

Scheme of Work

Cambridge Lower Secondary

Digital Literacy 0082

Stage 8

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 8.

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 8. 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 Primary Lower Secondary 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 Digital Literacy Stage 8. 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 8.1 Communicating with others using digital tools** | **7.5 hours** |
| **Unit 8.2 Understanding our online footprint** | **7.5 hours** |
| **Unit 8.3 Digital awareness** | **7.5 hours** |
| **Unit 8.4 Protecting online activity** | **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 Primary Lower Secondary Literacy Stage 8

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 log-in 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 computers, laptops, hand help 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 8

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, research and other digital skills through activities in other subjects, such as 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 8, you may wish to include a suitable typing scheme of work as part of your regular lesson planning.

Unit 8.1 Communicating with others using digital tools

| Unit 8.1 Communicating with others using digital tools |
| --- |
| Outline of unit: |
| In this unit, learners will explore the use of document templates within business organisations. They will understand how to create templates and consider the benefits of them, such as ease of use and brand consistency. They will use scenarios to consolidate their understanding.  Learners will also consider the language used in documents when corresponding with others and will discuss how this may affect the validity of a document or cause unintentional problems for a business organisation. They will also explore the format and layout of a range of documents, looking at the use of colour, house style and logos where appropriate.  To support learners as they develop their understanding in this area, they will imagine themselves working in a business organisation of personal interest, such as a large sports club or a retailer that sells their favourite products.  The unit will conclude with a project designed to consolidate the learning areas through the creation of a portfolio of documents for a specific purpose. |
| Knowledge, understanding and skills progression: |
| This unit will require some prior knowledge about content creation but learners will also be expected to continue to develop their knowledge and skills in relation to the presentation of written communication. Learners will therefore revisit prior learning about text processing, presentation and image editing software. |
| Language: |
| * template * audience * correspondence * master document * mail merge * efficiency * language * gif * emoji * formal/informal * misinterpretation |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **8TC.03** Create templates and master documents and understand the benefit of these.  **8TC.01** Develop fluency and accuracy when typing in increasing quantity. | *What types of correspondence could a business send out to its staff, directors, shareholders or customers?*  Discuss the types of communication that could be generated by a business. Examples could include:   * monthly sales reports * regular newsletters * memoranda or emails from managers or area managers * responses to customer enquiries or complaints * information on upcoming events or promotions * general advertising.   Encourage learners to suggest their own ideas and display the ideas that are agreed by the whole group.  *Which method of delivery would most likely be used for each type of correspondence?*  In pairs, learners discuss possible methods of delivery for the types of correspondence that have been listed. They should also consider the importance of each document by discussing the potential impact of any errors or poor presentation. They can make notes of their discussions on a worksheet, such as the following example:   |  |  |  |  | | --- | --- | --- | --- | | **Type of correspondence** | **How it is delivered to the audience** | **How easy would it be to fix an error once sent** | **Possible impact of an error** | | Sales report | Email | Difficult – prior data may become confused with new data causing incorrect forecasts or figures. | Incorrect sales projections or information could lead to confusion or poor planning. | | Health and safety disclaimer update | Post to employees | This can easily be updated via an internal website as long as all employers are encouraged to read the latest version. | Incorrect information on health and safety could result in legal action if an incident or accident occurs. |   *What are common features of documents that are sent by business organisations?*  Display a range of documents that have been produced by a business organisation. These could include:   * press releases * advertising and promotional documents * responses to complaints * reports to shareholders.   In pairs, learners identify the common features of each document. These might include:   * the colours or fonts used * the contact information * any watermarks * logos and graphics, including their placement within each document.   *Why might it be important to create a document template which could be used to issue all correspondence?*  Elicit that the consistent use of layout supports an organisation’s brand identity. Discuss the potential benefits of a consistent approach to documents, such as how it reduces the risk of potentially damaging correspondence being issued.  Learners research some of the benefits of using templates and feed back to the class. The benefits that are identified should include:   * consistency of brand identity (use of colour schemes, logo positioning, font style, etc.) * consistency of style between individual staff members and different departments within a business.   Provide learners with a range of scenarios and ask them to select one and then develop a letter template that could be used to correspond with customers. If the scenario of a local business is used, provide learners with information such as the address, contact information, logos and colour schemes – but they may also enjoy developing their own ideas for a fictional organisation.  Demonstrate some of the template tools in text processing and presentation software and ask learners to generate templates for official letters and for less formal communications such as newsletters or press releases.  The focus here is to establish a template. However, learners could also adapt an existing template and fill in some of the content.  Examples of scenarios based on a local business are:   * a newsletter to existing customers outlining an upcoming event or promotion * a newsletter to be sent to staff in the business * a letter template to respond to customer complaints or questions * a press release outlining a new product launch.   *How can the use of templates speed up a process?*  Discuss and use examples to explore how prepared documents can reduce time because the format is pre-prepared. Also explore how consistency and brand identity can be achieved across different departments or areas of a business when the same templates are used.  This activity can be extended by introducing learners to mail merge. There is no need for learners to understand how to do this but it will be useful for them to be aware of the facility and to think of the circumstances when mail merge is a useful tool for businesses to use, for example when they are sending similar information to a number of different people.  If mail merge is introduced, learners can create their own mail merge document. For example, they can create a list of their friends and then use this to send out mail merged party invitations.  **Resources**:   * Examples of correspondence used by organisations. * Desktop publishing, word processing and presentation software. | This topic may be unfamiliar with learners as they may not necessarily have any experience in receiving correspondence from businesses or similar organisations. You may need to spend some time reviewing why organisations need to communicate effectively with their customers. Alternatively, the focus can be on correspondence that is sent out by a school, for example to parents.  Learners may also need initial guidance on delivery methods of correspondence as they may not have experienced these. You could provide further scenarios to support this.  Learners may need support to explore the common features of business documents. They should consider aspects such as:   * how to address the recipient * what must be included in a standard letter * the fact that most organisations apply the same set of formatting guidelines (house style) to all their correspondence.   Make sure learners understand that the main objective of this task is to understand how templates can help reduce workload and maintain consistency within an organisation.  Mail merge is quite a detailed process but it would be beneficial to explore because it shows the benefits of developing templates and how multiple documents can be sent to the same mailing list. It will also help learners understand how different file types can be linked, for example text processing and spreadsheets. |
| **8TC.04** Understand when it is appropriate to use informal ways to convey emotion or meaning in an electronic message, for example emojis, gifs and memes.  **8TC.01** Develop fluency and accuracy when typing in increasing quantity. | Remind learners of the types of business correspondence that were discussed in the previous activity. They should also consider messages and other correspondence they send to others.  *When are gifs and emojis appropriate to use?*  Display examples of emails and instant messages or other electronic messages that use informal language or emojis, gifs or memes. Discuss how different audiences would feel if they received an informal type of message. Provide example scenarios, such as:   * a manager adding a smiley emoji to a direct report when praising that employee’s work * an organisation adding a sad face emoji when acknowledging a customer complaint * a school including an emoji or gif when sending an email to parents to inform them of a sickness bug in the school * a message between friends which expresses sympathy for a piece of bad news * a message between friends which expresses congratulations for a piece of good news * a message between an employee and their manager for a formal exchange of information, for example the employee accepting a new job in the organisation.   Elicit reasons why informal ways of conveying emotion can be appropriate or inappropriate in each scenario.  *How is language or tone interpreted in written communication?*  Discuss how informal language and use of emojis, gifs or memes can be misinterpreted, for example in communication with someone from a different geographical location, age group or social background. Compare scenarios where a parent or carer is corresponding with a teacher, with an exchange between a parent or carer and one of their own friends.  *How do these differ in terms of language, use of emojis, gifs and general spelling and grammar?*  Place learners into groups of three and provide each group with a blank template of a Venn diagram. The diagram should contain two circles, one titled ‘suitable for formal correspondence’ and the other ‘suitable for social media’.  In their groups learners discuss acceptable content differences between the two types of correspondence. Elicit that politeness and respect should be included in both types of correspondence.  *How could misinterpretation between an organisation and its customers affect an organisation’s reputation?*  Discuss the impact of misinterpretation between an organisation and its customers. For example, if some correspondence is sent to a client or customer and that correspondence is informal or not appropriate, how would the client feel and how would this reflect on the organisation? This discussion could be used to explore why the use of templates is essential in certain circumstances, such as replying to customer queries or complaints where a standard response and consistency are important.  As a class, discuss and create a list of rules that an organisation should share with all members of its staff about what to do and what not to do when sending written correspondence to customers.  *How is language or tone interpreted in written communication?*  Provide learners with a series of messages. These messages should contain a range of informal content. Learners work individually to redevelop the message to represent more appropriate correspondence. They should then be paired with another learner who has worked on the same documents, to discuss and produce a final version that can then be shared with the whole class. Learners can use the templates that were created in the previous activity for this task.  Learners stay in their groups and create informal, fun and friendly messages from more formal examples that have been provided to them. They could be given a scenario, such as:  *a Head Teacher wants to congratulate a class on their work but has no experience of using social media. The Learner Council in the school have recently criticised the Head teacher for the overly formal nature of all in-school correspondence.*  **Resources**:   * Examples of messages which contain emojis, gifs or memes. * Blank template of a Venn diagram with two circles. * Some formal and informal messages in the given scenario which can be adapted by learners. | Learners will know about gifs and emojis but they may not be clear when they should use informal and formal language. Identify and explore the difference between informal and formal language so that learners are able to access this task.  Explore the implications of misinterpretation and the impact on an organisation. For example, poor communication may cause an organisation to lose business or generate complaints.  The Head of your own school or another senior staff member could be involved in these discussions in order to provide learners with a real scenario. |

| Example Project: Unit 8.1 | | |
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| Learning objectives | Project outline and resources | Teaching notes |
| **8TC.03** Create templates and master documents and understand the benefit of these.  **8TC.04** Understand when it is appropriate to use informal ways to convey emotion or meaning in an electronic message, for example emojis, gifs and memes.  **8TC.01** Develop fluency and accuracy when typing in increasing quantity. | In this project, learners will consolidate their knowledge and understanding of communicating with others by completing a practical activity. They will be required to create a press pack for an upcoming event, which will include the following documents:   * a formal letter to an external stakeholder * a custom presentation template * an email sent to an internal stakeholder, such as instructions for the event’s catering.   It may also include:   * a poster or promotional material * a social media post about the event * a friendly message to the marketing team to congratulate them on the planning of the event.   Provide a scenario which contains important information about the event as well as information regarding the audience, the person they are working for and any design requirements. The scenario can be based on a school event such as a sports match or performing arts show. An example of a formal letter could be to the head teacher, requesting permission to allow the event to proceed. An internal email could be to a building or site manager, requesting permission to use a space or area, etc.  Learners should work in small groups and begin by planning the documents they will produce with a short summary of each. Instruct learners to create some mind map templates they can use for planning each document.  Materials such as the school logo can be provided or the groups can be asked to develop their own.  The project can be extended by disrupting it part way through and including an additional requirement, such as:   * An angry complaint from a customer has been received. The customer states that they have not received an invitation to an important event. As a loyal customer of the organisation, the customer feels they are entitled to an invitation. This complaint needs an urgent response.   **Resources**:   * Suitable scenario including a disruption that will be shared with learners later. * Prepared template materials. | Learners can be provided with some materials such as logos or colour schemes or they can be given creative control to develop new versions.  The project aims to explore the creation and completion of templates to be used consistently.  The task can be broken up into a group activity, where the intention would be for all the documents to closely resemble each other in terms of house style, language used etc. |

Unit 8.2 Understanding our online footprint

| Unit 8.2 Understanding our online footprint |
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| Outline of unit: |
| In this unit, learners will explore the benefits and limitations of communicating online using various different platforms, including social media posts, comments, videos, etc. They will consider how online communication methods are used regularly and therefore how problems may occur if the required platforms become unavailable. Learners will continue to look at data that is stored about users within an online platform, exploring how this data is used and sold to other companies.The unit will conclude with a project designed to consolidate the learning areas in the form of an infographic about metadata. |
| Knowledge, understanding and skills progression: |
| This unit will require prior knowledge about methods of online communication and the general benefits and drawbacks of using the internet.  Learners should also recall that all online activity can be collated and added to a user’s digital footprint. |
| Language: |
| * online communication * video conferencing * social media * message boards * forums * wikis * blogs * metadata * cookies * user information * privacy * security * ethical |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **8DW.02** Understand the benefits and limitations of different methods of online communication, including video, audio and text.  **8TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia. | *In what ways can we communicate online?*  Elicit broad online communication methods, including:   * video calling * social media posts, wikis, comments on posts, etc. * image or video sharing where sound can be recorded and video content enhanced with filters.   *Why have we become so accustomed to communicating online?*  Continue the discussion by exploring why online communication has become a standard part of modern living. Elicit that online communication allows quick and easy contact with friends or peers and makes it easy to find information.  Introduce scenarios so that learners can discuss what would happen if online communication were not so readily available. These scenarios might include:   * Imagine your smartphone or digital device did not have a digital camera – what impact would this have on you online? * If online access was limited to only one hour per day, what impact would this have on you? * If online data did not exist, how would this change your life?   Provide learners with a template worksheet which contains a number of scenarios where different online methods of communication are used. In pairs, learners should discuss the potential benefits and limitations that could occur in each scenario. Their discussions should consider:   * ease of use * costs and cost savings, including non-monetary aspects such as time or environmental concerns * potential reliability issues * the value of those benefits and limitations when considered against alternatives, such as face-to-face contact.   An example worksheet, including potential answers:   |  |  |  | | --- | --- | --- | | **Scenario** | **Benefits** | **Limitations** | | Using an online video conferencing service to allow employees to conduct meetings when they are located in different geographical locations. | Environmentally friendly.  Can be arranged at short notice.  Can physically see and hear the other employees, therefore it is suitable for communicating ideas and replacing traditional face-face meetings. | Requires a stable and effective internet connection.  Could be issues with sound (speakers/microphone).  Quality of video dependent on bandwidth, etc. |   **Resources**:   * Scenarios and worksheets. | Depending on the age or location, some of these services may not be available, therefore you may need to prepare some locally relevant alternatives.    It might be helpful to ask learners to imagine what their lives would be like if they had to go to a library to use a book each time they wanted to find out information.  This could be done as an ‘unplugged’ activity, where learners lose access to devices or internet connection midway through and then must evaluate how they would communicate without being online. |
| **8SW.04** Know that metadata can provide a detailed description of an online user and that each online action increases the detail of that description**.** | *What is metadata?*  *Why is it recorded?*  Learners research what metadata is and why it is recorded. The research should be conducted individually and then discussed in small groups. Each group should then share their agreed responses with the class.  Explain how metadata is held on most files within the digital world. This explanation can include an example such as metadata of an image taken on a digital camera, which might contain:   * the camera make and model * the image resolution * the GPS location where the photo was taken * the date and time it was taken.   Support this example by displaying some image files and their metadata. Ask learners to identify:   * the data that is useful to the owner of the image * the data that can be discarded * the data that can be used by an external person or organisation to identify something about either the owner/taker or the subjects of the image.   Learners research the safety and ethical aspects of examples like this. They should identify potential risks such as:   * the GPS coordinates might reveal someone’s home address * the date of the photo may help to identify a person’s date of birth if the image is of a birthday celebration * tools such as facial recognition in combination with the metadata on image files may mean a person can be identified.   Once the research is complete, learners discuss and identify the safety and personal data risks that might be posed by metadata or other sensitive data if an item such as an image is posted online and is combined with data derived from other information in a social media account.  *Why is metadata used online?*  Learners discuss why metadata can provide useful information to users of files that are found online. For example an MP3 file containing a podcast may display useful information, such as the genre or bitrate, which would make searching within a search engine more effective.  Display examples of search engine optimisation algorithms, where metadata and metatags are used to index web pages so that key data will return a website in an online search.  *What metadata is stored about you, as a digital user?*  Learners can explore the types of metadata stored about users online, mainly through the use of cookies.  Explain that a cookie is a record of:   * interactions within a website * a user’s interests * their gender, name and location * anything they have been searching for online.   This will allow learners to make their own conclusions about why cookies are used. This explanation can be supported through the use of a video clip, diagram or table.  Discuss why businesses would want to gather this information about individual people. For example, if a website could customise its content for a specific user within an online shopping environment, what impact might this have on the potential revenue of the website?  Provide learners with some typical online metadata or cookie results, and ask them to rank them in order of importance in terms of how useful they would be to a website owner and to a website user. This can be done in a table like the example below.   |  |  |  | | --- | --- | --- | | **Cookie/metadata content** | **How useful is this for a user?** | **How is this useful for a business?** | | Login details for a website |  |  | | The browser that is being used to access the website |  |  | | The geographical location of the searcher |  |  | | The user’s search history, i.e. ‘new smartphone deals’ or ‘mathematics revision’ |  |  |   *Why is this metadata useful?*  Elicit practical examples of how metadata on a specific website can be useful. For example, if someone is searching for a product, they may be directed to another website that makes recommendations about similar products based on the initial search.  **Resources**:   * Some examples of files with metadata attached (image files with camera model, GPS coordinates, etc). * Examples of search engine optimisation algorithms. * Examples of cookies in action (online shopping print screens, welcome back screens, automatic login, etc). | Learners may not use online shopping websites so the scenarios used in this activity can be adapted to suit their own experiences.  Make connections between metadata, data privacy and security, what could happen to the data if it was shared with others, and how organisations keep this information secure.  Bitrate determines the size and quality of video audio files. A higher bitrate generally means that the quality of the artefact will be better but it also means that the file size will be bigger. Therefore bitrate should be considered in connection with the storage capacity of the device that the file is being downloaded to.  This discussion could be supported by displaying screenshots of such features, including adverts that have been generated as a result of a user’s previous searches or links to related products. |
| **8SW.05** Understand that metadata can be sold as a product.  **8SW.06** Understand that they have personal responsibility for their digital activity, safety and wellbeing. | *Why is metadata important to organisations?*  Display some example information that may be held in an online user’s metadata such as:   * email address * gender * location or postal address * search history * interests * occupation * age * income * time spent online.   Learners discuss how this information might be important to organisations. For example, if you were searching for a new pair of running shoes, your metadata would enable retailers to identify you as a potential customer and enable them to contact you by email or promote their items online in order to gain your attention.  *Why would this metadata be sold as a product?*  Learners explore instances in which metadata can be sold and why it might be of interest to a company. This could be done in a series of written questions such as:  *An online shopping website records cookies about the time you have spent on their website, as well as the products you looked and their prices. Why might this information be valuable to other websites that sell similar products?*  or in a worksheet such as:   |  |  | | --- | --- | | **Information stored** | **Why is valuable to other companies?** | | Location | Products can be targeted from that area, i.e. can be delivered there or are available there | | Search history | Similar products could be recommended to you | | Gender | The website will predict what you may be interested in based on your typical gender normalities |   **Resources**:   * Examples of metadata stored about a user. | Learners may identify other information including:   * clothing and shoe sizes * regular holiday destinations * food preferences and allergy information. |

| Example Project: Unit 8.2 | | |
| --- | --- | --- |
| Learning objectives | Project outline and resources | Teaching notes |
| **8TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **8SW.04** Know that metadata can provide a detailed description of an online user and that each online action increases the detail of that description**.**  **8SW.05** Understand that metadata can be sold as a product. | In this project, learners create a series of infographics, designed to inform others of metadata and what it may include.  Display examples of effective infographic design and discuss design features such as the use of colour, white space, fonts and layouts. It might also be helpful to display some examples of bad design so that learners do not make these mistakes themselves.  Learners can select the software they will use from those available to them in school, alongside royalty-free imagery. They should, however, be provided with clear criteria such as:   * the purpose of the infographics * the size of the infographic * the intended audience.   The information that is included in the infographics can include:   * what metadata is * what it includes * how it is generated * how it is used by businesses * why it may be sold * how it can benefit the user who is generating data about themselves * the risks and drawbacks to the user.   **Resources**:   * Appropriate graphics manipulation and desktop publishing packages. | Some prior knowledge of infographics will help learners but you may need to demonstrate examples of good practice and particular techniques that are relevant to the software they are using.  Include specifications that will ensure that this project provides a rigorous challenge for your learners. |

Unit 8.3 Digital awareness

| Unit 8.3 Digital awareness |
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| Outline of unit: |
| In this unit, learners will discover how computer network content can be kept secure to reduce the risk of unauthorised access and to protect sensitive data. They will also consider methods that can be used to increase security and the potential impact of not having suitable protection in place.  Learners will also consider the use of digital devices within workplace scenarios. They will identify new and emerging technology and evaluate the benefits and risks of these, including those that are connected to the Internet of Things.  The final project will allow learners to share their knowledge and understanding of security, as well as their emerging ability to develop a range of purposeful documents. |
| Knowledge, understanding and skills progression: |
| Learners will benefit from prior knowledge about malware threats and protection mechanisms but this unit is designed to introduce new concepts. |
| Language: |
| * network security * file types * secure * unauthorised * authentication * GDPR * workplace * cloud computing * streamline * hosted * Internet of Things |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **8SW.01** Know that permissions can be set on files or within a network to protect them from unauthorised access. | *What types of files are important on a network?*  Provide a shared folder location which contains a range of files that might be commonly found on a school network. Depending on prior knowledge, this could be a shared location on a network storage drive or an online file sharing facility or cloud storage service that is used by the school.  An example of these files might be:   |  |  |  |  | | --- | --- | --- | --- | | Pictures of the school building | Podcast MP3 files for science revision | Presentation on eSafety | Register of learners in a class | | MP4 clip of a school production | Presentation on revision for a Geography topic | Timetable for a particular group of learners | Database of learner details, including their home address | | Risk assessment for a school trip | Parent/carer contact details for a school trip | Spreadsheet of pupils’ lunch orders | Minutes of the school fundraising committee meeting | | Record of winners of sports awards | Learner passport numbers for a school trip | PNG file of the school Logo | JPG file of a map of the school |   Provide learners with a treasure hunt style challenge where they must find:   * the largest and smallest file size * the most recently added file * five files with the most sensitive information.   At this point, discuss what constitutes important or sensitive information and why the five selected files have been classified in this way.  *Why must sensitive files be kept secure?*  Select some of the examples that have been identified as being sensitive in the treasure hunt activity and discuss the potential impact of these files being seen by an unauthorised person.  *How might a breach of security affect people whose information is in the files?*  *How might a breach of security affect a school*?  Learners can either discuss these questions as a whole group or work a smaller groups to complete a worksheet similar to this example:   |  |  | | --- | --- | | **File type** | **Impact if this file was in the wrong hands** | | Database of learner details, including their home address | Physical safety of learners (someone could find where they live)  Parents/carers would not be happy, and may seek compensation from the school  The school might be sued  The school could become the victim of a ransomware style threat | | Register of learners in a class group | Someone might identify which school a learner is enrolled in and so be able to locate them | | Timetable for a particular group of learners | Someone would know the exact location of a learner at any time of day and this could jeopardise their safety |   Learners use a suitable method to conduct research into recent wide scale network optimisation or hacks. Their research can be guided by the following questions:   * What information was compromised? * What impact did it have on users? * What impact did it have on the organisation that was hacked? * What legal action was taken, if any?   *What can be done to protect files on a network?*  Learners research ways that files on a network can be secured. They should use their research to design a leaflet or guidance document addressed to the person responsible for the school’s network. Learners’ documents should include guidance about the following:   * **Password protection** – How files can be password protected to enable only the person with the password to open the file, reducing unwanted or unauthorised access. * **Folder access protection** – How files or folders can be given different levels of access. For example, learners may not be able to access specific network locations or paths, whereas teachers may have wider access. The teachers’ access might not be as wide as the access that is granted to the school’s senior leadership team. * **Job role restrictions** – Certain roles within the school, such as the school’s nurse or medical officer, may have different access compared to teachers or even a senior leader, as they may need to access documents that should not be widely viewed. * **Authentication** – In two factor authentication, areas of a network or folders can be protected with a second layer of protection (this could also be related to online banking, email services, etc.).   This activity can be extended by asking learners to include an explanation of local data protection laws. This would include information about the school’s responsibilities under these laws.  **Resources**:   * Worksheets related to information that may be stored on a school network. * Prepared information about password protection, folder access protections, authentication and GDPR. | This task may be done as an example from your own folder on the shared network but you will need to make sure no confidential information is shared with learners.  Some news articles of data breaches in organisations or schools could be a good point of discussion for this task.  You can make this activity interactive by asking some learners to represent different files, other learners to act as secure passwords to protect a file and other learners to represent hackers who are able to roam free and capture a file. This will depend on the local environment and context. |
| **8DW.03** Describe how digital technology is changing the workplace. | Display a range of images that depict office work practices from different historical periods. These might include:   * an office where workers sit in rows of desks, writing on piles of paper. Explain to learners that the workers are probably handwriting repeated versions of the same document * secretaries working with manual typewriters * a worker speaking into a desk-based telephone * information being entered into an early desktop computer * an in-office postal delivery worker * photocopying * a worker sending a fax * representation of an email * a worker speaking into a headset that is connected to their computer * somebody working remotely, such as on a train * remote collaboration.   Use the images to help describe the evolution of office work practices over the past 100 years. Ensure that learners are aware that all of the pictures are relatively recent, for example email only gained widespread use in the mid-1990s.  Learners discuss these ways of working and identify the benefits and risks of each. They should consider the perspective of the employer and the employee during these discussions.  Place learners into small groups and allocate one of the pictures of historical working practices to each group member. They should imagine that, as a result of time travel, they have all been able to meet and discuss their jobs and what they like and dislike about the tasks and their daily routine.  Learners can then discuss reasons why wireless technology has become so popular. An example could be pure aesthetics, where a company may have a very modern brand image and want to be very minimalistic in their workplace. They could also focus on the ease of repair because someone does not need to access cabling that is hidden under flooring or within walls. This discussion can also provide an opportunity to introduce how some businesses are seeking to improve the working experience of their employees, for example, by removing the traditional office environment and replacing it with an interactive and adaptive space.  **Resources**:   * Prepared images and accompanying explanations of historic office working practices. | This activity can also be delivered physically, where a range of devices and working practices can be set up for learners to explore and initiate discussion. This would also allow them to explore devices that were used in the past. |
| **8DW.03** Describe how digital technology is changing the workplace. | *Which wireless digital devices are used in a typical office environment?*  Allow learners to identify a range of digital devices that they think are used in a typical office environment. They should also identify the function of these devices.  Address any misconceptions and ensure that the following devices are discussed:   * Laptop computers that allow: * documents to be produced * information searching on the world wide web * email access and other online communication * both desk-based and variable location use. * Tablet computers that allow: * flexible access to information * ease of working in different locations. * Connected printers that allow: * the production of hard copies of files * many printers now allow for remote connectivity without the need for cables which allows for greater flexibility, particularly in larger offices. * Smartphones that allow: * employees to keep in touch wherever they are * synchronisation of email servers and calendars, etc. * Smart TVs that allow: * information or bulletins to be shared with all employees * more effective range of communication, including remote meetings.   Elicit learners prior knowledge of cloud computing.  Divide learners into groups of three and ask one member of each group to research one of the following:   * hosted applications * cloud storage * cloud-based operating systems.   Each group then discusses how these technologies have allowed more productivity in the workplace. They should then produce a short presentation to answer the following question:  *How has cloud computing changed the traditional workplace?*  This activity can be extended by asking learners to add a further slide to their presentations which speculates how digital technology may further change the office workplace in the future. They should not look too far ahead when they do this but, based upon the last two activities, they should foresee a number of changes that might be in place in ten years’ time.  **Resources**:   * Prepared information about the use of digital devices in a modern office. | Photographic clues may help learners to identify these devices.  Remind learners that in future they may be working in one of these workplaces they are imagining. |
| **8DW.04** Describe the benefits and risks of the Internet of Things. | *What is the Internet of Things?*  Allow learners to explore through independent research, and then discussion, what the Internet of Things relates to. Support them to come to a class consensus about examples of devices that can be linked. These devices should include:   * smart TVs * smart meters (energy) * smart thermostats (home heating/cooling) * smart doorbells/cameras (home security) * smart smoke detectors/alert systems * smart speakers/digital assistants * smart lighting * smart appliances (fridges, ovens, washing machines) * robotic vacuum cleaners * smart door locks * smart watches * smart health technology (heart rate monitors) * car connectivity (wireless/smartphone integration/emergency calls in accidents).   Divide learners into groups and allocate some of the devices from the class list to each group. The groups should discuss and produce a summary of perceived benefits and drawbacks for each device type. Ensure that both the potential benefits and risks are included. Each group’s discussions should be captured on a worksheet, such as:   |  |  |  | | --- | --- | --- | | **Technology** | **Benefits** | **Risks** | | Smart doorbells/cameras | You can clearly see who has called at your home without having to answer the call. You can often see them in HD and also speak or communicate with them. This would be a useful safeguard against unauthorised entry to a home. Also this can be done via apps on many systems and so will help to secure a home when you are away from the home. | If this system was hacked, the information or footage from within a home could be accessed and used to spy or extort a person or it could be used to find out when someone is not at home, so the home can be targeted when no one is there. |   Discuss the content of each group’s worksheet with the whole class so that ideas can be shared, challenged or developed further.  **Resources**:   * Research prompts. | The Internet of Things includes such a vast array of different devices that you may wish to focus learners’ research by specifying a selection of systems for them to investigate, such as:   * sensors used for scientific research * domestic appliances * security systems * traffic control systems * weather forecasting * agricultural appliances. |

| Example Project: 8.3 | | |
| --- | --- | --- |
| Learning objectives | Project outline and resources | Teaching notes |
| **8TC.02** Use devices to create increasingly sophisticated digital artefacts, including the use of sound, video, text and other multimedia.  **8DW.04** Describe the benefits and risks of the Internet of Things.  **8SW.01** Know that permissions can be set on files or within a network to protect them from unauthorised access.  **8TC.05** Use advanced search techniques to refine search results. | In this project, learners create a series of graphical posters to remind users of safety or security when storing files and to outline the benefits and risks of the Internet of Things.  The posters can be based on a template outline, to remind learners of their work in Unit 8.1. This will enable learners to develop their visual style and identity with consistent layouts, fonts and colours.  Learners should keep an assets table for the assets used in the document and may also create a visualisation diagram to plan the style of the documents.  Ask learners to use software of their choice alongside royalty-free image/graphics editing packages. Other knowledge and understanding from earlier units should be used to allow learners to accurately refine their search results to obtain effective assets.  To emphasise safety and security aspects, learners can imagine they are producing a poster during one of the historical periods they looked at earlier in the unit. This will provide a useful contrast between the content of two posters that have been produced in a similar style, for example:   * one poster could be set in the 1980s with a reminder for employees to lock their paper files away in a filing cabinet at the end of the working day * a second modern poster could include information about modern ‘locking’ methods, such as password protection and access restrictions to stored files.   A similar approach can be taken with the Internet of Things where the benefits and risks are contrasted with practices and risks that existed in the recent past.  **Resources**:   * Appropriate graphics manipulation and desktop publishing packages. | Examples of posters can be explored beforehand, including refreshing learners’ knowledge of good and effective design practice.  If learners have forgotten how to search the world wide web for appropriate images, you may need to remind them how to refine search terms, such as looking for transparent backgrounds. |

Unit 8.4 Protecting online activity

| Unit 8.4 Protecting online activity |
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| Outline of unit: |
| In this unit, learners will explore how they must use protection mechanisms such as effective usernames when personally interacting online. They will also review the consequences of not taking personal responsibility for their digital activity.  A large part of this unit will include established eSafety guidelines that vary considerably depending on the country of origin and school policies. This is also a good opportunity to reconfirm with learners how to report unwanted online attention. |
| Knowledge, understanding and skills progression: |
| This unit will require prior knowledge from previous stages, specifically on general eSafety. |
| Language: |
| * personal identity * online presence * conduct * username * content * opinion/comments * online footprint * platform * anonymity * URL * link * security * validity/accuracy * source |

| Learning objectives | Suggested teaching activities and resources | Teaching notes |
| --- | --- | --- |
| **8SW.02** Understand personal identity can be protected by having a username which is not personally identifiable. | *What does a person’s online presence say about them?*  Learners explore examples of social media pages which include content that might:   * present the author negatively * have longer-term consequences * be derogatory to others.   You might need to create some of these examples in advance. The examples should include clearly identifiable usernames and profile information, such as full name and school information. Examples of social media include:   * a popular social media platform page that makes negative comments about a sports team’s accomplishments * a blog that contains negative comments about teachers, for example: ‘they don’t care about what learners want to learn’.   Discuss how online posts can be easily traced back to a particular person. The consequences for this individual can be virtual, such as them receiving negative feedback online or becoming a victim of trolling. The consequences might also occur in the physical world, such as arguments, loss of friendship, issues with authorities or with current or future employers.  *How easy is it to identify you online?*  Learners complete a self-assessment about the information someone could find about them online. This can be abbreviated or summarised so that it does not highlight specific incidents or situations that may cause embarrassment or upset.  *Why would an online user need to think about their username on an online platform?*  Learners discuss how usernames can be very personal and something that could very easily identify someone as a specific person, or they could be represented in a more generic manner which would make the individual much harder to identify. Learners discuss the advantages of not being easily identifiable online, such as:   * to protect themselves in the physical world * to protect their personal information * to protect their relatives or friends * to reduce the risk and impact of online trolling or cyberbullying.   Allow learners to create a username for themselves that they could use on a particular online platform. They should write down the username and the platform that they would use it on. They should not include their real name. The rest of the class then view the fictional usernames and see if they can guess who created them.  *If someone is anonymous online, does this mean they can say whatever they want?*  Display examples of news articles about online posts, where people have regretted what they said. Elicit that with anonymity comes moral responsibility to act accordingly, with reference to local laws and regulations and to moral obligations*.*  **Resources**:   * Prepared examples of potentially harmful social media content. * News stories relating to online content that has had a negative impact on its author. | This can be a sensitive area for many learners, therefore it is important to show examples that will not cause offence or worry learners. Focus on the fact that when someone says something online it is public and so others can make unfavourable comments in response.  Again, this task may be a source of concern for learners who have been involved in any form of cyberbullying or other online issues. Therefore you may wish to scaffold this task, giving learners some aspects to discuss at their own discretion. |
| **8SW.03** Assess the suitability and security of websites and hyperlinks through reading the URL**.**  **8DW.01** Make effective judgments about the validity of the source and accuracy of information found online. | *How do I know a link is secure?*  Learners recall their prior learning about the validly and source of web links. Focus their attention on the URL and identify considerations such as:   * Does the URL look official for a particular company or service that the user is trying to reach? For example, does it include the company’s domain name or is it expanded with random characters? * Did the link come from a trustworthy source? For example, has it been received via email, instant message or on a blog or wiki? * Is the language used on the link appropriate? Are there spelling or grammatical mistakes?   Divide learners into groups and provide them with links to websites so that they can discuss the validity of each.  *How can you identify websites which have inbuilt security features?*  Show learners some websites that use SSL encryption to protect a user’s data and banking information when shopping online. Introduce learners to the padlock symbol, in the URL bar, as well as viewing the security certificates on specific examples.  Describe the difference between ‘http://’ and ‘https://’. Explain that ‘https://’ adds an additional protection method to encrypt data that is entered by a user, such as credit card or banking information as well as social media login information. This can be demonstrated physically using on an online shopping site, as a user does not need to log in to a website to begin shopping. Also demonstrate the information located in a website’s SSL certificate.  Ask learners to research briefly how personal information can be intercepted if encryption is not added to a website. They should feed back to the class so an understanding about the risks posed by lack of encryption can be agreed.  **Resources**:   * Prepared links for reliable and unreliable websites. | This task will require some example websites with embedded security features and that demonstrate the validity of information. Ask learners to look at examples of bias and non-bias and at leading questions so they know how to recognise these.  Examples of fun but unreliable websites include:   * <https://zapatopi.net/treeoctopus/> * <http://timetunnel.bigredhair.com/robots/index.html> |
| **8SW.06** Understand that they have personal responsibility for their digital activity, safety and wellbeing.  **8TC.05** Use advanced search techniques to refine search results. | *What can you do to protect your digital safety and wellbeing?*  Learners should review their general eSafety knowledge by discussing the following areas:   * use of personal information online * use of usernames within online platforms * how to report issues to online organisations/within school * when you should and should not post information about personal matters and feelings * deciding which friendship requests to approve * examples of personal opinion that should and should not be shared online.   Ask learners to create an election campaign or manifesto for the online post ‘Online Safety Champion’ for their school. They should be given time to plan their campaign, such as the key messages they are going to share. The focus of the activity is for learners to establish their fundamental key priorities as an ‘online safety champion’.  They may wish to develop some promotional or support resources such as:   * banners * badges * posters * digital banners * podcasts * billboards * video clips.   You may wish to introduce a design process where learners create pre-production documents to effectively plan the resources, and then review these using peer feedback.  For their final versions, ask learners to use software of their choice, alongside royalty free image or graphics editing packages. Knowledge and understanding from prior units should be used, to allow learners to produce exciting resources and accurately refine their search results to obtain the information that they will include.  At the end of the activity, ask learners to vote for the best two final documents. The two learners who wrote these documents pitch to the whole class so they can then decide on a winner of the title ‘Online Safety Champion’. | This activity provides a general eSafety summary. Support this by reminding learners of your school’s eSafety policy. |

| Example Project: Unit 8.4 | | |
| --- | --- | --- |
| Learning objectives | Project outline and resources | Teaching notes |
| **8TC.05** Use advanced search techniques to refine search results.  **8SW.06** Understand that they have personal responsibility for their digital activity, safety and wellbeing.  **8SW.03** Assess the suitability and security of websites and hyperlinks through reading the URL**.**  **8DW.01** Make effective judgments about the validity of the source and accuracy of information found online.  **8SW.02** Understand personal identity can be protected by having a username which is not personally identifiable. | In this project, learners work in small groups to create a podcast which will be broadcast to all pupils of the school via the school’s website. The content of the podcast should remind all learners of their personal responsibility for their online safety and wellbeing when assessing information they find online.  Learners can focus on any of the following aspects where personal judgment is required:   * the validity of websites * the validity of information found online * what information to share online, including the use of appropriate usernames * protecting personal files.   The groups should plan their podcasts using mind mapping or brainstorming, followed by creating a script so they can streamline the recording process.  Learners may need to be reminded about how to use the available sound recording software and hardware, but allow them time to experiment with the techniques to capture their own content. They can enhance it with royalty-free music and sound effects. File types and compression should be reviewed to ensure the final file type is appropriate in terms of both size and quality.  **Resources**:   * Appropriate sound recording equipment and sound editing software. * Access to royalty-free sound files. |  |

Sample lesson 1

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| --- | --- |
| CLASS: | |
| DATE: | |
| **Learning objectives** | **8DW.03** Describe how digital technology is changing the workplace. |
| **Lesson focus /**  **success criteria** | Understanding wireless digital devices in a typical office environment. |
| **Prior knowledge / Previous learning** | * Knowledge of typical digital devices including smartphones, laptops/PCs, tablet computers, wireless printers and smart TVs. |

**Plan**

| **Lesson** | **Planned activities** | **Notes** |
| --- | --- | --- |
| **Introduction**  **0–10 minutes** | In pairs, learners identify a range of digital devices that would be found in a typical office environment. Their findings can be noted on a large piece of paper.  Learners choose three devices that they think are most useful and explain their reasons for choosing them, including what they are used for.  Key Questions  *What wireless digital devices are used in a typical office environment?*  *How have these changed In the last ten years?*  *Why is there now a focus on portability when working in an environment like this?* | The aim of these activities is for learners to identify common digital devices used (laptops/PCs, tablet computers, wireless printers, smartphones, and smart TVs) and how they are used. It may help learners if you suggest the scenario of an expensive designer office space. |
| **Main activities**  **Part 1**  **10–15 minutes** | Give learners two images. One of a traditional office, with bull-pen style wall dividers, desktop PC’s, fixed-line phones etc. alongside a much more minimalist and modern office space that utilises workspaces rather than fixed locations.  Learners should discuss the differences between the technology and ethos of each type of business environment. An example could be pure aesthetics, where a company may have a very modern brand image and want to be very minimalistic in their workplace. References to local businesses can be used. This would also be an opportunity to introduce how businesses may want to develop their employees’ productivity by providing a more interactive and adaptive space.    Key Questions  *Why might workstations limit a person’s productivity?*  *Which one of these workspaces would you prefer to work in and why?*  *In the second example, are there restrictions on how a person can work?* | Begin this activity with some discussion-based media (some examples have been provided in the unit). |
| **Main activities**  **Part 2**  **15–25 minutes** | Lead a discussion about Web 2.0 and online hosted applications within the workplace. Include ways in which this has revolutionised workplace productivity.  Learners explore the impact of hosted technology and cloud-based applications on the traditional workplace. Give learners a worksheet that identifies areas of technology and ask them to draw conclusions on the impact the technology has had on the workplace.  Key questions:  *How has cloud computing changed the traditional workplace?*  *Why are ‘hot desks’ becoming more popular in the office environment?*  *Can technology and services be used to promote the identify of a business or organisation?* | This activity will be an independent exploration based on you leading the discussion to initiate ideas. |
| **End/Close/ Reflection/ Summary** | Elicit questions and answers from specific learners. For example:  *Why is technology in a workplace important for the success of the workplace?*  *How can technology improve productivity in a workplace?*  *Does work have to be done in a traditional office environment?* | This 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

|  |  |
| --- | --- |
| CLASS: | |
| DATE: | |
| **Learning objectives** | * **8DW.04** Describe the benefits and risks of the Internet of Things. |
| **Lesson focus /**  **success criteria** | Understand the Internet of Things |
| **Prior knowledge / Previous learning** | Broad knowledge of digital devices and of the smart technology within these devices. |

**Plan**

| **Lesson** | **Planned activities** | **Notes** |
| --- | --- | --- |
| **Introduction**  **0–5 minutes** | Write this question on the board and ask learners to discuss it in pairs:  *Which types of smart devices are being introduced to people’s homes?* | The aim of this activity is for learners to think of internet connected devices within the home other than the traditional laptop or smartphone, etc. |
| **Main activities**  **Part 1**  **5–12 minutes** | Ask learners to research the Internet of Things, using a research method of their choice. Ask learners to discuss their findings with a partner.  With the whole class list some key devices for the home such as smart meters, smart thermostats, etc.  Key questions for each device listed:  *Do you think this device will make a big impact on people’s homes?*  *How has this device been received by users?*  *Are there any drawbacks for this type of technology?* | This activity will encourage learners to think about the increase of smart devices in homes and how they allow for greater control and access to systems. |
| **Main activities**  **Part 2**  **12–25 minutes** | Ask learners to use their research from Part 1 to establish the benefits and drawbacks of each type of technology. This can be done using a worksheet like this one.     |  |  |  | | --- | --- | --- | | **Technology** | **Benefits** | **Risks** | | Smart doorbell/camera | You can clearly see who has called at your home without having to answer the call in real life. You can often see them in HD and also speak or communicate with them. This would be a large benefit against unauthorised entry to a home. Also this can be done via apps on many systems. | If this system was hacked, information or footage from within a home could be accessed and used to spy or extort a person or it could be used to find out when someone is not at home, so they the home can be targeted when no one is there. |     Answers can be shared as a discussion at the end of the lesson  Key questions:  *What is the main issue with this technology within a home?*  *What would happen if the technology was intercepted by a hacker?* | This activity focuses on the benefits and risks of the technology, which may be something learners have not experienced. Show some of this technology in action using video examples. |
| **End/Close/ Reflection/ Summary** | Elicit questions and answers from specific learners. For example:  *Why have smart devices been developed?*  *How can they pose a risk?*  *Where can these devices be found?*  *How can they be secured?* | This 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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