or to revise its prices upwards.

Standards such as ISO 26300, OpenDocumentFormat, (see http://en.wikipedia.org/wiki/Opendocument) the format used by OpenOffice.org, Koffice, Google Docs and a number of other applications, are designed to specifically enable free exchange of information between people and a wide range of software without having to pay royalties or buy the products from an individual vendor. Proprietary formats such as that used in MS Word .doc files are still very common but this is beginning to change. The file format .doc grew up at a time when the dangers of lock-in to individual vendors were not considered to any great degree and the focus was more on hardware open standards than software. The need for interoperability with internet data structures has changed this. The .doc format grew up from word processing on desktop computers and we are now in the era of sharing information using a global internet. There is much greater need now and in the future for applications to share information operating with 100% certainty of that information providing owners of the information unrestricted access to the information that they own for as long as they want to. Unless we are happy to allow one or two companies to control the whole of the internet and all our stored data, open data formats are absolutely essential to the healthy growth of technology now and in the future. Cost is also an issue. While the cost of a computer has steadily fallen over the last few years with intense competition between component vendors, the cost of operating system software has stayed about the same. This is almost certainly due to the lack of competition in this market and so although most people don't realize it, around 25% of the cost of their computer is the price of Windows. Meanwhile, the Open Source Software market has grown from strength to strength globally without requiring any payments for licenses or any administrative overhead with license keys and license management. This indicates that the premium price attracted by Windows is largely due to its position as a standard platform monopoly that most people have historically targeted for writing their software. There is nothing inherent in the technology or manufacturing cost that determines the price, its the effect of Windows as a proprietary standard that enables the price to remain high.

What candidates should know

For the Entry Level 3 certificate, candidates should understand that lock-in to standards owned by single monopoly suppliers will generally lead to more expensive products and can reduce technological innovation. They should be aware of the fact that while standardization makes it easier to work together it can also pass a great deal of power to one individual or company that owns the standard. Open standards are therefore highly desirable and there is a responsibility for governments to actively promote open standards for the benefit of all supporting the standards endorsed by organizations such as BSI (British Standards Institute) and ISO for international standards. Again use the Japanese Fruit Grower Fairy Tale on the web site in the resources section as an introduction to the basic concepts.

I know that mobile telephones are small portable computers that can communicate effectively even though they run a variety of different software.

Background for assessors

Use the example of the mobile (cellular) telephone to illustrate lack of standardization in terms of power connections but the fact that machines with different software can still communicate with each other. They should appreciate that a mobile telephone is a small computer used for a specialist purpose and that phones use a range of operating software from different suppliers. The telephone technology is heavily subsidized by service revenues and there is a lot of market pressure to push the price of handsets down. At the time of writing, computer manufacturers pay about $100 for a Windows license for a new computer. There is no chance that any software supplier could achieve this price for a mass produced device such as a mobile telephone where there is no dependency on the operating system for running specific applications and there is intense pressure from competition to reduce costs. In fact the Open Source Linux operating system is becoming increasingly popular with handset manufacturers because there are no license charges and the telephone manufacturers can freely adapt it to their own needs. This also stimulates innovation as well as lower prices.

What candidates should know

Candidates should be familiar with the mobile (cell) telephone to illustrate basic ideas about standards, competition and innovation.

I know that telephone calls can be made over the internet to international destinations at much lower cost than with conventional dedicated lines.

Background for assessors

This is a practically useful piece of knowledge. Skype is an application that candidates can install on their computers and use it to make internet based telephone calls to any other Skype user in the world at no additional charge beyond their normal internet connection charges. They can also call ordinary telephones through Skype out which is a lot less expensive than a normal telephone call. It is very likely that telephone calls over the internet like this (Called Voice over IP or VoIP) will become the norm and there are telephones that are adapted to do this so that you don't need to use a computer. Thus talking to people around the world is going to get a lot less expensive. Skype is currently free but the software and protocols are not open so at some time in the future the people that own Skype could start charging for it at a premium rate. A similar project based on open standard protocols is Gizmo. This might be important in ensuring that Skype prices stay down. If Skype eliminates competition and gains a monopoly position, Skype shareholders will almost certainly maximise their income by raising prices knowing that the customers have no other choice.

What candidates should know

Candidates should know that it is possible to get free of charge software from the internet that will allow them to get their telephony at a much reduced cost by direct connection to others over the internet, particularly for international calls. They should understand that communications protocols (agreed ways of transmitting and receiving data) enable this to happen but if these are owned by a single commercial interest there is another opportunity for a monopoly to be created.

I understand the need to work safely and to respect the environment

What candidates should know

Candidates should know about basic security, keeping their files safe and maintaining a safe working environment. This is related both to the physical environment, co-operation with others, keeping data secure and finding things out by searching for information. Files should be saved with sensible names so they don't get lost. Directories should be divided into logical subdirectories and unwanted files archived or deleted. They will need to show some evidence of being able to evaluate the effectiveness of their own and others' uses of information sources and ICT tools, using the results to improve the quality of their work and to inform future judgements. At this stage its good enough for them to know some of the basic principles and recognize good practice even if they don't always manage to replicate it. They should understand that if they work on a network it is likely to be backed up regularly so they are less likely to lose important work than if they have a single copy of it on media such as a USB memory or a CD. They should also realize that computers consume quite significant quantities of electricity and should be shut down and switched off when not in use for long periods, especially over night. They should be aware of basic ergonomic considerations such as sitting with good posture and ensuring light is adequate for reading and there are no reflections from the screen that make it difficult to read.

Using ICT Systems

I can start up and shut down a computer and understand the need not to waste energy

Candidates should be self-sufficient in starting up and closing down computers and other devices they use. Leaving computers on for long periods unattended is environmentally irresponsible and so if they know the computer is not likely to be used for some time they should shut it down. You might like to work out the power consumed by the computers in a school with 1000 machines. Some Google searches will show that even idling a desktop computer will consume about 100 watts. For 1000 machines it would be like running 10 single bar electric fires continuously. Not very environmentally friendly and quite expensive in electricity.

I can use a range of devices to get information into and out of IT systems including keyboards, mouse, microphone, touch screen, printer and headphones

Candidates should operate input and output devices routinely and efficiently during the course of their work.

I can name 6 different software applications that I have selected and used to support my work.

Candidates simply need to have used at least 6 applications and name them. They should be becoming aware that there are specialist applications for some tasks that are free and better than simply using additional facilities that have been added to feature laden productivity tools. eg Inkscape for drawing and graphics illustration as opposed to drawing tools in word processors and desktop publishers.

I can work out how to use ICT devices and software that are similar but not identical to ones that are usually available.

Even computer systems based on the same operating system will appear differently depending on the set up. Linux live CDs are an easy way to provide practice. They can provide a new user interface directly in a few minutes without having to install anything permanently on the computer. Candidates should be able to find their way around the desktop starting applications and finding where files are stored using icons and menus intuitively. They should be able to do a simple analysis of the requirements of the system and take account of any new information that they might need.

I can adjust the default settings on a computer to suit my own preferences

The Linux live CD (eg download from www.ubuntu.com) is useful here if the normal network machines are locked down to prevent any changes. Candidates can show that they can change the look and feel of the desktop by going to the system preferences and changing things like the colour scheme or screen resolution. This only affects the Linux software which is only temporarily loaded and disappears as soon as the machine is switched off.

I keep my files in a safe place using sensible file names

Candidates should save files in a defined user area and have sub-directories where appropriate. They should give useful names to files so that they can remember what is in them and have a good chance of finding them with searches. A user area is a basic e-portfolio. Organizing the content into appropriate directories and sub-directories can be just as effective as expensive "e-portfolio software" for the purpose of keeping evidence of attainment.

I can use media storage devices such as a CD-ROM, DVD or USB memory stick to get information into and out of a computer

Again, live CDs are a practically useful place to start. There are even entire operating systems and applications suites that can run from a USB memory stick. Just like live CDs you can get live USB sticks. Ensure that candidates have the capacity to get files into and out of standalone machines and networks using available media stores.

I can adjust my seating position and the lighting to provide a comfortable working position

Build on the Entry Level 2 requirements for typing with good posture taking account of lighting and other environmental factors that might have a bearing on health and safety.

I am careful to keep my work place tidy avoiding safety hazards such as loose cables.

Candidates should take personal responsibility for keeping their working environment safe.

I understand the need to keep passwords and PIN numbers secret

Candidates should be developing an understanding of why passwords and PIN number security is important. They need to demonstrate this in the context of their everyday work.

I work co-operatively and safely at all times, respecting the work of others and avoiding conflict

Build on the work in the Entry 1 and Entry 2 certificates on co-operative working. The assessor has the option of withholding certification until such time as the candidate demonstrates capability to work safely in an ICT environment.

Specimen Tasks

Task 1

Start with the computer switched off, power it up and log on. (2 marks) Start the word processing software, start a new file and list 6 software applications that you have used numbering them with your favorite first. (6 marks). Save the file with your name and 6 applications eg Jane Smith 6 applications, (2 marks) Shut down the application, log out and when prompted power down the system. (2 marks)

Task 2

Start an audio program and use the microphone to record the following. “Audacity is free software for editing and recording sounds." (2 marks) Save the file with your name and the word audio eg Jane Smith Audio. (2 marks) Play back the file to check it has recorded properly. (2 marks) Find the size of the file and rename it including the size in the filename eg Jane Smith Audio 154k (2 marks)

Moderation/verification

The assessor should keep assessment records for each candidate. In the case where some candidates have failed to achieve sufficient marks in the tests, the assessor's records should indicate against each of the assessment criteria and each set task any reasons for the differences in criteria matching and test outcome. These reports together with evidence requested by the Account Manager for Task1 and Task 2 should be E-mailed to the Account Manager prior to certification. A maximum of 20 candidates will be used for moderation depending on the size of the group being moderated.

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Links
[1] https://theingots.org/community/handbook