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DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for TLE-ICT

Quarter 1
Lesson
3

Lesson Exemplar for TLE 6
Quarter 1: Lesson 3 (Week 3)
SY 2024-2025

Development Team

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TLE/ QUARTER 1/ GRADE 6

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners demonstrate an understanding of utilizing cloud storage.
B. Performance Standards	The learners perform the utilization of online and productivity tools in a safe and responsible manner.
C. Learning Competencies and Objectives	***Learning Competency*** *Perform uploading and sharing of files in cloud storage in a safe and responsible manner.* ***Learning Objectives*** At the end of the lesson, the learners are expected to: 1. *Discuss cloud storage, its uses, pros and cons.;* 2. *Identify different cloud storage platforms;* 3. *Explain basic cloud storage security measures;* 4. *Describe the process of uploading and sharing files on a cloud storage;* 5. *Recognize the importance of online safety and data privacy when using cloud storage;* 6. *Upload files in cloud storage with application of basic security measures;* 7. *Share files in cloud storage responsibly.*
C. Content	Cloud Storage ● Different Cloud Storage platforms ● Cloud Storage Security ● Uploading and Sharing Files
D. Integration	Personal Efficacy

II. LEARNING RESOURCES
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III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**DAY 1** **1. Short Review** **Activity 1: "Think-Pair-Share"** **1. Think-Pair-Share** *Think*: On your own, name two different online form builder applications or mobiles you might have heard of. *Pair:* Discuss your answers with a classmate. Are there any apps both of you know? *Share:* Quickly share 1-2 popular online form builder apps with the class. **2. Step by Step** 2.1. Let's review the general steps involved in using an online form builder app. Can you tell me the first step? *(Possible Answer: Create an account)* 2.2. Great! What might we do next? (*Possible Answer: Choose a form template, add questions, customize the design);* 2.3. Excellent! After building the form, what's another important step? (*Possible Answer: Share the form or embed it on a website)*	The teacher will facilitate Activity1 and recognize the varying answers of the learners, process them and explain it to the class.

	These online forms are great for collecting information. But where do you store all this data? That is where cloud storage comes in! Our next lesson will explore the amazing world of Cloud Storage and how it helps us keep our files safe and accessible online. **2. Feedback (Optional)** Ask the learners to share their experiences and challenges encountered while creating their forms. Discuss any common issues and how they were resolved.	
B. Establishing Lesson Purpose	**1. Lesson Purpose** This lesson aims to introduce the learners to the concept of Cloud Storage. They will discover how it works, its uses, and how it can be a valuable tool for managing and accessing their files anytime, anywhere. By understanding cloud storage, they will be equipped with a powerful resource to enhance their digital experience, especially when collaborating on projects or simply keeping the important files safe and readily available. **2. Unlocking Content Vocabulary** **Cloud Storage** allows you to save data and files in an offsite location that you can access either through the public internet or a dedicated private network connection. **Uploading** is the transmission of data from a local device to a remote device. **File Sharing** is sharing or offering access to digital information or resources including documents, multimedia, graphics, or images. The practice of distributing or providing access to digital files. **Platform** refers to the underlying technology or service that supports cloud storage. **Security** refers to the measures taken to protect data stored in the cloud from unauthorized access and breaches. **Encryption** refers to the process of converting data into a code to prevent unauthorized access. **Authentication** refers to the process of verifying the identity of a user or device.	
C. Developing and Deepening Understanding	**SUB-TOPIC 1: DIFFERENT CLOUD STORAGE PLATFORMS** 1. **Explicitation** Have you ever filled your phone's storage with games, photos and videos? Sometimes, our devices simply don't have enough space for everything we want to keep. This is why there is a need for Cloud Storage.	

Cloud Storage

Cloud Storage is believed to have been invented by a computer scientist Dr. Joseph Carl Robnett Licklider in the 1960s. Cloud Storage is a way to save data securely online so that it can be accessed anytime from any location and easily shared with those who are granted permission.

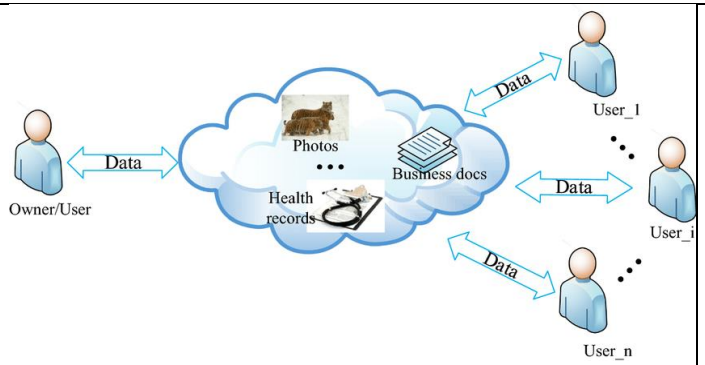

Figure 1. The Framework of Cloud Storage (Wu et al., 2018)

Cloud Storage is a cloud computing model in which data is stored on remote servers and accessed over the internet or through a dedicated private network connection. Cloud Storage allows data to be accessed from anywhere. In general, cloud storage operates through a web-based application programming interface (API) that is remotely implemented through its interaction with the client application's in-house cloud storage for input/output (I/O) and read/write (R/W) operations.

How does Cloud Storage work?

a. *Think of a Big Library*. Cloud Storage is like a giant library with millions of digital lockers. Instead of books, these lockers hold your files, pictures, music, and anything else you want to keep safe.
b. *Rent Your Own Locker*. These lockers are managed by companies like Google Drive or Dropbox. They "rent" you a space in the cloud to store your stuff. Just like a real locker, you have your own password to keep your files safe and private.
c. *Reach for your Files from Anywhere.* The best part? You can access your cloud storage locker from any device with an internet connection. Whether you're on your phone, computer or even a friend's tablet, you can open your locker and grab the files you need.

Why use Cloud Storage?

a. *Safe and Sound.* Your files are stored securely on a powerful server, so you don't have to worry about losing them if your device gets broken or misplaced. It's like having a backup copy of everything.

	b. *Sharing is Caring.* Cloud storage makes it easy to share files with friends and family. Just invite them to your locker, and they can access specific files or folders you choose. This is perfect for collaborating on school projects. c. Always Available. No more searching for that lost USB drive. With cloud storage, your files are always accessible from any internet connection. It's like having your own personal digital library at your fingertips. *Pros and Cons of Cloud Storage* As with any other cloud-based technology, cloud storage offers some distinct advantages. But it also raises some concerns for companies, primarily over security and administrative control. *Pros.* Cloud Storage offers several advantages: a. *Reduced Workload.* You don't need to manage the physical storage infrastructure (e.g USB drives, Portable Hard Disks, etc.) b. *Fast Setup.* Cloud Storage is quick and easy to implement, allowing you to use it within hours. c. *Cost-efficient.* You only pay for the storage you use, making it a flexible expense. d. *Scalability.* Cloud storage can easily grow your needs, offering virtually unlimited capacity. e. *Disaster recovery.* Offsite storage protects your data in case of physical disasters. *Cons.* While Cloud Storage offers numerous benefits, it is important to acknowledge some potential downsides: a. *Security Concerns.* Data breach can be a worry with cloud storage. Though providers strive for robust security, occasional incidents raise user concerns about data confidentiality. b. *Limited Control.* Offloading data management to a cloud service provider offers advantages, but it can also restrict your control over the data. You might not have complete freedom to access, move, or view your data whenever you want. c. *Potential Delays*. Latency or delays in transferring data to and from the cloud can occur. This is especially true if you rely on shared public internet connections with high traffic. While cloud providers can improve bandwidth to minimize latency, it is still a factor to consider.	

d. *Compliance Challenges.* Strict data privacy and archival regulations in certain industries, like healthcare and finance, might restrict the use of cloud storage. Certain types of files, such as medical records or investment documents, might not be suitable for cloud storage due to these regulations.

Cloud Storage is a fantastic tool, but it is important to use it responsibly. Just like you would not share your locker key with everyone, keep your cloud storage password safe and only share files with people you trust.

Different Cloud Storage Platforms

There are so many cloud storage apps these days. Choosing a Cloud Storage depends on the features, connection, and user friendliness. Here are five widely used Cloud Storage.

1. 

   Google Drive is a cloud-based storage device that enables users to store and access files online.

2. 

   OneDrive is the Microsoft cloud service that connects you to all your files, stores and protect your files, share them with others and access them from any device.

3. 

   Dropbox is a popular cloud file storage or file hosting service which enables individual users and businesses to store, locate, manage and share.

4. 

   Jottacloud is a practical cloud storage and backup solution with state-of-the-art security policies and impressive storage capabilities.

	5.  OneDrive is online personal storage that you get when you set up an account to use the service. **2. Worked Example** **Title: Exploring Google Drive** **Objective:** To familiarize learners with the features and functionalities of Google Drive. **Guided Practice:** ● Demonstrate how to create a Google Drive account. ● Show how to upload, organize, and manage files and folders. ● Explain how to use Google Drive's search and filtering options. **3. Lesson Activity** **Activity 2: Mastering Google Drive: Uploading and Organizing Files** **DAY 2** **SUB-TOPIC 2: CLOUD STORAGE SECURITY** **Cloud Storage Security** Cloud storage has revolutionized data management, offering unparalleled accessibility and scalability. However, with the convenience of storing our personal and professional lives online comes the crucial question of security. Sensitive information entrusted to cloud providers raises concerns about data breaches, unauthorized access, and potential loss of control. **Security Threats and Challenges of Cloud Storage** 1. *Data Breaches.* Cloud Storage provides, despite robust security measures, are not immune to cyberattacks. Hackers constantly develop new methods to exploit vulnerabilities, potentially exposing user data. 2. *Insider Threats.* Security breaches also originate from within a cloud provider's organization. Malicious insiders with authorized access could potentially compromise user data.	For activity 2, see worksheet for the learning activity that the students will accomplish. The teacher will demonstrate and guide the students in doing this activity.

	3. *Data Loss.* Accidental deletion, hardware failures, or natural disasters can lead to data loss in cloud storage systems, although most providers offer redundancy and backup solutions. 4. *Shared Responsibility Model.* The security of cloud-stored data is shared responsibility between the provider and the user. Providers implement security measures but users also need to be aware of best practices, such as using strong passwords and enabling two-factor authentication. **Best Practices for Users to Secure Cloud Storage** 1. *Strong Passwords.* Utilize complex and unique passwords for your cloud storage accounts. Avoid using easily guessable information. 2. *Two-Factor Authentication (2FA).* Enable two-factor authentication for an extra layer of security. This requires a second verification step, such as a code sent to your phone, in addition to your password. 3. *Selective Sharing.* Be mindful of what information you store in the cloud and who you share it with. Avoid strong highly sensitive data unless absolutely necessary. 4. *Regular Backups.* Maintain regular backups of your critical data, even if it is stored in the cloud. This provides an extra layer of protection in case of accidental deletion or other unforeseen events. 5. *Stay Informed.* Keep yourself updated on the latest security threats and best practices for cloud storage security. 2. **Worked Example** **Title: Securing Your Cloud Storage** **Objective**: To understand and implement security measures for cloud storage. **Guided Practice**: ● Demonstrate how to enable two-factor authentication on a cloud storage platform. ● Show how to encrypt files before uploading them to the cloud. Explain how to set up automatic backups and version control. 3. **Lesson Activity** Have learners enable security features on their cloud storage accounts and practice encrypting and backing up files.	

	DAY 3 **SUB-TOPIC 3: UPLOADING AND SHARING FILES** **1. Explicitation** Cloud storage platforms offer a convenient way to store, manage, and share files online. Below, we discuss the process of uploading and sharing files using these platforms, as well as the different sharing options available. **Uploading Files** 1. **Accessing the Cloud Storage Platform:** • Open your web browser and navigate to the cloud storage platform of your choice (e.g., Google Drive, Dropbox, OneDrive, iCloud). • Sign in to your account using your credentials. 2. Uploading Files: • Step 1: Locate the "New" or "Upload" button on the platform's dashboard. This button is often represented by a "+" symbol or an upward arrow. • Step 2: Click on the "Upload" button and select "File upload" or "Folder upload" from the dropdown menu. • Step 3: Browse your computer to select the file(s) or folder(s) you want to upload. • Step 4: Click "Open" or "Upload" to begin the upload process. The platform will display a progress bar indicating the upload status. • Step 5: Once the upload is complete, the files will appear in your cloud storage dashboard, ready for organization and sharing. **Sharing Files** Cloud storage platforms provide several options for sharing files, each with varying levels of access and security. Below are the common sharing options: 1. Sharing via Email: • Step 1: Select the file or folder you wish to share. • Step 2: Click on the "Share" button, typically represented by a person icon with a plus sign or a link symbol. • Step 3: Enter the email addresses of the people you want to share the file or folder with.	The teacher will: Discuss the process of uploading and sharing files using cloud storage platforms. Explain the different sharing options, such as sharing via email, generating shareable links, and setting permissions for collaborators.

	• Step 4: Set the appropriate permissions for each recipient (e.g., Viewer, Commenter, Editor). • Step 5: Add an optional message to the recipients, explaining the purpose or content of the shared file. • Step 6: Click "Send" to share the file or folder via email. Recipients will receive an email notification with a link to access the shared content. 2. Generating Shareable Links: • Step 1: Select the file or folder you wish to share. • Step 2: Click on the "Share" button and look for the option to "Get shareable link" or "Copy link." • Step 3: The platform will generate a unique URL that you can copy to your clipboard. • Step 4: Set the appropriate permissions for the shareable link (e.g., Anyone with the link can view, Anyone with the link can edit). • Step 5: Share the link via email, messaging apps, social media, or any other communication channel. • Step 6: Recipients can click on the link to access the shared file or folder based on the permissions you set. 3. Setting Permissions for Collaborators: • Viewer: Users with this permission can only view the file or folder. They cannot make any changes or leave comments. • Commenter: Users with this permission can view and leave comments on the file or folder. They cannot make any changes to the content. • Editor: Users with this permission can view, comment, and make changes to the file or folder. They have full editing rights, including the ability to delete content. 4. Managing Shared Files: • Step 1: To manage shared files, navigate to the "Shared with me" or "Shared" section of the cloud storage platform. • Step 2: Review the list of files and folders that have been shared with you or that you have shared with others. • Step 3: Adjust permissions as needed by selecting the file or folder and clicking on the "Share" button to update access settings.	

	• Step 4: Remove access for specific users by clicking on the "Remove" or "X" button next to their email address in the sharing settings. **2. Worked Example** **Activity 3: "Drag and Drop Danger: Mastering Uploading & Sharing Files"** In this activity, learners will upload and share files using the widely used Cloud Storage platform - Google Drive. Instructions: 1. Go to Google Drive. Open your browser and visit: https://drive.google.com/drive/my-drive 2. Sign in. Enter your google account email address and password to log in to Google Drive. 3. Upload Options: Choose Your Weapon! You have two main ways to upload files. 3.1. The "+" Power Button: Click the "+" button in the top left corner. This offers a choice of two: • "File Upload": Target a single file for upload. A window will appear, letting you explore your computer to choose your upload victim. • "Folder Upload": Conquer an entire folder of files at once. Navigate to your target folder and select it for upload. 4. Drag and drop. You can also upload files by dragging and dropping them directly into the Google Drive window. Open the file explorer window on your computer, locate your target files, and drag and drop them onto the Google Drive window. 5. Upload in Progress. The upload time will depend on the size and number of files you are uploading. Google Drive will show you a progress bar for each file. 6. Mission Accomplished. Once uploaded, your files will be waiting for you in your Google Drive storage, ready to be viewed, downloaded, shared, or managed at your command. **3. Lesson Activity** **Activity 4: Uploading and Sharing Files on Dropbox**	For activity 4, see worksheet for the learning activity that the students will accomplish.

D. Making Generalizations	**1. Learners' Takeaways** The learners' takeaways may vary but here is desired: Learners will gain a comprehensive understanding of cloud storage. The learners will learn specifically on the following: cloud storage fundamentals, Google Drive expertise, terminology reinforcements, platform exploration, tech-savvy confidence, and step-by-step guidance. **2. Reflection on Learning** The teacher may ask these questions to solidify understanding of cloud storage and identify areas for improvement in student's practices and become a more informed and secure user of this technology. 1. Despite the advances, cloud storage also raises security concerns. What worries you most about storing your data in the cloud? 2. We expired best practices for securing cloud storage. Which of these practices do you think are most important? Why? 3. We learned about different cloud storage platforms. Do you currently use a cloud storage platform? If so, which one and why did you choose it?	The teacher will facilitate the discussion that provides an avenue for students to learn what are their takeaways. The teacher will facilitate asking of questions that elicit reflection from the students.

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**1. Formative Assessment** 1. Briefly explain why is it important to choose a strong password for your cloud storage account? *Possible Answer: "A strong password makes it more difficult for hackers to guess and access your data"* 2. Describe two ways you can improve the security of your cloud storage. *Possible Answer: "Using two-factor authentication and being selective about what information you store in the cloud"* 3. Do you think cloud storage will become even more important in the future? Why or why not? Explain your answer. *Possible Answer: "Yes, cloud storage is likely to become more important because it offers convenient and scalable storage solutions for our growing digital needs"* **2. Homework (Optional)**	

<table>
<tr><td rowspan="5">B. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="5">The teacher may take note of some observations related to the effective practices and problems encountered after utilizing the different strategies, materials used, learner engagement and other related stuff.

Teachers may also suggest ways to improve the different activities explored/ lesson exemplar.</td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
<tr><td>learner engagement/ interaction</td><td></td><td></td></tr>
<tr><td>Others</td><td></td><td></td></tr>
<tr><td>C. Teacher's Reflection</td><td colspan="3">Reflection guide or prompt can be on:
▪ <u>principles behind the teaching</u>
What principles and beliefs informed my lesson?
Why did I teach the lesson the way I did?

▪ <u>students</u>
What roles did my students play in my lesson?
What did my students learn? How did they learn?

▪ <u>ways forward</u>
What could I have done differently?
What can I explore in the next lesson?</td><td>Teacher's reflection in every lesson conducted/ facilitated is essential and necessary to improve practice. You may also consider this as an input for the LAC/Collab sessions.</td></tr>
</table>