

Scheme of Work

Cambridge Lower Secondary

Digital Literacy 0082

Stage 7

For use with the curriculum framework published in 2019



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Introduction

This document is a scheme of work created by Cambridge Assessment International Education for Cambridge Lower Secondary Digital Literacy Stage 7.

It contains:

* suggested units showing how the learning objectives in the curriculum framework can be grouped and ordered
* at least one suggested teaching activity for each learning objective
* a suggested project at the end of each unit that will consolidate the learning
* a list of subject-specific language that will be useful for your learners
* sample lesson plans.

You do not need to use the ideas in this scheme of work to teach Cambridge Lower Secondary Digital Literacy Stage 7. It is designed to indicate the types of activities you might use, and the intended depth and breadth of each learning objective. You may choose to use other activities with a similar level of difficulty, in order to suit your local context and the resources that you have available. You may also choose to adapt the suggested activities and the projects so that they can be embedded within the teaching of other subjects.

The accompanying teacher guide for Cambridge Lower Secondary Digital Literacy will support you to plan and deliver lessons using effective teaching and learning approaches. You can use this scheme of work as a starting point for your planning, adapting it to suit the requirements of your school and needs of your learners.

Long-term plan

This long-term plan shows the units in this scheme of work and a suggestion of how long to spend teaching each one. The suggested teaching time is based on 30 hours of teaching for Cambridge Lower Secondary Digital Literacy Stage 7. You can adapt the time, units and order of the units based on the requirements of your school and the needs of your learners.

| Unit | Suggested teaching time |
| --- | --- |
| **Unit 7.1 Online interaction** | **7.5 hours** |
| **Unit 7.2 Creating and reviewing content** | **7.5 hours** |
| **Unit 7.3 File organisation and storage** | **7.5 hours** |
| **Unit 7.4 Online collaboration** | **7.5 hours** |
| **Total** | **30 hours** |

Sample lesson plans

You will find two sample lesson plans at the end of this scheme of work. They are designed to illustrate how the suggested activities in this document can be turned into lessons. They are written in more detail than you would use for your own lesson plans. The Cambridge Lower Secondary Digital Literacy Teacher Guide has information on creating lesson plans.

Other support for teaching Cambridge Lower Secondary Digital Literacy Stage 7

Cambridge Lower Secondary centres receive access to a range of resources when they register. The Cambridge Lower Secondary support site at [**https://LowerSecondary.cambridgeinternational.org**](https://LowerSecondary.cambridgeinternational.org) is a password-protected website that is the source of the majority of Cambridge-produced resources for the programme. Ask the Cambridge Coordinator or Exams Officer in your school if you do not already have a login for this support site.

Included on this support site are:

* the Cambridge Lower Secondary Digital Literacy Curriculum Framework, which contains the learning objectives that provide a structure for your teaching and learning
* grids showing the progression of learning objectives across stages
* the Cambridge Lower Secondary Digital Literacy Teacher Guide, which will help you to implement Cambridge Lower Secondary Digital Literacy in your school
* templates for planning
* worksheets for short teacher training activities that link to the teacher guide
* assessment guidance (to support classroom assessment)
* links to online communities of Cambridge Lower Secondary teachers.

Resources for the activities in this scheme of work

We have assumed that you will have access to these resources:

* paper, pens and pencils for learners to use
* digital devices, such as desktop/laptop computers, handheld devices and other hardware such as video and audio recording equipment
* software that will enable learners to:
* create and save digital artefacts
* communicate online
* digitally search for information.

Other suggested resources for individual units and/or activities are described in the rest of this document. You can swap these for other resources that are available in your school.

Websites

There are many excellent online resources suitable for teaching Cambridge Lower Secondary Digital Literacy. Since these are updated frequently, and many are only available in some countries, we recommend that you and your colleagues identify and share resources that you have found to be effective for your learners.

Approaches to teaching Cambridge Lower Secondary Digital Literacy Stage 7

Cambridge Lower Secondary Digital Literacy can be used flexibly as a standalone subject, integrated within other subjects or used as the basis for activities outside of the formal curriculum. During your planning you will need to decide which approach, or mix of approaches, will enable you to address each learning objective most effectively. The activities that are presented within this scheme of work are based upon Digital Literacy being taught as a standalone subject but they can be adapted to suit an integrated approach. As an example, learners can develop content creation and online skills through planning and creating blogs in language lessons.

To develop their digital skills it is recommended that learners are provided with opportunities to use a range of devices, such as desktop computers, laptops and tablets.

It is also recommended that typing skills are practised regularly through short activities, possibly at the beginning of a lesson. During Stage 7, you may wish to include a suitable typing scheme of work as part of your regular lesson planning.

Unit 7.1 Online interaction

| Unit 7.1 Online interaction |
| --- |
| Outline of unit: |
| In this unit, learners will explore the benefits and risks of using online communities, including social media. They will also develop further strategies and skills that will enable them to be responsible and safe within the communities that they choose to join.  Learners will continue to explore how people behave online, including how some users may seek to antagonise others, and they will understand their own responsibility for their personal digital safety. They will also explore and discuss how online activity is stored and how this could have positive and negative effects on their lives in the future. The unit will also consider how live news and events can be represented online, and the positive and negative impacts of this.  The project at the end of the unit will allow learners to explore their creativity and consolidate their learning. |
| Knowledge, understanding and skills progression: |
| This unit will build upon prior knowledge of general eSafety, with a focus on the risks of using online platforms. In order for learners to access this unit, they must have some prior knowledge of the basic eSafety principles, such as:   * how to report unwanted material * how comments posted online cannot simply be deleted as they may already have been shared further or copied to another location * how to recognise potentially malicious activity, such as unknown friend requests. |
| Language: | |
| * online * communities * social media * reporting * troll / antagonise / negative comments * blocking * platform * responsibility * viral media * digital footprint * data * vlogger | |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **7TC.01** Develop fluency and accuracy when typing in increasing quantity. | To embed effective accuracy within the Cambridge Digital Literacy Curriculum, it is beneficial for learners to practise their keyboard fluency regularly. This could be the focus of a class challenge where learners test their touch-typing fluency and accuracy against their peers. There are various websites which allow learners to practice their speed, placement and agility in these areas.  **Resources:**   * A touch-typing course. * Touch-typing websites/games. | Typing should be practised throughout the activities within this stage. For a more cumulative approach to developing fluency, however, it can also be done as an introduction or starter activity across a series of lessons, depending on the time available. |
| **7DW.02** Understand the benefits and risks of online communities.  **7SW.02** Understand that they have personal responsibility for their digital activity, safety and wellbeing. | Ask learners to list methods that people use to interact with others online. The responses are likely to include:   * social media * games * blogs * wiki’s * forums * email.   *What are the reasons why people use online communities?*  In pairs or small groups, give learners a series of scenario cards which outline specific situations related to the use of online communities. For example, one of the cards could explain how a learner has joined a social media group to talk about their future study options, and another could focus on a hobby that is likely to be of interest to a number of the learners in the class. The groups discuss why the person in their scenario would want to use an online community for guidance or help.  Each group shares their scenario with the whole class and explains their conclusions.  *Why have specific online communities developed?*  In their groups, learners discuss the reasons why online communities have developed, using their scenario cards to guide their discussion.  The class uses the outcomes from their group discussions to create a collaborative mind map which identifies the reasons why online communities have developed.  *Can you explain the potential problems with using online communities?*  Provide groups with a further set of scenario cards which outline potential issues that are related to online communities. For example, as a continuation of the scenario of the learner asking for advice on future study options, a problem could occur if another user posted a comment asking what school the learner was from. This might make the learner vulnerable, as the community might already know their name from their profile.  Learners match the potential problems with their existing scenario cards to make the link between the benefits and risks of online communities.  *Where can online users go for help if they feel uncomfortable with something they see online?*  At this point it would be beneficial to have a discussion with learners about local procedures and expectations of where they can report any online content or contact that causes them concern. Remind learners that this concern can result from requests for personal information and from negative or hurtful comments.  **Resources:**   * A collection of scenario cards which outline a specific online community user / situation where someone could use an online community. * A further set of scenario cards which identify potential risks/issues with the use of online communities. | When discussing this topic, learners might focus on social media, as this is likely to be most relevant to their current experience, so it may be necessary to encourage them to explore their prior learning to capture the other methods.  Explain some of the age limits that exist on certain platforms. Also discuss why these are intended to protect young people and are not merely intended to be an unnecessary restriction on enjoyment.  When working within groups, learners may need encouragement about working together as a team to focus on a topic. Monitor this and provide support with leading questions if needed.  When learners are discussing these scenarios, guide them towards a wide range of potential benefits, for example:   * product reviews or recommendations * travel advice * exam/revision discussion * TV/film discussion * gaming forums * music news, etc.   This will be particularly effective if all of these cards were continuations of the initial scenario cards from earlier in the activity.  This is an ideal opportunity to reflect on general eSafety best practice and what to do if learners are worried about something that has happened online. |
| **7SW.01** Know some people purposefully antagonise other online users and understand the risks of engaging with that behaviour.  **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia. | *Why would somebody want to antagonise another person online?*  Provide learners with examples of social media posts that contain deliberately provocative content. Also include examples where comments are constructively disagreeing with the original post so that learners can begin to identify the difference between the two.  In small groups, learners discuss the posts and identify how users can be purposefully antagonised. Each group then shares their examples with the whole class.  Make sure that learners are aware that purposeful antagonisation is not limited to social media. It can also be present in text messages from mobile phones, online gaming, review websites, geotagging locations, etc.  *What impact could retaliating to an online troll have on you?*  Establish the impact of retaliating to posts on the internet. This could include:   * the risk of saying something equally inappropriate * getting blocked or having a profile or page deleted as a result of entering into an argument * the fact that personal and emotional distress can be increased if a negative dialogue is allowed to continue.   Explain that the most likely aim of a troll is to provoke a response from the person that they are trolling. They will therefore do all they can to annoy their victim with further comments if the dialogue is allowed to continue.  *What should you do if someone tries to deliberately antagonise you on an online platform?*  *What strategies could you employ to avoid prolonging or becoming emotionally involved in potentially negative online discussion?*  Learners digitally create a poster, aimed at younger learners, which highlights the risks of engaging with online trolls.  **Resources:**   * A series of screenshots which show social media posts that have been the target of trolling or negativity. * Some screenshots of constructive criticism or expressions of alternative opinions within social media posts. * Examples of effective poster design. | When exploring online trolling, ensure that this is directed by you rather than letting learners search for examples themselves, as this might return some disturbing results.  Learners may focus on the bullying aspect here, such as appearance, wealth or popularity. Ensure that they are aware of other issues which trolls might discuss, such as:   * religious beliefs * race * culture * location * political interest * hobbies * favourite clothing brands, celebrities or musical genre, etc.   It may be helpful to set some simple expectations for poster design, for example:   * using contrasting colours * using clear images * using age-appropriate language.   As an alternative, learners could also script and film a video that will inform younger learners about the risks of engaging with online trolls. |
| **7SW.02** Understand that they have personal responsibility for their digital activity, safety and wellbeing.  **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia. | *Why is it important to think before you post a message?*  Provide learners with some examples of viral social media posts which have caused controversy and led to the person posting it suffering consequences, such as being sacked from their job or being given a negative reputation. Discuss these and explain how a post can be written in a moment of anger and then sent to multiple people and, potentially, gain worldwide recognition.  *How can social media affect our lives?*  Discuss how social media and other online platforms can affect the way we feel.  Provide learners with real-life examples of social media content that could impact the sensitivity of the reader. An example could be a user who shares many posts about their amazing lifestyle, including expensive holidays, designer clothes and seemingly limitless access to the latest technology. Contrast this example with a person who reads these posts and may never be able to access such a lifestyle.  *What impact do you think that these posts could have on the emotional wellbeing of the person who reads this content?*  *What could they do to protect themselves?*  *How can you take responsibility for your own digital activity:*   * *as a reader of other people’s posts?* * *as the creator of content yourself?*   Provide learners with a presentation of statistics that relate to the online activity of teenagers in your region. It might be useful to contrast these statistics with those for other regions. Relate the statistics back to health issues such as obesity, addiction, anxiety and isolation.  Learners discuss how online activity can have a negative impact on teenagers. As well as the negative content aspect, ensure that they consider that there are only 24 hours (1440 minutes) in a day and how the time spent using social media could be spent on other important things. Some social media users are engaging too much time online which might be detrimental to their social skills, and to their opportunities for enjoyment, in the physical world.  Learners create a checklist for their peers about how best to behave when using online platforms. This could be in the form of an insert into a school diary, timetable or work planner or it could be designed as a blog post that could be shared with new learners in the school.  **Resources:**   * Example social media posts which have gone viral and caused upset. * Some example social media feeds, showing a lavish lifestyle filled with travel, adventure sports and designer products. * A presentation outlining statistics related to online activity in teenagers and the correlation between issues in health and wellbeing. | Ensure that the posts used are appropriate for your learners, avoiding themes which may upset or anger any individual within the class.  Ensure any resources used are appropriate for the audience.  Ensure the focus here is linking how increased online activity can result in negative connotations for a person. |
| **7SW.03** Understand that all online activity can be collated and added to a user’s digital footprint, which can have positive and negative consequences. | Provide a list of links to resources which explain how long data can be stored online. Also share a list questions that can be answered by these resources, for example:   * *How long is your online content stored online?* * *Can information be deleted easily from the cloud?* * *What is a digital footprint?* * *What can you do if you post material online that you are not happy with?*   Learners work individually to answer the questions and then discuss their answers in small groups.  In their groups, learners discuss what could happen if they posted information online and then decide that they want to remove it. The groups should identify that, as soon as the information was originally shared, it may have been copied or saved elsewhere and therefore may still be available to be recalled and published further.  *What happens when something posted online goes viral?*  Explore some examples of viral social media, videos or performances. Discuss what could happen to the subject of the posts after a sudden rise to fame.  Learners create a collaborative mind map of the potential positive and negative effects of such a sudden rise to fame. It might be helpful to direct them to famous examples such as pop stars, vloggers, or other pop culture personalities. Alternatively, share an invented scenario about a learner whose profile suddenly rises within the school as a result of something that they have done online that has then been shared with every member of the school community.  *If you post something online and someone else sees it, how easy is it to remove?*  Discuss how information posted online is there for the foreseeable future and does not completely disappear when it is deleted. Instead it is cached on different web servers and may be accessible to everyone online.  **Resources:**   * A list of links to online websites relating to data and how long it is stored on the internet. * Examples of viral social media, videos or performances. * An invented scenario of a learner who becomes a local celebrity as a result of something that they post online. | Ensure appropriate filters are applied to internet connectivity so that learners do not obtain inappropriate adult themes.  Computers incorporate several different types of cache, including browser cache, memory cache and processor cache. Caching is done in the background and the browser cache is the only one that it is possible for a user to control – users can do this through their browser preferences. |
| **7DW.01** Describe the positives and negatives of online live coverage of news and events. | Provide learners with some role-play scenarios that represent situations where online live coverage of news or events has had a positive or negative impact. These could include scenarios from news and current affairs websites where content was unplanned and caused offence or misunderstanding, for example where the broadcaster’s need to communicate the story quickly created misunderstanding or was based, in part, on incorrect information. Issues that could be raised in these scenarios include:   * the published content may be unscripted or unfiltered, which could lead to misinterpretation * unedited content can lead to disturbing videos being widely shared before controls can be activated * that much of the content is based on ‘eyewitness’ reports that are taken from social media (which may or may not be accurate) * names of victims of accidents, crimes or disasters could be released on social media before their families have been informed * social media users could instantly post videos that compromise police or security activity * that instant news can have a positive impact, for example in a situation where the public are being advised that an event has been cancelled at the last minute or when an incident requires immediate help from volunteers.   *Why is live news coverage such an important part of the internet?*  *Can online coverage be a bad thing?*  Discuss that we live in a world where everyone wants information instantly and for that information to be available on multiple channels.  Also, discuss the advantages and disadvantages of this. An example could be about topical current news such as severe weather events, which show live coverage of devastation and the impact on local communities. This will have positive and negative impacts, such as the awareness and call for aid as well as the potential distress of those involved being captured on screen and widely broadcast.  Explore the negatives of such coverage, for example how it can impact the individuals who are the subject of the content and how it can cause offence or defamation.  Discuss the potential effect when viewers are able to comment on news stories.  Learners explore how much of the online content is gathered through the use of social media accounts. They should write an imaginary scenario of their own about a news story that is being published instantly and is based on gathered social media accounts. Their scenarios should consider how the social media postings could be:   * helpful * incorrect * contradictory * deliberately misleading or malicious * misinterpreted by the news editor * a cause of confusion amongst the readers.   The learners’ scenarios can portray either a positive or a negative outcome.  **Resources:**   * Set of role play example scripts highlighting the positives and negatives of online live news coverage. | Although learners may be reluctant to conduct role-play activities, this is a powerful way for them to explore the consequences of different scenarios.  This will provide another opportunity for learners to discuss the impact of trolling. |

| Example Project – Unit 7.1 | | |
| --- | --- | --- |
| Learning objectives | Project outline and resources | Teaching notes |
| **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **7DW.02** Understand the benefits and risks of online communities.  **7SW.02** Understand that they have personal responsibility for their digital activity, safety and wellbeing.  **7SW.03** Understand that all online activity can be collated and added to a user’s digital footprint, which can have positive and negative consequences. | In this project, learners should reflect on and include the content of this unit. They will create a video clip that provides an online resource for other learners in the school to learn about how to moderate their own activity when using social media.  The video will include:   * a clear message * sound * moving image * consistent colours and fonts.   It may also include a role-play, sound effects and/or music.  The project should begin with some pre-production planning in the form of a storyboard, however, this could be extended by asking learners to explore the use of a mood board, mind map or script to further establish their planning. It may be necessary to display templates for these documents or to develop them with learners.  Remind learners to select from all of the hardware and software resources that are available to them. Remind them that they must only use copyright free sources for images and sound clips.  **Resources:**   * Appropriate video editing / movie making software. * Video/sound recording equipment (optional). | It might be necessary to allow learners time to reflect on the learning outcomes from this unit before they begin to plan their project.  Prior learning or understanding of video and sound editing will be required. Therefore, it may be necessary to refresh learners’ prior knowledge or to adjust the scope of the task.  The ‘moving image’ element to the videos could be:   * a series of images with transitions * captured digital footage, such as a role-play * a news-style, single speaker, presentation.   The choice may be dependent on learners’ prior knowledge and on the availability of resources. |

Unit 7.2 Creating and reviewing content

| Unit 7.2 Creating and reviewing content |
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| Outline of unit: |
| This unit will enable learners to use research to inform their own output, while understanding the need to respect the wishes and rights of the creators of the sources that they use.  They will also explore how to create text for a specific audience, and how to work with others to reflect on and improve work that has been created digitally. This will include understanding how they can respond to feedback, and give clear direction to other learners, about how work can be improved to suit particular criteria.  The final project will allow learners to apply what they have learned, explore their creativity and consolidate their learning. |
| Knowledge, understanding and skills progression: |
| The unit content will build upon previous learning around using sources of information to produce a complex document. Learners will need some prior knowledge of how to structure a piece of writing, how to create a document to meet a brief and to understand that restrictions apply to the copying of online content. |
| Language: | |
| * accuracy * content * track changes * comments/feedback/direction/guidance * plagiarism/crediting/sources/ownership * authenticity * research * audience/purpose | |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **7TC.01** Develop fluency and accuracy when typing in increasing quantity.  **7TC.05** Use track changes and comments when editing documents. | Provide learners with a set of criteria that should be used to write a piece of text for inclusion on the school website. The criteria will include:   * the word count * the time limit for typing the text.   The time limit should be sufficient to allow most learners time to type a complete draft but should also require them to type quickly and to recognise the purpose of deadlines.  Learners could be directed towards a topic for their text, such as:   * content that is relevant to their current studies * content that addresses a particular need on the website, for example a page to welcome new learners to the school * content that follows from a given first sentence starter, for example ‘The meals at our school are great because…’     Alternatively, allow learners to write about a topic of their choice, as long as their text will be of interest to their audience, i.e. other learners.  *Why is it important to review the content of a digital artefact?*  Demonstrate some of the proofreading tools within the text processing software that they are using. These tools should include track changes and the comments feature.  Allow time for learners to practise using these tools. Encourage them to support each other as they work.  Discuss the advantages of being able to add comments to a piece of work and how these comments might be used to direct and improve the output. Draw attention to the facility to reply/resolve/remove comments in order to guide the discussion.  *How can technology be used to record changes made to a document?*  Discuss the purposes of the track changes feature. These should include:   * it allows a reviewer to suggest changes to the original author * it allows for the changes to be suggested without the need for conversation * the author can easily accept or reject the changes * the author can ‘trial’ changes to their own text before deciding which version works best.   *How can you use the track changes and comments features to provide feedback to a peer?*  Learners exchange the website extract that they created earlier with a partner. They can do this via email, a Virtual Learning Environment or a central file exchange server. The partner uses the comments and track changes features to provide feedback on the original draft.  Learners spend time improving their work in response to the peer feedback, using the track changes and comments features.  **Resources:**   * Specific scenarios to prompt learners to type a text extract that will be suitable for publishing on a website. | Learners may struggle to think of content ideas if they are not given some direction. Support them by sharing some examples before they start to type their own texts.  Some of these tools will have been used by learners in earlier stages. Therefore they could be asked to identify or demonstrate these themselves.  This will be a practical task and should be adapted in terms of the school networks used. If email is not permitted, then files could be shared via a shared central folder or using a file sharing web-based service. |
| **7DW.03** Understand plagiarism, crediting, citation and fair use.  **7TC.06** Use advanced search techniques to refine search results. | Remind learners about their learning from earlier stages regarding the restrictions that apply to copying online content.  Explain the term ‘plagiarism’.  *Why should plagiarism be considered to be a serious issue?*  Learners research the potential negative consequences of plagiarism. They should consider their current lives, as learners, in their research as well as the potential legal, financial, reputational and professional consequences that need to be considered by everybody.  The class discuss the results of the research and create a class list of potential negative consequences.  Learners discuss what plagiarism means to them and how they could be exposed to risk when completing items of coursework, etc.  Introduce different methods for checking if plagiarism exists in a piece of work. These could include:   * sense checking a piece work to identify areas of potential concern – this could include a change in the writing style at certain points within a document or the inclusion of facts or detail without acknowledging a third-party source * using an internet search engine to search for certain text extracts within a document to see if this results in any clear matches * using plagiarism-checking websites or software where content extracts can be uploaded to see the level or authenticity within the work.   Provide learners with some example text extracts. They work in pairs to judge the authenticity of each, using the checking methods that are available to them. This will enable learners to see how content can be deemed as being plagiarised.  Learners could use their knowledge and understanding to check some of their own work to find the authenticity results.  **Resources:**   * A plagiarism-checking website. * A group of resources that learners can use to check for authenticity and for plagiarism (these could range from entirely plagiarised, to entirely original). | Plagiarism is the copying of another person’s work and presenting it as a ‘new’ piece of work. This includes the work of other learners as well as content from books, images and web pages.  This could be a sensitive area for learners. The objective is not to scare them but to demonstrate how plagiarism is a serious issue that has many potential negative consequences.  The use of plagiarism-checking sites can often require a subscription, however there are some that are free to use and allow small texts to be assessed, often in the form of a .txt or .doc file. Also check that these sites are not blocked by your school firewall/administrator. |
| **7DW.03** Understand plagiarism, crediting, citation and fair use.  **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **7TC.01** Develop fluency and accuracy when typing in increasing quantity. | *Why is acknowledgement important to the creator of a piece of work?*  Discuss why authors/creators would typically want their work to be acknowledged.  *How can sources be used correctly in research?*  Learners research how to correctly acknowledge the creator or source of a resource that they may use in their work.  Display some examples of effective crediting/citation such as that used in textbooks, lesson resources or within web pages. This should cover a wide range of content such as video, sound, images and text.  Learners research the legal implications of not following appropriate crediting or citation guidelines.  Learners use their knowledge of how to appropriately credit and cite references by completing a short research task. For example, you could provide learners with a scenario where they create a short revision note for their peers based on a recent topic of study. The revision note, including the appropriate credit and citation, could then be emailed to each member of the class.  **Resources:**   * Some examples of publications which have effective crediting/citation. * A scenario for learners to attempt such as an email to their peers on revision techniques for a specific subject. | This activity will often focus on longer, higher-level research-style documents. However, make learners aware that the referencing of this research is done in many different formats. A factor in these variations will be the platform that is being used for the secondary publication of the research, such as a website or a news report.  It may be helpful to provide learners with a template for this email. |

| Example Project – Unit 7.2 | | |
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| Learning objectives | Project outline and resources | Teaching notes |
| **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **7DW.03** Understand plagiarism, crediting, citation and fair use.  **7TC.06** Use advanced search techniques to refine search results. | In this project, learners will create the content for a new microsite which will be issued to other learners to help them revise for an upcoming Science assessment.  Provide learners with the criteria for their project, such as:   * the topic/areas to cover * the length of the pages * the number of pages to create (microsites usually only contain a few pages).   Learners will firstly research and source the content, including any diagrams and other supporting information that they will include. Remind them to keep a note of the origins of the sources that they select.  They produce the content using text processing software and proofread it for spelling, punctuation and grammar. The externally sourced material should be added in the appropriate places, along with suitable credit of sources, including the citing of any specific content.  Learners share their draft content with a partner who will offer feedback using track changes and comments.  Learners then create a detailed visualisation diagram to explain what the layout, colour scheme and structure of the microsite will be. They also design the content of each page using either text processing or presentation software. Remind them to appropriately credit or cite the sources that they use within their content.  **Resources:**   * Software which allows learners to create a series of web pages. | A microsite is a cluster of pages within an organisation’s main website that delivers focussed content about a particular topic.  It might be necessary to recap how to use advanced search techniques to filter results for the appropriate audience/level, for example if learners are writing for a younger audience.  Learners can use their knowledge of the prior lessons to effectively structure this guidance. You may allow learners to give each other feedback using the track changes and comments feature if it is appropriate.  Remind learners of appropriate web properties, such as image size/quality, colour schemes when working with text, navigation, etc.  Learners will need support to help them develop their visualisation diagrams. The aim, however, is the content and the acknowledgement of the original sources rather than the overall quality of the microsite. |

Unit 7.3 File organisation and storage

| Unit 7.3 File organisation and storage |
| --- |
| Outline of unit: |
| This unit will familiarise learners with the different types of storage that are available on different digital devices. They will understand how digital storage methods are measured, including the typical capacities of HDDs and SSDs. Learners will explore how files contribute to the overall storage of devices and they will also discuss the advantages/disadvantages of using network attached storage over personal storage and cloud storage methods.  Learners will research cloud storage and evaluate its relative benefit in specific scenarios. They will also identify and explain the storage capacity needs of specific personal digital devices and provide justification of their decisions.  The unit will end with a focus on the future of storage technology and how this may impact on devices. |
| Knowledge, understanding and skills progression: |
| This unit will build upon some basic prior knowledge of file size, type and storage mediums. Learners will complete a range of discussion, research and examination-style activities in order to establish their understanding. Some prior understanding of storage mediums would be beneficial but not essential. |
| Language: | |
| * network/server * storage/capacity * hard disc drive (HDD) / solid state drive (SSD) * connection * files * device * cloud storage / local storage * kilobyte/megabyte/gigabyte/terabyte * legal * implications * physical | |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **7TC.03** Know that files can be stored remotely on other computers, networks or in the cloud. | *Where are digital files stored?*  Learners research the different methods for storing digital files and these are collated through a class discussion.  Introduce a range of different files, such as:   * photos * text documents * databases * sound files * video clips.   In small groups, learners discuss these files and place them into categories. The categories that they choose could include:   * how often the file is used * the need for the file to be on many devices or on only one device.   Discuss why each group chose to categorise their files in their particular way and elicit that it is important for some items to be easily accessible to a number of users.  *Why are files stored on computer networks?*  Learners research network storage. They should identify benefits, such as:   * files can be shared across multiple users * users can access files by logging in to any workstation.   Learners should also identify drawbacks, such as:   * the risk of connectivity issues * the need for particular software to enable access from outside a network * security risks.   Learners answer a scenario-based question, such as:  *In a small business, the business owner has decided to store all files on a central file server that is also located within the business premises. Discuss the possible benefits and drawbacks of using this type of storage.*  If possible, use the school network to demonstrate how a typical network-attached storage works. Explain features such as file recovery. This will vary depending on the network, but a demonstration of previous versions using the properties tab of a folder will highlight each version of the folder that has been synced with the server. It will also show the date and time of last restore point.  **Resources:**   * A scenario-based question on digital storage for learners to answer. * A prepared presentation about how a network operates, possibly using the school network as an example. | Learners may be unaware of basic network terminology, such as file server or network storage. Therefore, it may be necessary to introduce and explain these.  This is a good opportunity for learners to become more interactive with the content. Teachers could set up a file server system, with learners acting as the files and the direction of travel for files being stored. This could be targeted specifically, i.e. a database file could be used constantly therefore a learner will be sending data to the network storage often, whereas another learner could be accessing a less frequently used document meaning they are often idle.  This will depend on the availability of school network attached storage so may need to be investigated beforehand. |
| **7TC.03** Know that files can be stored remotely on other computers, networks or in the cloud. | *What happens when files are stored on one device?*  Learners discuss what might happen when files are stored on a single device such as a desktop or laptop computer. They should consider the security implications, such as other people accessing the information, and the safety aspect, such as if the device becomes corrupt, broken or stolen then the files are essentially lost. The emphasis of this section is for learners to establish that if a file or specific piece of information is stored on one device, this device is extremely important in terms of ensuring that data is secure.  *If an unauthorised person accessed this device, what would be the impact?*  *If an organisation relied on one device to store something, and that device became corrupt or was destroyed, how would they access that lost information?*  Elicit that it is not best practice for one device to store information, and that additional tools will need to be in place to protect the information if it were to be stored on a single device. Discuss what this additional protection could include.  *Why has cloud storage become so important?*  Learners research this question and should identify:   * the ability to access files from any device with an internet connection * the ability to collaborate with other users within a single file * how files are automatically saved and indexed in different versions.   They present the findings of their research either through a class discussion or by producing presentations in small groups.  If possible, ask learners to access a series of files that are stored on a remote network. Several learners should access the same file at the same time. Part way through the activity, remove access to the internet connection so that learners are able to identify that connectivity issues are a potential drawback.  This activity can be extended by learners choosing an appropriate place to save files that they have created themselves. They should ask their peers to locate and open those files so that they can either add to or comment on them.  *What happens if cloud storage cannot be accessed or the internet connection is lost?*  Discuss potential drawbacks with cloud storage, such as how files cannot be accessed if the internet connection is lost. This could be supported by presenting the following example:  *A business owner prepares for a meeting with a client but, on the day of the meeting, is unable to connect to the prepared files due to the unavailability of a network connection.*  *What will be the potential implications for the business owner in this example?*  *What would be the potential implications if the same issue were to occur in school?*  **Resources:**   * A series of files for learners to find within the school network. It should be possible for more than one learner to access each file at a time. | This discussion could also include the need for data protection and how this can affect the way in which files are stored.  Learners may be unfamiliar with cloud storage or online working, therefore provide a short demonstration of a cloud storage service.  This could be related to a local business or a topical subject. |
| **7DW.04** Understand that the storage capacity of a device is limited.  **7DW.05** Discuss and make predictions about future technologies. | *What units are typically used to measure the storage capacity of a device?*  Learners may have some prior knowledge about storage sizes but ensure that they understand the differences between kilobytes, megabytes, gigabytes and terabytes.  Learners investigate how many files will fit into a specific storage size. Provide them with a number of different file types including text, photos, video and multimedia, and ask them to calculate the combinations of each that can be fitted into various storage sizes.  Provide learners with scenarios, such as:  *A business owner wants to send three versions of a promotional video to a colleague based in a different country. He wants to send this using a USB flash drive which has a storage capacity of 2GB. Each file is 750MB.*  *Will this storage device be acceptable?*  This activity could be extended by asking learners to research the alternative file sharing solutions that could be used.  *How does storage capacity impact upon how a device is used?*  Learners work in small groups to consider the essential files that are needed in order for a device to be useful. For example, they could consider a smartphone with a capacity of 8GB. The content that they consider could include:   * device operating system * favourite apps * important family photos * differing amounts of music, video content, etc.   The total content that they are given should be more than would fit on the device, with the aim of the task being for learners to devise the optimum use of the total capacity. Learners may choose to represent their solution as a shaded bar, similar to that which is used to represent storage on many devices.  **Resources:**   * Resources on storage sizes, including a range of different file types. * Scenarios for real-world file storage requirements. * A scenario and example files for the single device file storage challenge. | Some learners will be quite secure with this theory therefore you may wish to challenge them by researching further storage sizes and how storage may change in the future.  It might be necessary to show learners how they can identify the size of each file.  This task scenario could be adapted to fit in with local or topical content. It could also focus on using the attachment limit of an email, for example 1GB, rather than a USB.  This activity should generate different opinions on what is important in terms of file allocation. |
| **7SW.02** Understand that they have personal responsibility for their digital activity, safety and wellbeing.  **7DW.03** Understand plagiarism, crediting, citation and fair use. | *What happens when files are stored on a device or other storage medium?*  Learners explore how storing files on a device will ultimately leave a digital footprint. For example, when using file sharing websites, the information downloaded onto the hard drive of a computer can be tracked and seen even when files are deleted.  Divide the class into two groups and display the following statement:  *If more than one person can see a document then it should be considered public.*  Hold a class debate where one of the groups argues for the right for files to be freely shared while the other argues for tighter controls upon copyrighted materials.  Learners research local laws regarding the downloading and/or sharing of information without the original owner’s permission. If appropriate and safe to do so, learners could look at examples of illegal software downloads and other digital media such as music or video.  This is good opportunity to remind learners of the procedures for reporting any inappropriate content that they encounter online.  **Resources:**   * Some scenarios / case studies relating to local instances of file sharing, illegal downloads and/or copyright infringement. | Due to the nature of this topic and dependent on context, some topics can be sensitive and so you will need to explore them at your own discretion.  It may help learners in their research if they are introduced to the term ‘torrent’ with regard to websites and files.  Ensure that only photographs or news stories about illegal downloads are displayed. Learners should not be asked to make any illegal downloads themselves. |
| **7DW.05** Discuss and make predictions about future technologies. | *Why are newer devices being sold with less physical storage?*  Display specification details for a range of the latest computing devices, including laptops, tablets and smartphones, and for a range of devices that are a few years old that may have larger HDDs over more modern SSDs.  Briefly explain terms HDD and SSD and the difference between these two types of storage.  Learners should identify that newer devices have smaller storage capacities as they often rely on cloud storage rather than physical storage.  If possible, demonstrate an example of online storage.  *What online storage services are available to users?*  Learners research the common online storage providers. They could compare services that are free with those that require a subscription and record information such as:   * storage amounts * dedicated applications.   The output could be a buyer’s guide that compares five selected online storage services.  *How do you think device storage will change in the future?*  Learners work in groups to predict future changes to device storage. They can base their predictions on internet research or on a range of news articles that you have selected for them. Each group should present their predictions to the rest of the class. The outcome from this activity will be an understanding that storage will continue to move away from individual devices to being online.  **Resources:**   * Factsheets for a range of devices both current and a few years old. * An example of an online storage service that could be demonstrated. * News articles that detail new developments related to online storage. | Learners will need to have some understanding of the difference between HDD (hard disk drive) and SSD (solid state drive) but the focus here is to point towards newer devices often relying on cloud storage over physical storage.  If permitting internet access, you may want to restrict this to one group member, otherwise learners may spend too much time researching the web. |

| Example Project – Unit 7.3 | | | |
| --- | --- | --- | --- |
| Learning objectives | Project outline and resources | Teaching notes |
| **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **7TC.01** Develop fluency and accuracy when typing in increasing quantity.  **7TC.03** Know that files can be stored remotely on other computers, networks or in the cloud.  **7DW.04** Understand that the storage capacity of a device is limited.  **7TC.06** Use advanced search techniques to refine search results. | In this project, learners will create a poster or leaflet, including an infographic, to inform people of the advantages of online storage services. They will be presenting the information for an adult audience and will therefore need to provide sufficient information to explain the topic. However, they will also need to ensure that the infographic is visually intuitive and appropriate to communicate the content.  Learners will need to source or obtain appropriate assets using their prior knowledge of advanced search techniques.  Learners can choose the software that they wish to use for this task. However, the focus will be on how a learner has interpreted and presented the information content to their target audience rather than on the design of their artefact.  **Resources:**   * Examples of suitable infographics. | Learners may need an explanation, with supporting examples, of what an infographic is and how they are used before they start this project.  Learners should be encouraged to find help, such as online video tutorials, to help them use the software that they select for this task. |

Unit 7.4 Online collaboration

| Unit 7.4 Online collaboration |
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| Outline of unit: |
| This unit will introduce learners to the benefits of, and the tools that support, online working.  They will begin by understanding the benefits of collaboration and how this can support the objectives of a project. Learners will then explore methods of organising projects effectively, including time management and creating appropriate planning documents such as mind maps, Gantt charts and work plans.  Learners will work with online applications that allow them to collaborate to create documents, presentations and drawings or to capture information. Consideration will be given to the advantages and disadvantages of using online collaborative software.  The final project will combine all of the understanding of using collaborative methods into a group project where learners can practise these skills. |
| Knowledge, understanding and skills progression: |
| This unit will build upon prior knowledge of research methods and the use of basic features in a software package. Learners will explore the collaborative ethos of online software and by the end should be able to use these methods confidently. |
| Language: | |
| * online / offline / cloud computing * tools/application * collaboration * organisation * teams * project * mind map * work plan * Gantt chart * editing | |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **7TC.04** Select and use online and offline tools that aid personal organisation and collaboration. | *Why is collaboration important?*  Learners discuss the reasons why they feel that collaboration is important. They should consider collaboration both with and without technology.  Provide learners with scenario cards which contain examples of problems that are faced when working in teams or groups, such as:  *A group of learners must collaborate on a homework project about volcanoes. The group have one week to complete the project and they all live quite far away from each other. How could they collaborate so that they each understand what they need to do?*  In groups, learners discuss appropriate solutions to their scenarios. Their discussion may instantly move towards online collaboration methods but they should be encouraged not to focus on this at this stage. They should instead consider what needs to be done in preparation for the task, including:   * schedule planning * identifying what resources are needed * allocating tasks to specific members, etc.   *What methods can be used to organise a project?*  Introduce the documents that could be used to organise a project, such as:   * mind maps * task lists * work plans * Gantt charts, etc.   Discuss the advantages and disadvantages of each type of document. Learners refer to their previous scenarios and select the methods to prepare for the task that could be used in each case.  **Resources:**   * Scenario cards containing problems associated with team or group work (as outlined above). * Examples of mind maps, task lists, work plans, Gantt charts. |  |
| **7TC.04** Select and use online and offline tools that aid personal organisation and collaboration.  **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia. | Provide learners with a selection of scenarios that they can use for planning a project. These could be the scenarios that they used in the last activity, a project that is related to another area of the curriculum or an extra-curricular activity such as organising a fundraising event. In small groups, learners select the documents that they will use to help them plan a project (e.g. mind maps, task lists, work plans or Gantt charts).  Once they have selected the documents that they will use, each group should explore the correct terminology that they will use when planning their project. For example, in mind maps they should be aware of terms such as nodes, subnodes and branches, and in Gantt charts they will need to use terms such as workflow.  Each group then explores how to create one of the following:   * mind maps (that could be created using suitable desktop publishing software) * task lists (that could be created using tables in text processing or spreadsheet software) * work plans (that could be created using tables in text processing or spreadsheet software, to show key tasks, dates, duration, contingencies, milestones and resources) * Gantt charts (that may need to be related to a specific project planning software or could be done using spreadsheet software).   **Resources:**   * Scenario cards as outlined above, either from the previous activity, a project related to another area of the curriculum, or an extra-curricular activity. * Suitable software, such as:   + desktop publishing package   + word processing package   + spreadsheet package   + project management tool. | When introducing these skill-building sessions, learners could be directed or they could be provided with some independent learning resources or “how to” guides.  Ideally, explore each of these documents across the different groups in the class so that each group can share their learning with the rest of the class at the end of the activity. The scenarios could be planned so that it becomes clear to each group which document they should choose. |
| **7TC.04** Select and use online and offline tools that aid personal organisation and collaboration.  **7DW.05** Discuss and make predictions about future technologies.  **7TC.06** Use advanced search techniques to refine search results. | *How can people collaborate online?*  Learners discuss ideas for how online software might be used to support collaboration.  This discussion could be supported by a demonstration of some of the methods that are available to support collaboration in your school. Ask learners to identify possible advantages or disadvantages of each method.  The discussion of the different collaboration methods could be supported by scenarios, such as:  *A business owner who has some small retail outlets wants to add some “pop-up” stores to local events or fairs. They need to be able to centrally record sales/stock on a spreadsheet, however this must be up to date at all times. If the business owner asked their staff to email updated copies of the spreadsheet, this could ultimately lead to discrepancies but if they used a collaborative spreadsheet package then this issue would be resolved.*  *What services allow you to collaborate online?*  Learners research different online applications that allow them to create documents, presentations, drawings, forms, spreadsheets, etc. Learners could complete a prepared worksheet by adding suitable applications under each heading. Alternatively, they could be given creative freedom to present their findings in a format they see fit, such as a map, table or prose.  *Is specialist hardware or machinery needed to use online software?*  Discuss the benefits of cloud computing. Remind learners that devices do not need to contain as much memory and storage space as a lot of the processing is done on the web server. Learners could be given a challenge to explore all the potential devices that could run the online applications they looked at in the previous task.  *What are the benefits of using cloud-based software to collaborate with others?*  Learners discuss the overall benefits of using online software. This could be a class activity where learners are split into two groups. One group could identify and consider the benefits, while the other group considers the risks and drawbacks. The class can then come back together to discuss their findings.  Hold a class discussion that allows learners to make proposals for how online collaboration could develop in the future. Allow learners to have fun with this discussion and encourage the sharing of imaginative and creative ideas.  **Resources:**   * Scenarios to support learner discussion about online collaboration. * A worksheet that learners complete with online applications that enable collaboration. | It might be necessary to explain that a “pop-up” store is a temporary retail outlet. It would usually be set up to take advantage of a temporary market or seasonal trend and then closed once the demand for its product is likely to reduce.  The intention here is to allow learners to understand that online applications can be much more appropriate with different devices. For example, online applications do not need to be only used on a laptop or desktop but could be accessed on a tablet or smartphone which is much more convenient and portable. |
| **7TC.04** Select and use online and offline tools that aid personal organisation and collaboration.  **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **7TC.03** Know that files can be stored remotely on other computers, networks or in the cloud. | This activity will focus on developing learners’ skills in the use of online applications. The activity will need to be planned to suit the online software that is available.  Demonstrate the following skills:   * sharing a document with another user so they can see the document but not edit it * inviting another user as an editor * creating a shared presentation * creating a shared drawing * protecting cells/worksheets on a spreadsheet so only certain users can edit or view them.   Allow time for learners to practise these skills in small groups, ideally by sitting at different workstations and collaborating online.  Introduce a task, such as:  *You must collaborate to create a digital drawing of a local attraction.*  Learners work in groups to explore how to collaborate with their peers to develop a solution to this task.  This task could be extended by banning any form of face-to-face communication. This will encourage learners to only communicate digitally.  Demonstrate how the online documents can be retrospectively downloaded and exported into various appropriate file formats, such as PDF. Allow time for learners to do this with their own documents.  **Resources:**   * Prepared tasks for learners to complete through online collaboration. * How to / step-by-step guides. * Access to online collaborative software applications. | There are open source applications online that will support this task.  Online presentation software or drawing software could be used for this task.  Some learners may have performed a task similar to this within a gaming environment when they were younger. It will therefore be good to discuss how they can use the skills that were learned then, in a professional context, such as producing an output for a specific audience. |

| Example Project – Unit 7.4 | | |
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| Learning objectives | Project outline and resources | Teaching notes |
| **7TC.04** Select and use online and offline tools that aid personal organisation and collaboration.  **7TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **7TC.06** Use advanced search techniques to refine search results. | In this project learners will consolidate their understanding and application of using online collaborative software within a specific setting. They will be required to work in pairs and should be given some structure in terms of what they are expected to deliver.  Provide each pair with a task, such as:  *You must create a collaborative presentation about how global warming is impacting upon a particular community or species. Your presentation must include some facts, data, video clips and appropriate animation.*  Some rules should be established, so that no discussions can be verbal. To support this, learners could be placed in a different room to their partner.  **Resources:**   * Prepared tasks for learners to complete through online collaboration. * How to / step-by-step guides. * Access to an online collaborative application suite. | This task may be quite lengthy. This could however be mitigated by learners using prior research which can be recalled from other subjects.  This task could be linked with other subjects or even provide an opportunity for collaboration with learners in other schools.  You could take on an editorial role in each project. To do this, you would join the online collaboration to provide feedback and direction. This will simulate a real-life project. |

Sample lesson 1

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| --- | --- |
| CLASS: | |
| DATE: | |
| **Learning objectives** | **7TC.03** Know that files can be stored remotely on other computers, networks or in the cloud. |
| **Lesson focus /**  **success criteria** | File storage within networks |
| **Prior knowledge / Previous learning** | Learners will have explored basic file storage properties such as hard disc drives (HDDs), flash drives, CD-ROMs, DVDs, etc. |

**Plan**

| **Lesson** | **Planned activities** | **Notes** |
| --- | --- | --- |
| **Introduction** | Provide learners with flash cards containing a range of different file types. These will include:   * 10 audio (.mp3) files at 3.5MB [10 popular current songs] * 4 text documents (.txt) at 24.5MB [4 pieces of their coursework] * 4 video clips (.mp4) at 1.75GB [their favourite movies] * An image (.tiff) at 89.3MB [their final project for Art & Design] * A database (.db) at 345MB [used for a science experiment].   Learners must work in groups to categorise these files into how often they would typically be used.  Key questions  *Why have you chosen to categorise the files in this way?*  *Would a different user/person feel the same as you?*  *What would happen if these files were not all on the same device?* | The aim of this task is for learners to associate the different types of files they use and how often they need to access them.  Later the lesson will focus on how these files could be centrally stored. |
| **Main activities** | Learners explore how *network attached* storage works. Introduce an example of using network attached storage on the school network where a user can log in to a device and access their files, then later log in at a different location on the network.  Learners should discuss the benefits of having files in a single central space.  *Why would having files stored in one place be beneficial?*  *What would happen if the device you made them on was lost/stolen/damaged?*  Learners explore the disadvantages of using network attached storage, such as the user must be within the network to access their files, they could forget their login details or there could be a malfunction on the network meaning they could not access their files.  *What would happen if the network user forgot their login details?*  *What would happen if the network equipment malfunctioned?*  Learners should discuss the drawbacks of storing files in a single central space.  Learners should now complete a question, associated with a scenario, and write an appropriate response.  The scenario could be as follows:  *In a small business, the business owner has decided to store all files on a central file server which is also located within the business premises. Discuss all the possible benefits and drawbacks of using this type of storage.* | This task will begin with some theory that will be initialised by you and then move towards a discussion for learners to explore their understanding.  The aim here is for learners to identify that network storage does have some benefits and drawbacks, with a brief exploration of each one. |
| **End/Close/**  **Reflection/**  **Summary** | Initiate a question and answer session targeted to specific learners.  *Why would a user wish to save their files on a network?*  *What benefit would network storage have to someone like a teacher who moves around a site quite often?*  *What could happen if a network is unreliable?*  *What could happen if there was a malfunction in a network connection?* | This task will help establish understanding of the topic. |

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| **Reflection Use the space below to reflect on your lesson. Answer the most relevant questions for your lesson.** |
| *Were the learning objectives and lesson focus realistic? What did the learners learn today? What was the learning atmosphere like? What changes did I make from my plan and why?*  *If I taught this lesson again, what would I change?*  *What two things went really well (consider both teaching and learning)?*  *What two things would have improved the lesson (consider both teaching and learning)?*  *What have I learned from this lesson about the class or individuals that will inform my next lesson?* |
| **Next steps**  **What will I teach next, based on learners’ understanding of this lesson?** |

Sample lesson 2

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| --- | --- |
| CLASS: | |
| DATE: | |
| **Learning objectives** | **7DW.04** Understand that the storage capacity of a device is limited. |
| **Lesson focus /**  **Success criteria** | Storage capacity on devices |
| **Prior knowledge / Previous learning** | Learners will have explored basic file storage properties such as hard disc drives (HDDs), flash drives, CD-ROMs, DVDs, etc. |

**Plan**

| **Lesson** | **Planned activities** | **Notes** |
| --- | --- | --- |
| **Introduction** | Learners must quickly place in size order the following storage sizes.  15KB, 2TB, 1MB, 512GB, 199KB, 859KB, 1GB  Learners must work independently to order the sizes.  Key questions  *How many kilobytes are in a megabyte?*  *How many megabytes are in a gigabyte?*  *How many gigabytes are in a terabyte?*  *Is a terabyte the largest storage size you can get?* | The aim of this task is to get learners to identify the sizes of potential storage devices, i.e. 1GB file will not fit on a 1MB storage slot. |
| **Main activities** | Learners will complete the following challenge-based scenario:  *A business owner wants to send three versions of a promotional video to a colleague based in a different country. He wants to send this using a USB flash drive, which has a storage capacity of 2GB. Each file is 750MB.*  *Will this storage device be acceptable?*  *How does storage capacity affect a device?*  Learners will continue to embed their understanding of storage capacity by completing the following activity.   * A user has a smartphone with a capacity of 8GB. * This user is a local manufacturing business owner, who travels to other countries often for client meetings and has a young family. * You must decide on the data/content that this person can store on their device. * This content includes:   + important family photos [1.3GB]   + video clips needed for product demonstrations [3.2GB]   + device operating system [1.8GB]   + favorite apps [3.2GB]   + some music [1.6GB]   + video/TV content [2.7GB]. * The total content given is over 13GB but learners need to justify the reasons why they have allowed or refused content on the device.     Learners can choose to do this on paper, on a computer or as a chart. Alternatively, learners could be given different coloured papers and use these to fill a cup or container to represent the data, dependent on time available.  Answers can be discussed with the group at the end of the task.  Key questions  *Why have you chosen to remove a certain piece of content?*  *What would happen if there was no device operating system storage allocated?*   * *What could happen if the user removed all their family photos/videos?* | This task is designed to encourage learners to think about the size of storage mediums and their expectations of what will appropriately fit on each device.  This task focuses on the limitations of storage and the moral/productivity issues of choosing what can be stored on a device. |
| **End/Close/**  **Reflection/**  **Summary** | Initiate a question and answer session targeted to specific learners.  *Why are storage sizes limited?*  *How does storage size affect a device?*  *Is there another method of storing files that would help reduce these problems?* | This task will help establish understanding of the topic. |

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| **Reflection Use the space below to reflect on your lesson. Answer the most relevant questions for your lesson.** |
| *Were the learning objectives and lesson focus realistic? What did the learners learn today? What was the learning atmosphere like? What changes did I make from my plan and why?*  *If I taught this lesson again, what would I change?*  *What two things went really well (consider both teaching and learning)?*  *What two things would have improved the lesson (consider both teaching and learning)?*  *What have I learned from this lesson about the class or individuals that will inform my next lesson?* |
| **Next steps**  **What will I teach next, based on learners’ understanding of this lesson?** |

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