Grade 7 ICT – Final Study Guide

UNIT 1 – LESSON 1

1. Working and Sharing Online

1.1 Sharing School Work Online

Students can share their work with teachers and classmates using the internet by:

- Uploading **PowerPoint, Word, videos, images**
- Sending files by **email**
- Sharing links from **OneDrive / Google Drive**

Instead of printing everything, you can just send a link or an attachment.

1.2 Cloud Storage & Cloud Computing

Cloud storage

- Saving files on the **internet**, not just on your device.
- Files are stored on servers of companies like Microsoft (OneDrive), Google (Drive), etc.
- You can access them from **any device** with internet.

Why it's useful:

- If your device breaks, your files are still safe online.
- You can **share** a file link with others.
- Multiple people can **edit the same document** together.

Cloud computing

- Using **programs online** (like Office online, Google Docs) instead of installing everything on your computer.

1.3 Working Together with OneDrive (Example)

With **Microsoft OneDrive**, you can:

- Save your homework directly to the cloud.
- Right-click the file → **Share** → copy a link.
- Choose if people can **view only** or **edit**.

This is very useful for **group projects**.

2. Online Communication – Pros & Risks

Modern ways to communicate online:

- Email
- Chat / messaging apps
- Social media
- Video calls (Teams, Zoom…)

Benefits:

- Talk to people anywhere in the world.
- Work on school projects from home.
- Share ideas quickly.

Risks:

- Oversharing personal information.
- Cyberbullying.
- Once something is posted, it can **spread fast** and be hard to delete.

3. Online Communities

Online community = a group of people who meet on the internet to share ideas about something.

Types:

- **Learning communities:** students helping each other with subjects.
- **Interest communities:** people who love the same hobby (gaming, drawing, football…).
- **Support communities:** people with similar problems or illnesses supporting each other.
- **Career communities:** people in the same job sharing tips and news.

Local vs Global:

- **Local community:** focused on a city or country.
- **Global community:** members from many countries, connected by common interests.

4. Crowdsourcing

Crowdsourcing = using the **"crowd"** (a lot of people online) to help with a task or project.

Examples:

- Thousands of people helping label pictures so an AI can learn.
- People sending ideas for designing a new logo or product.
- People donating small amounts of money online to support a project (crowdfunding).

Why it's powerful:

- Each person does a **small part**, but together they finish a **big job**.

UNIT 1 – LESSON 2

This lesson is about **dangers on the internet** and how to protect yourself.

1. Digital Security Threats

When you go online, there are people and programs that may try to:

- Steal your information
- Trick you
- Hack your accounts

Two big ideas here: **phishing** and **identity theft**.

2. Phishing

Phishing = when someone pretends to be a **real company or person** to trick you into giving:

- Passwords
- Bank or credit card numbers
- Other personal data

They often use:

- **Fake emails**
- **Fake websites**

2.1 Fake Websites

A fake website might:

- Look almost exactly like the real one (same colors and logo).
- Have a **slightly different address** (URL) – small spelling changes.
- Ask you to **log in** or enter card details.

Goal: steal your username, password, or money.

2.2 Fake Emails (Phishing Emails)

Signs of a phishing email:

- It sounds very **urgent** or scary:
    - “Your account will be closed!”
    - “Click now or you lose everything!”

- It might say you won a **prize** or money for free.
- It asks you to click a **link** and enter private information.
- The email address might be strange or misspelled.
- There may be **spelling / grammar mistakes**.

Rule of thumb:

If it sounds too good to be true or too scary, it's probably fake.

3. How to Spot a Fake Email

Check these things:

1. **Sender's Email Address**
    - Does it really match the company?
    - "support@realbank.com" vs "support@reelbank.co" (notice the spelling).
2. **Subject**
    - Too good ("You won $1,000,000!!!")
    - Too urgent ("Your account will be deleted in 1 hour!")

3. **Body (text)**
    - Asks for **passwords or bank info**.
    - Has weird mistakes or doesn't sound professional.
4. **Links (hyperlinks)**
    - Hover your mouse over the link (don't click!).
    - If the address looks strange → don't trust.
5. **Attachments**
    - Unexpected files can contain viruses.
    - If you weren't expecting it, don't open it.
6. **Signature**
    - Real companies usually have a proper signature with name, position, and contact info.

4. Identity Theft

Identity theft = when someone uses your **personal information** to pretend to be you.

They might:

- Open accounts in your name.
- Use your card to buy things.
- Log in to your social media and send messages as if they are you.

How do they get your information?

- Phishing emails / fake websites.
- Stealing your device.
- Watching you type your password in a public place.

How to protect yourself:

- Don’t share passwords with anyone.
- Don’t send private info over email or chat.
- Log out from shared computers.
- Use strong, unique passwords.

5. Online Security Measures (Firewalls, Antivirus, Updates)

Now the “missing” part of the lesson: how to **protect** your device and information.

5.1 Firewall

A **firewall** works like a **security guard** between your device/network and the internet.

- Monitors incoming and outgoing connections.
- **Blocks** suspicious or unauthorized access.
- Helps prevent hackers from entering your network.

In Windows you see things like:

“Firewall & network protection”

5.2 Virus Protection (Antivirus)

Antivirus software:

- Scans your computer for **viruses**, **malware**, and **spyware**.
- Removes or isolates dangerous files (quarantine).
- Often runs in the background to protect you in real-time.

You should:

- Run scans regularly (quick or full scan).
- Keep antivirus **updated**.

5.3 Updates & Patches

Software updates aren't just visual changes; they often:

- Fix **security problems** (vulnerabilities).
- Repair bugs (errors).
- Improve performance.

If you ignore updates, your system may be easier to attack.

So:

- Turn on **automatic updates** if possible.
- Install updates for the operating system and browsers.

6. Public-Key Encryption

This is the final concept in Lesson 2.

6.1 What is Encryption?

Encryption = turning a readable message into a secret code that only someone with the **right key** can read.

Even if a hacker sees the data while it travels on the internet, they can't understand it.

6.2 Public-Key Encryption (Two Keys)

Each person has **two keys**:

1. **Public key**
    - You can share it with anyone.
    - Used to **encrypt** messages sent *to you*.
2. **Private key**
    - You must **keep it secret**.
    - Used to **decrypt** (unlock) messages you receive.

Rule:

> Message encrypted with the **public key** can only be decrypted with the **matching private key**.

6.3 Example (Luis & Jana)

- Jana has a **public key** and a **private key**.
- She sends her **public key** to Luis.
- Luis writes a secret message and **encrypts** it using Jana's public key.
- The encrypted message travels on the internet.
- When Jana gets it, she uses her **private key** to **decrypt** and read it.

If anyone else sees the message while it's traveling, they only see **random characters**.

6.4 Compare with Caesar Cipher

- **Caesar cipher:**
    - One key (e.g., shift 3).
    - Same key is used to encrypt and decrypt.
    - If someone finds the key, they can read everything.

- **Public-key encryption:**
    - Uses **two different keys** (public + private).
    - Public key can be known by everyone; only private key unlocks the message.
    - Much more secure and used widely on the internet.

UNIT 2 – LESSON 1

1. 2D vs 3D Drawings

2D (two-dimensional):

- Has **height** and **width** only.
- Looks flat.
- Examples:
    - Square, rectangle, circle
    - Drawing on paper

3D (three-dimensional):

- Has **height, width, and depth**.
- Looks like it has volume / thickness.
- Examples:
    - Cube, sphere, cylinder
    - 3D models of cars or buildings

2. 3D Drawing and 3D Printing

- A **3D drawing/model** on the computer can be used by a **3D printer** to build real objects.
- 3D printers create items **layer by layer** (often with plastic).
- Used in:
    - Engineering and product design
    - Medicine (prosthetic limbs)
    - Architecture
    - Toys and models

3. Creating 2D Shapes in PowerPoint

Steps:

1. Open **PowerPoint**.
2. Go to the **Insert** tab.
3. Click **Shapes**.
4. Choose a shape (rectangle, ellipse, arrow, etc.).
5. Click and drag on the slide to draw it.

You can:

- Change **fill color**.
- Change **outline** (color, thickness).
- Resize and move shapes.

You can also insert **Action Buttons** from the Shape menu, and use them for hyperlinks (jumping between slides).

4. Making Shapes Look 3D

To turn a basic 2D shape into something that looks 3D:

1. Draw a 2D shape (e.g., a star).
2. Select the shape.
3. Go to **Shape Format** or **Drawing Tools**.
4. Choose **Shape Effects** → **3-D Rotation** or **3-D Format**.
5. Adjust:
    - Depth
    - Angle
    - Lighting

Now your star or rectangle looks like it has thickness.

5. Inserting 3D Models in PowerPoint

You can also add real 3D models:

1. Go to **Insert** → **3D Models**.
2. Choose **Stock 3D Models** or insert from your computer.
3. Place the 3D model on your slide.
4. Click and drag to rotate it in 3D.

Useful for:

- Science diagrams (e.g., a 3D heart or planet).
- Engineering projects.
- Creative presentations.