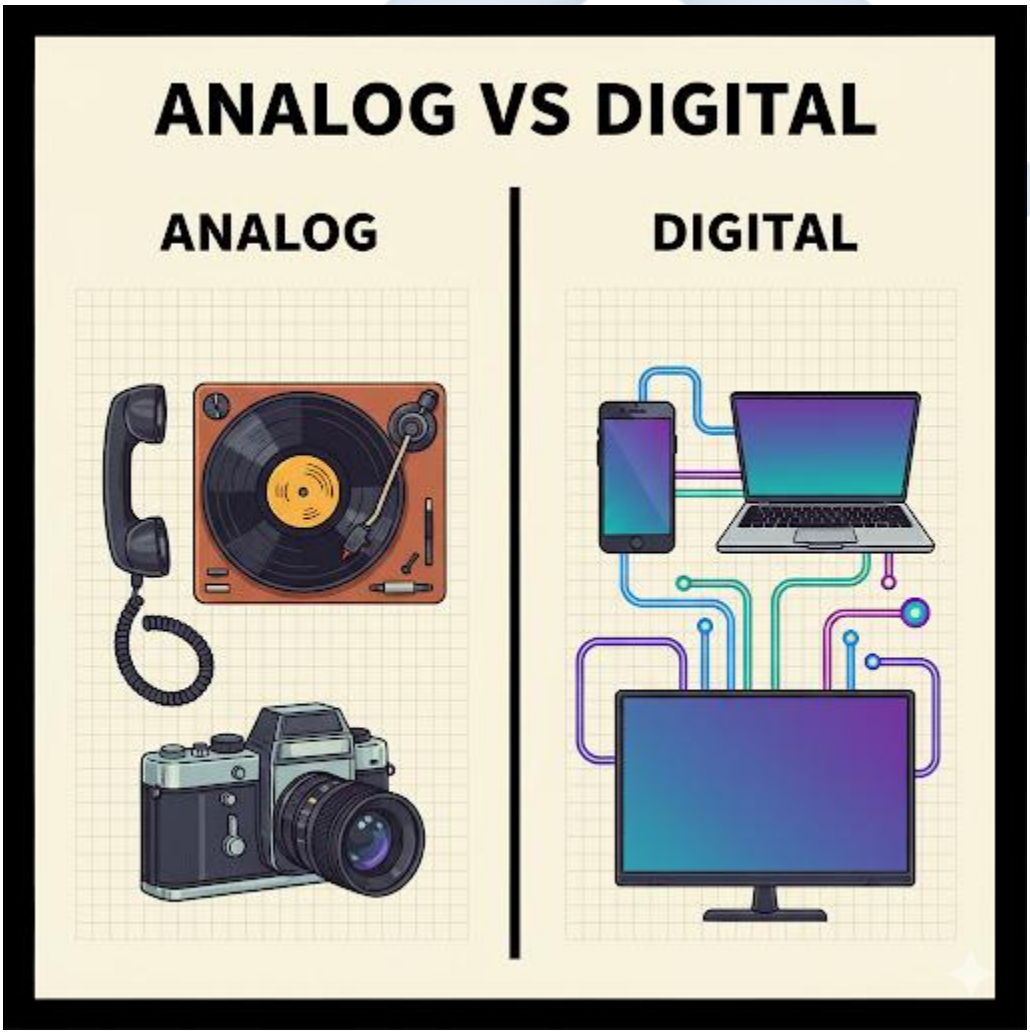
JSS1 DIGITAL TECHNOLOGIES LESSON NOTES

FIRST TERM

WEEK 1: INTRODUCTION TO DIGITAL TECHNOLOGY

SUBTOPICS:

- MEANING OF DIGITAL TECHNOLOGY
- IMPORTANCE IN MODERN LIFE
- EXAMPLES OF DIGITAL DEVICES



MEANING OF DIGITAL TECHNOLOGY

What is Digital Technology? Digital technology refers to electronic tools and devices that use digital information (0s and 1s) to create, store, and share information.

Digital vs. Analog:

- **Analog:** Uses continuous signals (e.g., old clock with hands)
- **Digital:** Uses 0s and 1s (e.g., digital clock with numbers)

Why "Digital"? Computers understand only two states: ON (1) and OFF (0). All information is converted to combinations of 0s and 1s called **binary code**.

IMPORTANCE OF DIGITAL TECHNOLOGY

1. Communication:

- Send messages instantly worldwide
- Video calls with family
- WhatsApp, email, social media

2. Education:

- Research for homework online
- YouTube tutorials
- E-books and online libraries
- Virtual classrooms

3. Entertainment:

- Stream music and movies (Netflix, YouTube)
- Mobile games

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- Social media

4. Business and Banking:

- Mobile banking (transfer money)
- Online shopping (Jumia, Konga)
- Pay bills from home

5. Healthcare:

- Digital medical records
- Online appointment booking
- Digital thermometers

6. Information Access:

- Read news online
- Check weather forecasts
- Learn new skills

EXAMPLES OF DIGITAL DEVICES

1. Computers:

- **Desktop:** Large computer for desk
- **Laptop:** Portable computer
- **Uses:** Schoolwork, internet, typing, games

2. Smartphones:

- Small computers in your pocket
- Examples: iPhone, Samsung, Tecno, Infinix
- Uses: Calls, texts, WhatsApp, social media, camera

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3. Tablets:

- Bigger than phones, smaller than laptops
- Examples: iPad, Samsung Galaxy Tab
- Uses: Reading, watching videos, games

4. Smart TVs:

- Television connected to internet
- Uses: Netflix, YouTube, regular TV

5. Digital Cameras:

- Take photos and videos digitally

6. Printers and Scanners:

- Print documents or convert paper to digital

7. ATM Machines:

- Withdraw money and check balance

8. POS Terminals:

- Card payment machines in shops

BENEFITS OF DIGITAL TECHNOLOGY:

- Fast and accurate
- Stores lots of information
- Makes life easier
- Saves time and money

CHALLENGES:

- Devices can be expensive
- Need electricity to work

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- Security risks (hacking, viruses)
- Must learn how to use properly

EVALUATION:

1. What is digital technology?
2. State three importance of digital technology.
3. Name five digital devices and their uses.
4. What is the difference between analog and digital?
5. Mention two benefits and two challenges of digital technology.

ASSIGNMENT:

1. Explain what digital technology means.
2. List six examples of digital devices with their uses.
3. Describe four ways digital technology helps in education.
4. State three benefits of digital technology in modern life.

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WEEK 2: HISTORICAL DEVELOPMENT OF DIGITAL DEVICES

SUBTOPICS:

- EARLY CALCULATING TOOLS
- GENERATIONS OF COMPUTERS
- EVOLUTION FROM ANALOG TO DIGITAL
- MODERN DIGITAL TRENDS

EARLY CALCULATING TOOLS

1. ABACUS (3000 BC)

- Wooden frame with beads on rods
- Used for counting and simple calculations
- Still used in some countries today

2. NAPIER'S BONES (1617)

- Numbered rods made by John Napier
- Used for multiplication and division
- Made calculations easier

3. PASCALINE (1642)

- First mechanical calculator by Blaise Pascal
- Used gears and wheels to add numbers

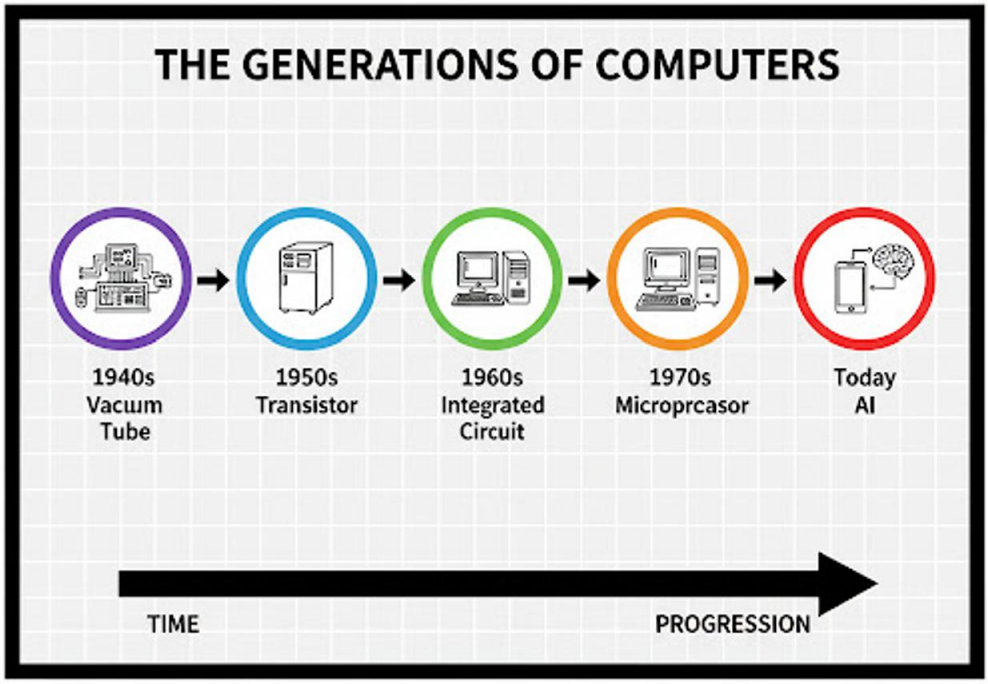
4. CHARLES BABBAGE'S ANALYTICAL ENGINE (1837)

- Designed by Charles Babbage (Father of the Computer)
- Never fully built but had all parts of modern computer

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- Ada Lovelace wrote first computer program for it

GENERATIONS OF COMPUTERS



FIRST GENERATION (1940-1956): VACUUM TUBES

Technology: Large glass tubes (vacuum tubes)

Characteristics:

- Very large (filled entire rooms)
- Very heavy
- Generated much heat
- Used lots of electricity
- Expensive

Example: ENIAC (1946) - weighed 30 tons!

SECOND GENERATION (1956-1963): TRANSISTORS

Technology: Transistors (small devices that replaced vacuum tubes)

Characteristics:

- Smaller than first generation
- Less heat
- More reliable
- Faster
- Less expensive

THIRD GENERATION (1964-1971): INTEGRATED CIRCUITS

Technology: Integrated Circuits (ICs) - many transistors on one chip

Characteristics:

- Much smaller
- Faster
- More reliable
- Keyboard and monitor introduced
- Operating systems developed

Example: IBM 360 series

FOURTH GENERATION (1971-Present): MICROPROCESSORS

Technology: Microprocessor - entire CPU on one chip

Characteristics:

- Very small (personal computers possible)

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- Very fast
- Affordable
- Personal computers (PCs) for homes and offices
- GUIs (Graphical User Interface) - icons and mouse

Examples:

- Apple II (1977)
- IBM PC (1981)
- Modern laptops and smartphones

FIFTH GENERATION (Present-Future): ARTIFICIAL INTELLIGENCE

Technology: AI and advanced computing

Characteristics:

- Voice recognition (Siri, Alexa)
- Machine learning
- Robotics
- Quantum computing (developing)

Examples:

- Smartphones with AI
- Self-driving cars (developing)
- Smart assistants

EVOLUTION FROM ANALOG TO DIGITAL

Analog Era:

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- Mechanical devices
- Continuous signals
- Examples: Typewriter, film cameras, cassette tapes, vinyl records

Digital Era:

- Electronic devices
- Digital signals (0s and 1s)
- Examples: Computers, digital cameras, smartphones, MP3 players

Why Digital Replaced Analog:

1. **Better Quality:** Digital doesn't degrade over time
2. **Easy Copying:** Make perfect copies
3. **Easy Storage:** Store more in less space
4. **Easy Editing:** Can edit without losing quality
5. **Easy Sharing:** Send over internet

Transition Examples:

Analog	**Digital**
Typewriter	Computer/Word Processor
Film Camera	Digital Camera
Cassette Tapes	MP3 Players/Streaming
Landline Phones	Mobile Phones
Letters	Email/WhatsApp
Physical Books	E-books

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Video Cassettes (VHS)	DVDs/Streaming

MODERN DIGITAL TRENDS

1. ARTIFICIAL INTELLIGENCE (AI)

- Machines that can "think" and learn
- Examples: Siri, Alexa, Google Assistant
- Self-driving cars (developing)

2. INTERNET OF THINGS (IoT)

- Everyday objects connected to internet
- Examples: Smart homes (lights, locks, thermostats controlled by phone)

3. CLOUD COMPUTING

- Store data on internet instead of your device
- Examples: Google Drive, iCloud, Dropbox
- Access files from anywhere

4. MOBILE TECHNOLOGY

- Smartphones everywhere
- Mobile apps for everything
- Mobile banking, learning, shopping

5. SOCIAL MEDIA

- Connect with people worldwide
- Examples: Facebook, Instagram, Twitter, TikTok
- Share photos, videos, messages

6. VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR)

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- VR: Enter computer-generated world (VR headsets)
- AR: Add digital elements to real world (Pokémon Go)

7. E-COMMERCE

- Shopping online
- Examples: Jumia, Konga, Amazon
- Pay and receive delivery at home

8. DIGITAL PAYMENTS

- Pay without cash
- Examples: Bank apps, POS, USSD codes
- Mobile money (M-Pesa in Kenya)

9. STREAMING SERVICES

- Watch/listen without downloading
- Examples: Netflix (movies), Spotify (music), YouTube (videos)

10. REMOTE WORK AND LEARNING

- Work/study from home
- Video conferencing (Zoom, Google Meet)

IMPACT OF DIGITAL EVOLUTION

Positive:

- Faster communication
- More access to information
- Better entertainment
- Easier business

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- Global connectivity

Negative:

- Less face-to-face interaction
- Cybercrime increased
- Privacy concerns
- Digital addiction
- Job displacement (machines replacing humans)

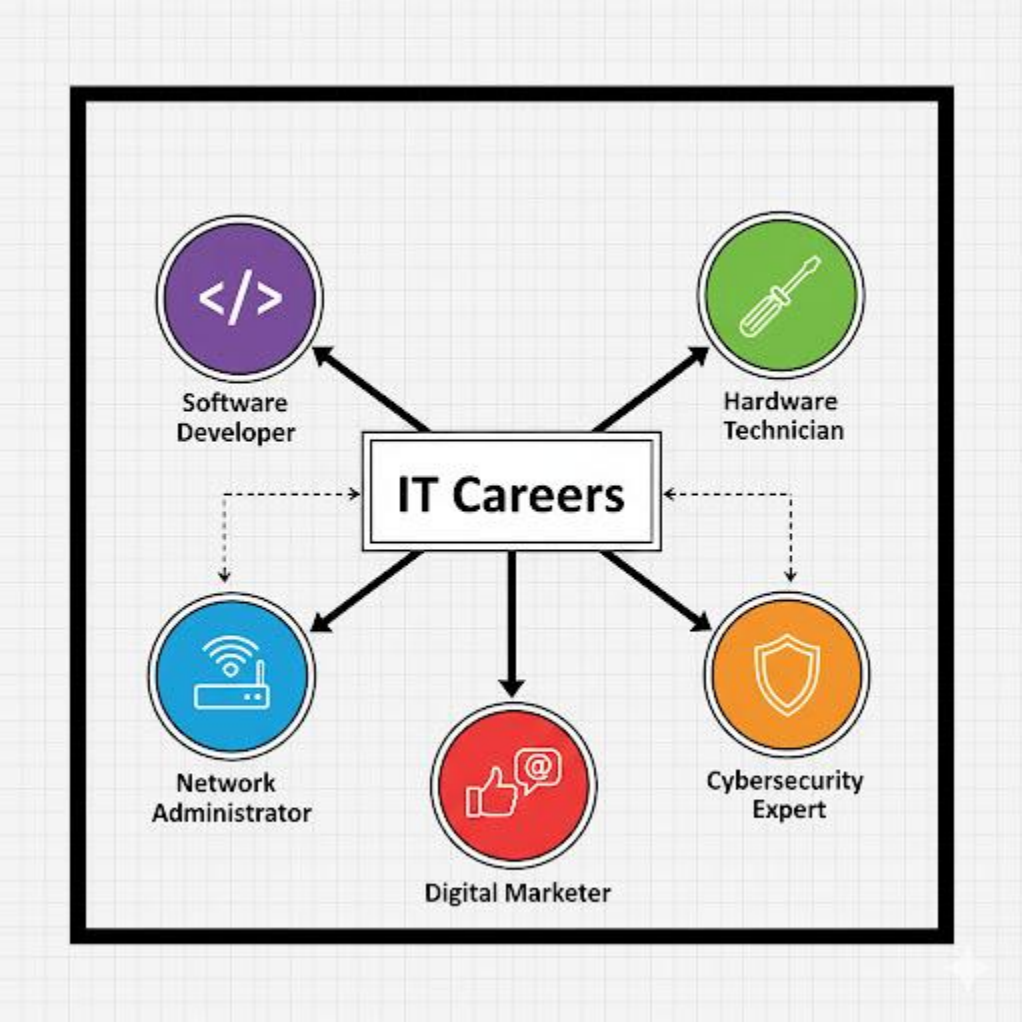
EVALUATION:

1. Name three early calculating tools.
2. Who is called the "Father of the Computer"?
3. State the five generations of computers with their main technology.
4. Give three examples of how analog devices became digital.
5. Name three modern digital trends.

ASSIGNMENT:

1. Describe three early calculating tools.
2. Explain the five generations of computers.
3. What is the difference between analog and digital devices? Give three examples.
4. List and explain five modern digital trends.
5. State three positive and three negative impacts of digital technology.

WEEK 3: CAREER OPPORTUNITIES IN INFORMATION TECHNOLOGY



CAREERS IN ICT

1. SOFTWARE CAREERS

Career	What They Do	Skills Needed
Software Developer	Write programs and apps	Python, Java, C++
Web Developer	Build websites	HTML, CSS, JavaScript
Mobile App Developer	Create phone/tablet apps	Android/iOS programming
Game Developer	Design video games	Programming, graphics, creativity

2. HARDWARE CAREERS

Career	What They Do
Computer Engineer	Design computer components (processors, motherboards)
Computer Technician	Fix and repair computers, upgrade systems
Hardware Installation Specialist	Install and set up computer systems

3. NETWORKING CAREERS

Career	What They Do
Network Administrator	Manage networks, ensure internet works
Network Engineer	Design and build networks (Wi-Fi systems)
Telecommunications Specialist	Work on phone/internet communication systems

4. DATA CAREERS

Career	What They Do
Data Analyst	Analyze data for patterns and insights
Data Scientist	Use advanced methods for big data analysis
Database Administrator	Manage databases (customer records, student info)

5. OTHER ICT CAREERS

- **IT Support Specialist:** Help with computer problems
- **ICT Teacher:** Teach computer studies
- **Systems Analyst:** Study how systems solve business problems
- **Technical Writer:** Write software/hardware manuals

EMERGING DIGITAL CAREERS

Career	What They Do	Example
AI Specialist	Create smart computer systems	Siri, Alexa, recommendations
Cybersecurity Expert	Protect systems from hackers	Secure banks, prevent data theft
Robotics Engineer	Design and build robots	Factory robots, drones
Digital Marketer	Promote businesses online	Social media, Google ads
Cloud Computing Specialist	Manage cloud services	Google Drive, iCloud
Drone Operator	Operate drones	Photography, delivery, agriculture
UX/UI Designer	Design app/website look and feel	User experience and interface
Social Media Manager	Manage company social accounts	Content posting, customer engagement
E-Commerce Specialist	Manage online stores	Jumia shops, online business
Blockchain Developer	Work with blockchain	Cryptocurrency, secure transactions
Content Creator	Create digital content	YouTube, TikTok, blogs

SKILLS NEEDED FOR IT CAREERS

TECHNICAL SKILLS (Hard Skills)

1. **Programming:** Python, Java, C++, JavaScript
2. **Computer Literacy:** MS Office, internet, email

3. **Problem-Solving:** Logical thinking, finding solutions
4. **Mathematics:** Logic, algorithms, data analysis
5. **Typing Skills:** Fast and accurate
6. **Hardware Understanding:** Components, troubleshooting
7. **Networking Knowledge:** How internet works

SOFT SKILLS (Personal Skills)

1. **Communication:** Explain technical concepts simply
2. **Teamwork:** Collaborate on projects
3. **Creativity:** Innovative solutions and designs
4. **Continuous Learning:** Stay updated with technology
5. **Attention to Detail:** Careful and thorough work
6. **Time Management:** Meet deadlines, manage tasks
7. **Patience:** Debugging and problem-solving
8. **Adaptability:** Flexible with changing technology

HOW TO PREPARE FOR IT CAREERS

Now (JSS1-3):

- Excel in Math and English
- Use computers regularly
- Practice typing
- Learn basic coding (Scratch, Python)
- Join computer/robotics clubs

- Stay curious, ask questions

Resources:

- Online: Code.org, Khan Academy, YouTube tutorials
- Practice: Build simple projects, design websites
- Clubs: Computer club, STEM programs

Education Path:

1. JSS1-3: Learn basics, develop interest
2. SSS1-3: Choose Science, focus on Math/Physics
3. University: Computer Science, Software Engineering
4. Certifications: Cisco, Microsoft, etc.
5. Internships: Gain practical experience
6. Career: Start working in IT

WHY CHOOSE IT CAREER?

Advantages:

- High demand (many jobs)
- Good salaries
- Work from anywhere (remote work)
- Continuous learning (never boring)
- Create useful products
- Global opportunities

EVALUATION

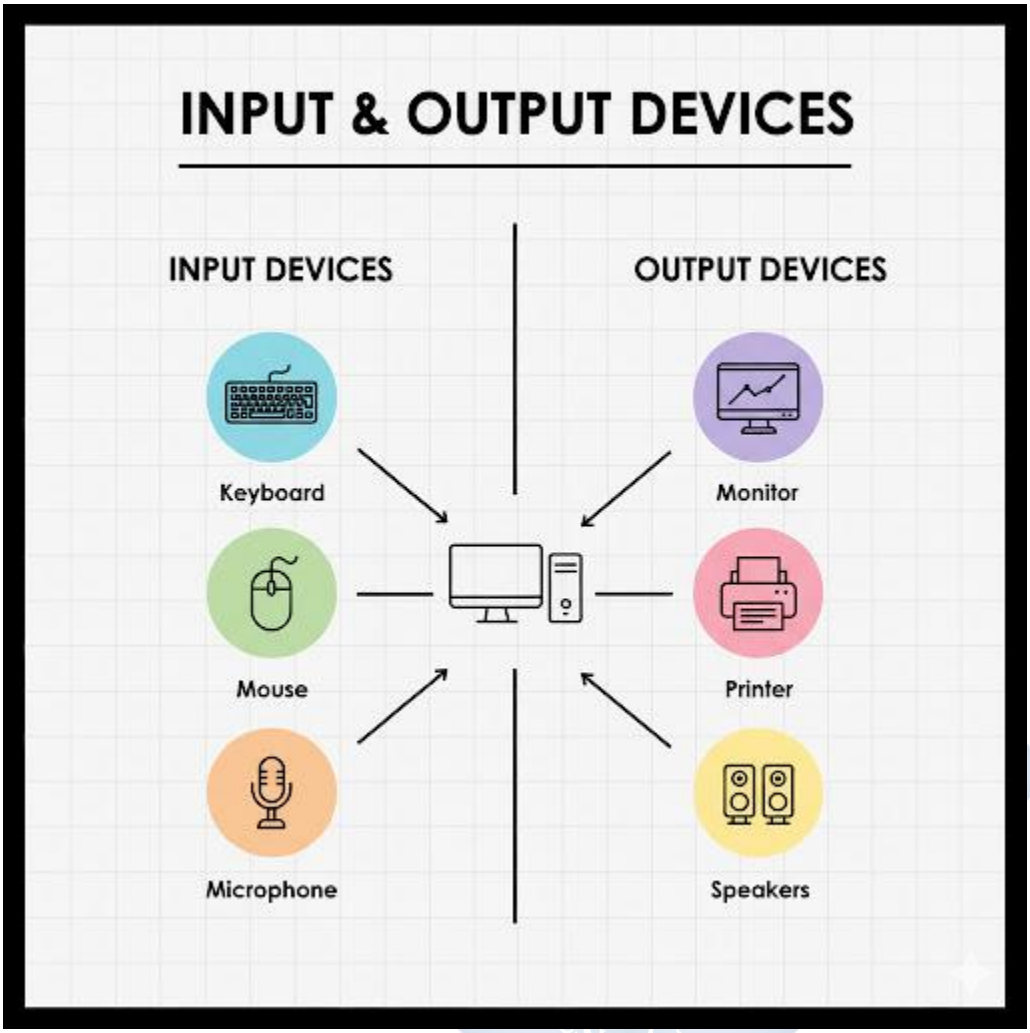
1. Name three software careers and their functions
2. What does a cybersecurity expert do?
3. List five technical skills for IT careers
4. State three important soft skills
5. How can JSS1 students prepare for IT careers?

ASSIGNMENT

1. Describe four ICT careers with functions
2. Explain five emerging digital careers
3. List six technical and four soft skills needed
4. Why is cybersecurity important today?
5. What steps can you take now for IT career preparation?

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WEEK 4: BASIC COMPUTER HARDWARE COMPONENTS I



MEANING OF HARDWARE

Hardware: Physical parts of a computer you can see and touch.

Hardware vs Software:

- Hardware = Physical parts (can touch) | Body
- Software = Programs/instructions (cannot touch) | Thoughts

MAIN PARTS OF COMPUTER

1. **System Unit:** Contains CPU, motherboard, RAM (brain of computer)
2. **Monitor:** Display screen
3. **Keyboard:** Typing device
4. **Mouse:** Pointing device

INPUT DEVICES

Input Device: Hardware used to enter data into computer

Device	Description	Uses
Keyboard	Keys in QWERTY layout; alphanumeric, function (F1-F12), arrow keys	Typing documents, entering data, commands
Mouse	Pointing device; left/right buttons, scroll wheel	Click, select, drag, scroll
Microphone	Captures sound	Voice recording, video calls, voice commands
Webcam	Digital camera	Video calls, taking photos
Scanner	Converts paper to digital	Scan documents/photos
Joystick/Gamepad	Game controller	Playing video games
Touchscreen	Touch-sensitive screen	Smartphones, tablets, ATMs
Digital Camera	Takes photos/videos	Photography, transfer to computer
Barcode Reader	Reads product barcodes	Shops, libraries
Biometric Devices	Fingerprint/face scanner	Security, attendance

Mouse Actions:

- Click: Press left once
- Double-click: Press left twice quickly
- Right-click: Opens menu
- Drag: Hold and move

Keyboard Types: Wired (USB) or Wireless (Bluetooth)

OUTPUT DEVICES

Output Device: Displays/presents information from computer

Device	Description	Uses
Monitor	Display screen (LCD, LED, OLED)	View documents, videos, games
Printer	Prints on paper	Documents, photos, projects
Speakers	Output sound	Music, videos, notifications
Headphones	Personal sound device	Private listening, online classes, gaming
Projector	Projects screen onto wall	Presentations, movies
Plotter	Large technical drawings	Architecture, engineering, posters

Printer Types:

- **Inkjet:** Sprays ink; cheap, good for color photos, slow
- **Laser:** Uses toner; fast, good text quality, expensive to buy
- **3D Printer:** Prints 3D objects layer by layer

INPUT & OUTPUT DEVICES (Both)

- **Touchscreen:** Input (touch) + Output (display)
- **Headset with Mic:** Input (mic) + Output (headphones)
- **Multifunction Printer:** Input (scan) + Output (print)

DEVICE IDENTIFICATION

By Shape: Keyboard (rectangular keys), Mouse (palm-sized), Monitor (large screen)

By Connection: Check ports (USB, HDMI) **By Function:** Input (sends data) or Output (receives data)

MAINTENANCE PRACTICES

1. **Gentle Handling:** Don't drop, carry carefully, no hitting
2. **Proper Connections:** Plug gently, don't force, right port
3. **Avoid Liquids:** No drinks near devices, dry hands
4. **Dust Regularly:** Use soft cloth, compressed air
5. **Proper Storage:** Safe place, avoid extreme temperatures/moisture
6. **Use Correctly:** Follow instructions, don't overload
7. **Update Drivers:** Software for hardware (ask teacher/parent)
8. **Report Problems Early:** Tell teacher immediately

SAFETY RULES

- Don't open devices yourself
- Unplug before cleaning

- Wash hands before/after use
- Don't eat near devices
- Report damage immediately

EVALUATION

1. What is hardware? Give three examples
2. Differentiate input and output devices
3. Name five input devices and functions
4. State three keyboard maintenance practices
5. List four output devices with uses

ASSIGNMENT

1. Explain hardware with five examples
2. Describe six input devices with functions
3. Describe five output devices with uses
4. State five maintenance practices
5. Why is proper hardware maintenance important?

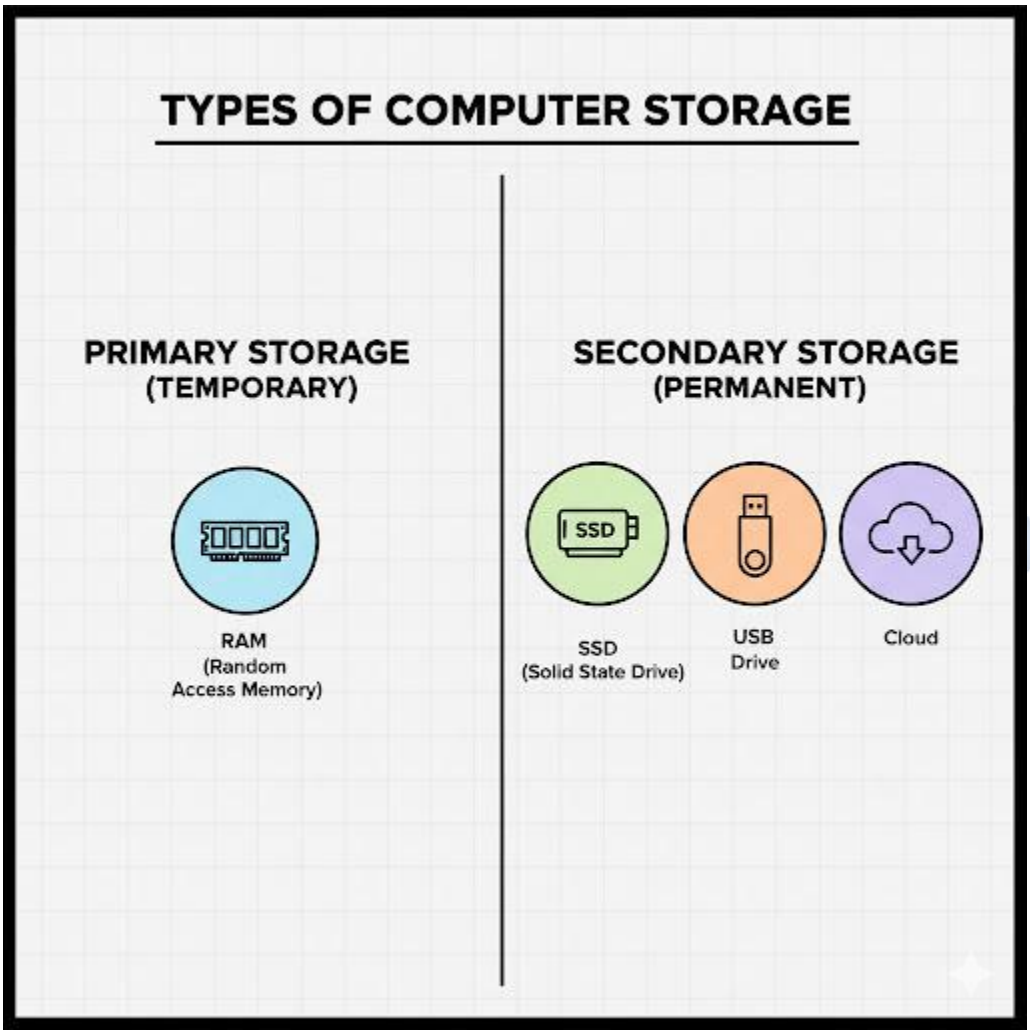
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WEEK 6: BASIC COMPUTER HARDWARE - STORAGE UNITS

MEANING OF STORAGE

Computer Storage: Space where data and information are kept.

Why Needed: Save work, store files, keep programs, backup data



TYPES OF STORAGE

PRIMARY STORAGE (Main Memory)

Characteristics: Inside computer, temporary, fast, loses data when power is off

1. RAM (Random Access Memory)

- **Temporary "working memory"**
- Holds currently running programs and data
- **Volatile:** Loses data when power off
- **Fast:** Very quick access
- **Sizes:** 2GB, 4GB, 8GB, 16GB, 32GB
- **Analogy:** Like your desk - cleared when you leave

2. ROM (Read-Only Memory)

- **Permanent memory**
- Stores startup instructions (BIOS)
- **Non-volatile:** Keeps data when power off
- **Read-only:** Cannot easily change

RAM vs ROM:

RAM	**ROM**
Temporary	Permanent
Volatile	Non-volatile
Stores current work	Stores startup instructions
Can read and write	Mostly read-only

SECONDARY STORAGE (Permanent Storage)

Characteristics: Long-term, keeps data when power is off

1. Hard Disk Drive (HDD)

- Main storage inside computers
- Spinning magnetic disks
- **Capacity:** 500GB, 1TB, 2TB, 4TB+
- **Stores:** OS, programs, documents, media
- Cheaper but slower than SSD

2. Solid State Drive (SSD)

- Modern HDD alternative, no moving parts
- **Advantages:** Much faster, durable, quiet, less power
- **Disadvantages:** More expensive, smaller capacity for same price
- Common in modern laptops

3. USB Flash Drive (Pen Drive)

- **Portable, pocket-sized**
- Plug into USB port
- **Sizes:** 4GB - 256GB
- **Uses:** Transfer files, backup documents
- **Care:** Eject safely before unplugging

4. Memory Card (SD Card)

- Small cards for phones, cameras, tablets
- **Types:** SD, MicroSD, CF
- **Sizes:** 8GB - 512GB
- Use card reader to connect to computer

5. Optical Discs

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Type	Capacity	Uses
CD	700MB	Music, software, backup
DVD	4.7GB - 8.5GB	Movies, large software
Blu-ray	25GB - 50GB	HD movies, large games

Types: ROM (read-only), R (recordable once), RW (rewritable)

6. External Hard Drive

- Portable HDD/SSD in external case
- Connects via USB
- **Sizes:** 500GB - 8TB
- **Uses:** Backup, extra storage, transfer large files

7. Cloud Storage

- Storage on internet servers
- **Examples:** Google Drive, iCloud, Dropbox, OneDrive

Advantages:

- Access anywhere with internet
- No physical device to lose
- Automatic backup, easy sharing

Disadvantages:

- Need internet connection
- Privacy concerns
- Limited free space (5-15GB)

STORAGE MEASUREMENTS

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Unit	Equals	Example
Bit (b)	Smallest unit (0 or 1)	One binary digit
Byte (B)	8 bits	One character
Kilobyte (KB)	1,024 Bytes	Small text file
Megabyte (MB)	1,024 KB	Photo, 1-min song
Gigabyte (GB)	1,024 MB	Movie, 250 songs
Terabyte (TB)	1,024 GB	1,000 movies
Petabyte (PB)	1,024 TB	Very large (big companies)

Memory Aid: Bite **K**itchen **M**eat **G**ood **T**oday **P**lease

Approximate File Sizes:

- Text document: 50 KB
- Photo: 3-5 MB
- Song: 3-5 MB
- HD Movie: 1-4 GB
- Computer game: 20-100 GB

IMPORTANCE OF DATA STORAGE

1. **Save Work:** Don't lose progress
2. **Organize:** Keep files in folders, easy to find
3. **Backup:** Important files in 2-3 places
4. **Share:** Collaborate on projects
5. **Records:** Keep documents, photos, history

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6. **Software:** Programs need storage space

STORAGE TIPS

- **Organize:** Create clear folders (School, Photos, Music)
- **Backup regularly:** Save important work in two places
- **Delete unused files:** Free up space
- **Check space:** Don't fill completely
- **Use appropriate storage:** Flash drive for small files, cloud for important work
- **Protect data:** Use passwords, scan for viruses, don't share carelessly

EVALUATION

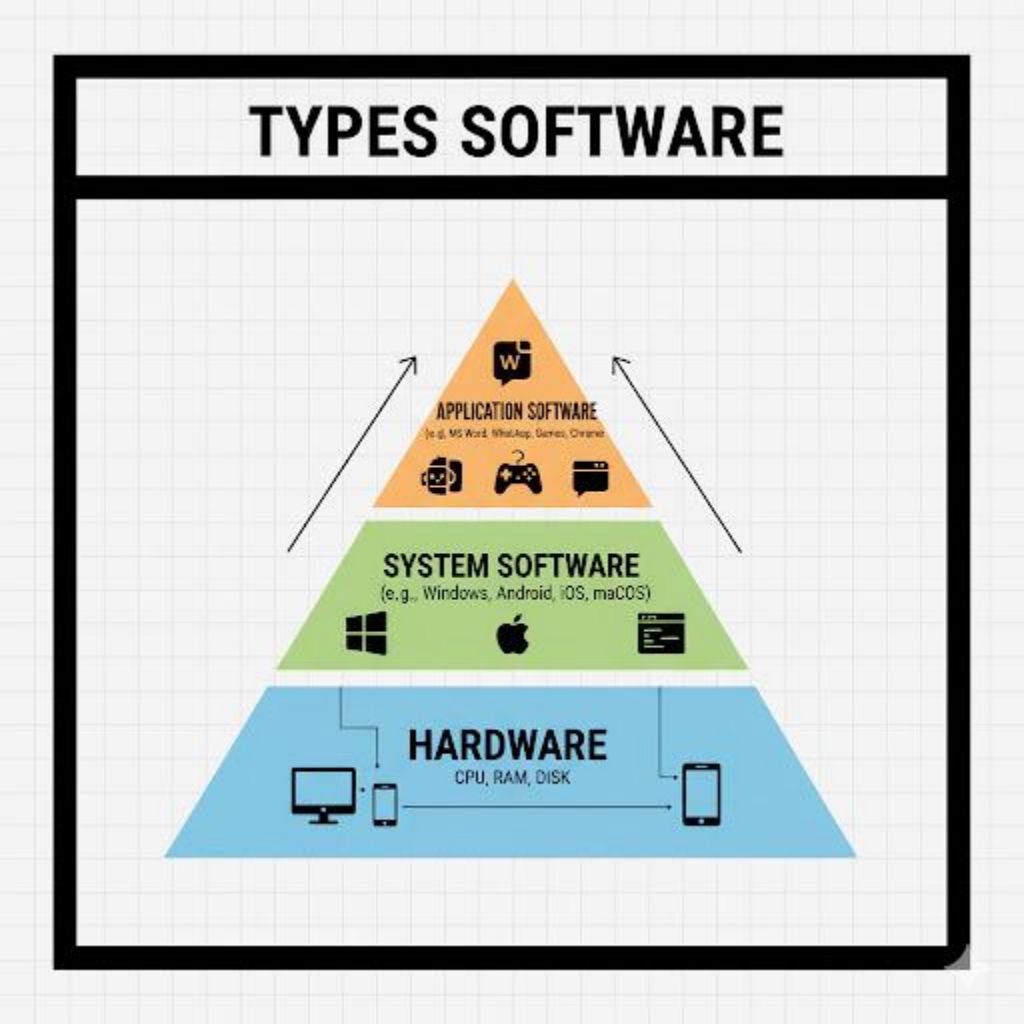
1. Difference between primary and secondary storage?
2. Differentiate RAM and ROM
3. List five secondary storage devices with capacities
4. What is cloud storage? Give two examples
5. Arrange: Byte, Gigabyte, Terabyte, Kilobyte, Megabyte

ASSIGNMENT

1. Explain primary and secondary storage with examples
2. Compare RAM and ROM in a table
3. Describe five secondary storage devices with uses
4. Explain storage measurements from Bit to Terabyte
5. Why is data storage important? (five reasons)

6. Advantages and disadvantages of cloud storage

WEEK 8: BASIC SOFTWARE CONCEPTS



MEANING OF SOFTWARE

Software: Set of instructions (programs) that tell the computer what to do. Intangible (cannot touch).

Analogy: Hardware = Car body, Software = Driver

Hardware + Software = Working Computer

TYPES OF SOFTWARE

1. SYSTEM SOFTWARE

Definition: Manages and controls computer hardware

Main Type: Operating System (OS)

Operating Systems Examples:

- **Windows:** Most common for PCs (Windows 10, 11)
- **macOS:** For Apple Mac computers
- **Linux:** Free, open-source (Ubuntu, Fedora)
- **Android:** For smartphones/tablets (by Google)
- **iOS:** For iPhone/iPad (by Apple)
- **Chrome OS:** For Chromebooks

Other System Software:

- **Device Drivers:** Help hardware work (printer driver, graphics driver)
- **Utility Programs:** Antivirus, disk cleanup, backup software

2. APPLICATION SOFTWARE

Definition: Programs for specific user tasks

Common Types:

Type	Examples	Uses
Word Processors	MS Word, Google Docs	Essays, letters, reports
Spreadsheets	Excel, Google Sheets	Calculations, budgets, charts
Presentations	PowerPoint, Google Slides	Slideshows, class presentations

Web Browsers	Chrome, Firefox, Edge	Internet access, YouTube, email
Email Programs	Gmail, Yahoo Mail, Outlook	Send/receive messages
Multimedia	VLC, Photoshop, Paint	Photos, videos, music
Graphics/Design	CorelDRAW, Canva	Logos, posters, illustrations
Communication	WhatsApp, Zoom, Teams	Chat, video calls, meetings
Games	FIFA, Minecraft, Fortnite	Entertainment
Security	Norton, Avast, McAfee	Virus protection
Educational	Duolingo, Khan Academy	Learning, practice

SYSTEM VS APPLICATION SOFTWARE

System Software	**Application Software**
Manages computer	Helps user do tasks
Runs in background	User interacts directly
Example: Windows	Example: MS Word
Computer needs it	Optional, based on needs
Controls hardware	Uses hardware through OS

FUNCTIONS OF OPERATING SYSTEM

1. **Managing Hardware:** Controls all devices (printer, monitor, etc.)
2. **Running Programs:** Allows apps to run, manages multiple programs
3. **File Management:** Organizes files/folders, create/delete/copy/move
4. **User Interface:** GUI (icons, windows) or CLI (commands)

5. **Memory Management:** Allocates RAM to programs
6. **Security:** User accounts, passwords, virus protection
7. **Error Detection:** Finds and reports errors, troubleshooting
8. **Backup & Recovery:** Saves copies, restores lost files

SOFTWARE CARE

- **Update regularly:** OS and programs for security and performance
- **Use antivirus:** Scan regularly, avoid suspicious links
- **Avoid pirated software:** May contain viruses
- **Close properly:** Use Exit/Close button, save work first
- **Uninstall unused programs:** Frees space, improves speed

EVALUATION

1. What is software? How is it different from hardware?
2. Name the two main types of software
3. What is an OS? Give three examples
4. List five application software with uses
5. State four functions of an OS

ASSIGNMENT

1. Differentiate hardware and software
2. Explain system and application software with examples
3. Name and describe five types of application software
4. List and explain six OS functions

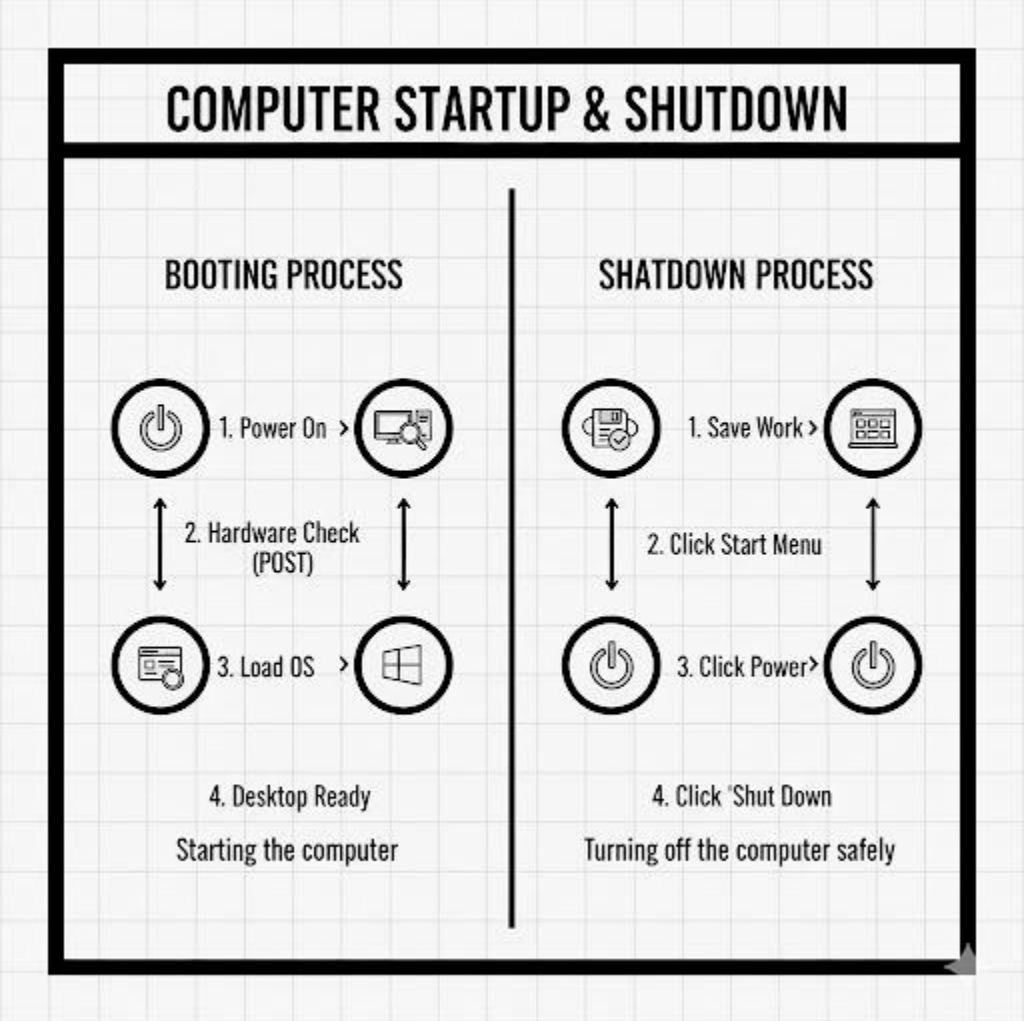
5. Why is an OS important?

WEEK 9: COMPUTER BOOTING AND SHUTDOWN

MEANING OF BOOTING

Booting: Starting up a computer and loading the operating system.

- Computer checks hardware
- Loads OS from hard disk to RAM
- Prepares computer for use



TYPES OF BOOTING

1. Cold Booting (Hard Boot)

- Starting from completely powered-off state
- Full startup process (slower)
- Used: First start of day, after power failure

2. Warm Booting (Restart)

- Restarting while computer is on
- Faster than cold boot
- Used: After installing software, fixing problems

BOOTING PROCESS (What Happens)

1. **POST (Power-On Self-Test):** Checks hardware, beeps if OK
2. **BIOS Activation:** Locates operating system
3. **Load Boot Loader:** Small program loads OS
4. **Load OS:** Windows/macOS loads into RAM
5. **Load Startup Programs:** Antivirus, etc. start automatically
6. **Desktop Appears:** Computer ready to use

Time: 30 seconds to 2 minutes

PROPER BOOTING PROCEDURE

1. Check all connections (monitor, keyboard, mouse, power)
2. Turn on monitor
3. Press computer power button once
4. Wait patiently (don't touch anything)
5. Login if required (username/password)

6. Wait for desktop to fully load

SHUTTING DOWN A COMPUTER

Why Proper Shutdown Matters:

- Saves work and closes programs properly
- Prevents data loss and file corruption
- Protects hard disk

NEVER:

- Press power button without shutdown process
- Unplug while on
- Turn off at wall socket directly

PROPER SHUTDOWN PROCEDURE (Windows)

1. **Save work** and close all programs
2. Click **Start menu** (Windows button)
3. Click **Power icon**
4. Choose **Shut down**
5. Wait for complete shutdown (lights off, fans stop)
6. Turn off monitor
7. Turn off wall socket (optional, especially during storms)

POWER OPTIONS

Option	Description	When to Use
Sleep	Low power, quick wake-up	Short breaks
Hibernate	Saves to disk, no power	Longer breaks
Shut Down	Completely off	End of day
Restart	Close and reopen OS	After software install, troubleshooting

SAFE HANDLING OF DEVICES

Physical Care:

- Handle gently, keep on stable surface
- Don't move while on or block air vents
- No heavy objects on computer

Environmental Care:

- Keep away from: water, extreme temperatures, direct sunlight, dust, magnets

Electrical Safety:

- Use surge protectors
- Correct voltage (220V in Nigeria)
- Unplug during thunderstorms
- Don't overload sockets

Food & Cleanliness:

- No food/drinks near computer
- Dust regularly with soft cloth
- Clean keyboard and mouse

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Laptop-Specific:

- **Battery:** Charge at 20-30%, don't overcharge
- **Transport:** Use laptop bag, close lid, shutdown first
- **Screen:** Don't touch or press hard, clean with soft cloth
- **Ventilation:** Use on hard, flat surface (not bed/pillow)

COMMON PROBLEMS

Problem	Solution
Won't start	Check power/connections, try different socket
Starts then goes off	May be overheating, report to technician
Takes long to boot	May need cleaning/more RAM
Won't shut down	Close programs manually, wait 5 min, last resort: hold power button 5 sec

GOOD HABITS

- Boot and shut down properly daily
- Save work regularly
- Keep workspace clean
- Report problems early

EVALUATION

1. What is booting? Name two types
2. List the booting process steps

3. Why is proper shutdown important?
4. Describe correct shutdown procedure
5. State four safe handling practices

ASSIGNMENT

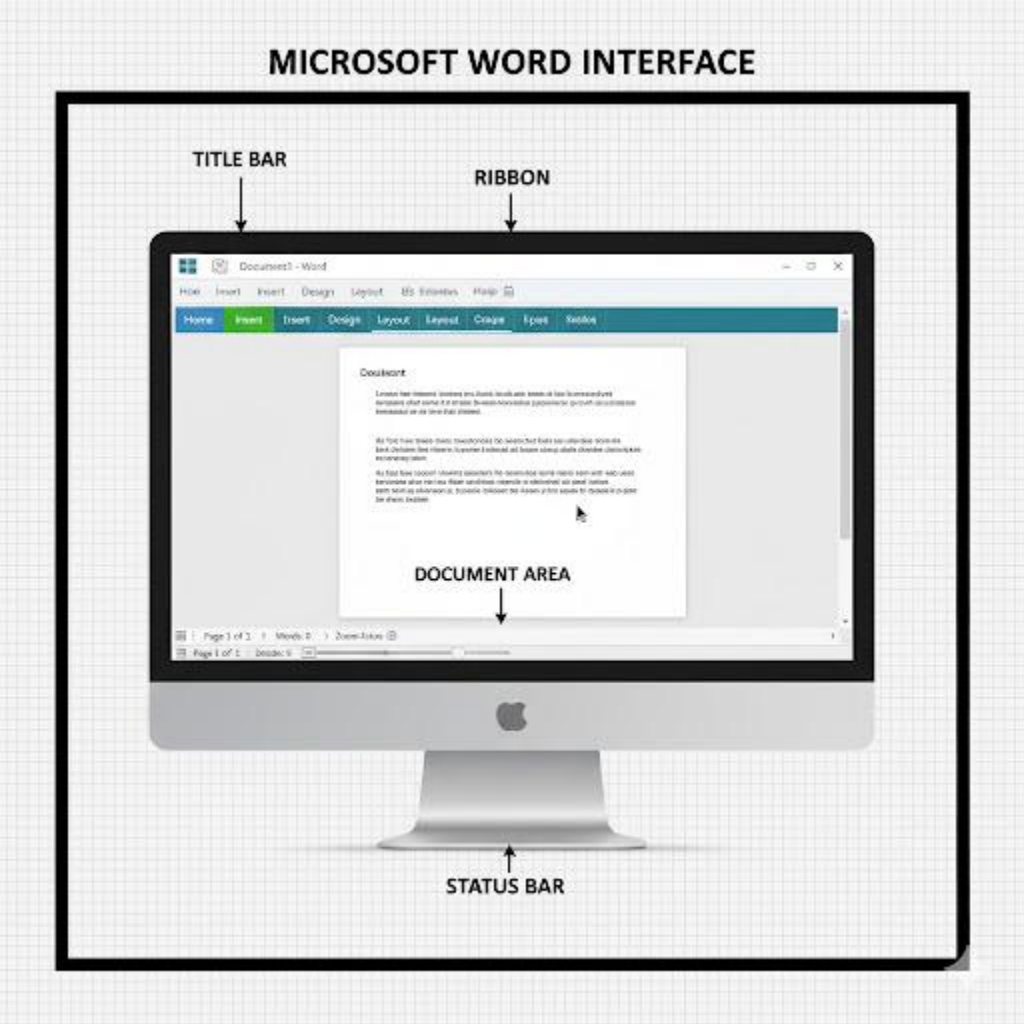
1. Differentiate cold booting and warm booting
2. Explain the 6-step booting process
3. Describe proper shutdown procedure
4. Difference between Sleep and Shut Down?
5. List eight safe handling practices

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WEEK 10: MS WORD (INTRODUCTION)

WHAT IS MICROSOFT WORD?

A word processing software for creating, editing, and printing documents. **Uses:** Letters, reports, certificates, invitations, posters, stories



OPENING MS WORD

- **Start Menu:** Click Start → Find Microsoft Word → Click
- **Desktop:** Double-click Word icon
- **Search:** Type "Word" in search box

- **Taskbar:** Click Word icon (if pinned)

THE WORD WINDOW

Key Parts:

1. **Title Bar:** Shows document name, minimize/maximize/close buttons
2. **Ribbon:** Contains tools organized in tabs (Home, Insert, Design, Layout, Review, View)
3. **Quick Access Toolbar:** Save, Undo, Redo buttons
4. **Document Area:** White space for typing
5. **Status Bar:** Shows page number, word count
6. **Zoom Slider:** Adjust text size on screen

BASIC DOCUMENT OPERATIONS

Creating New Document: File → New → Blank Document

Saving (First Time): File → Save As → Choose location → Type filename → Save **Quick Save:** Ctrl + S or click Save icon (🖫)

Opening Existing Document: File → Open → Browse → Select file → Open

EDITING TEXT

Selecting Text:

- Click and drag
- Triple-click (whole paragraph)
- Ctrl + A (all text)

Copy/Cut/Paste:

- Copy: Ctrl + C
- Cut: Ctrl + X
- Paste: Ctrl + V

Undo/Redo:

- Undo: Ctrl + Z
- Redo: Ctrl + Y

FORMATTING TEXT

Font Styles:

- **Bold:** Ctrl + B
- *Italic:* Ctrl + I
- <u>Underline:</u> Ctrl + U

Alignment:

- Left: Ctrl + L
- Center: Ctrl + E
- Right: Ctrl + R
- Justify: Ctrl + J

Other Formatting:

- Font type and size: Select from Home tab dropdowns
- Font color: Click A button with colored line
- Highlight: Click highlight button
- Bullets/Numbering: Click respective buttons on Home tab

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INSERTING ELEMENTS

Pictures: Insert tab → Pictures → Select source → Insert **Shapes:** Insert tab → Shapes → Choose → Draw **WordArt:** Insert tab → WordArt → Choose style → Type text

PAGE SETUP (Layout Tab)

- **Margins:** Normal, Narrow, Wide, Custom
- **Orientation:** Portrait (vertical) or Landscape (horizontal)
- **Paper Size:** A4 (standard), Letter

CHECKING & PRINTING

Spell Check:

- Red underline = spelling error
- Blue underline = grammar error
- Review tab → Spelling & Grammar

Printing: File → Print → Check settings → Click Print

EVALUATION

1. What is Microsoft Word used for?
2. Name five parts of the Word window
3. How do you save a document for the first time?
4. Keyboard shortcuts for: (a) Copy (b) Paste (c) Bold
5. How do you insert a picture?

ASSIGNMENT

1. Describe three methods to open MS Word
2. List six parts of the Word window
3. Explain: (a) Saving new document (b) Opening existing document
4. Describe five formatting options with shortcuts
5. How do you check spelling and print?

PRACTICAL TASK

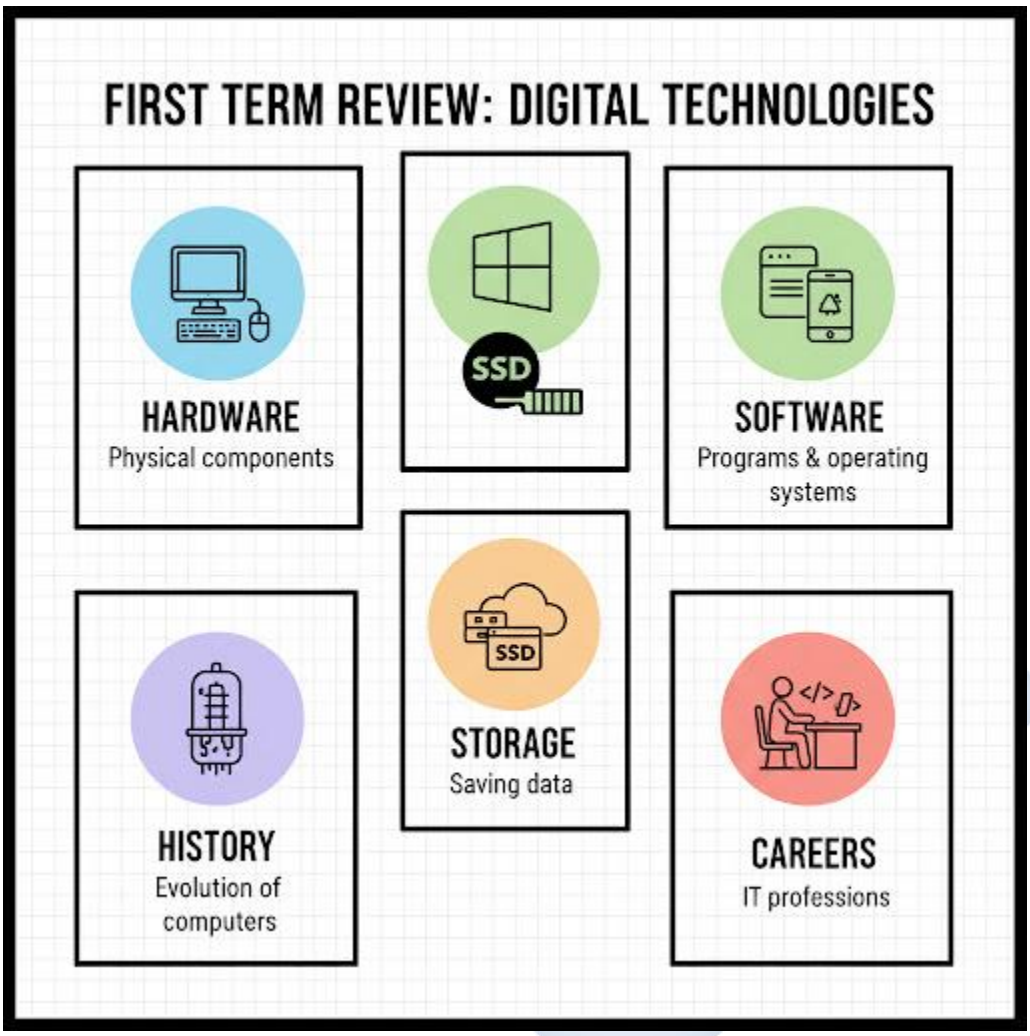
Type a paragraph about yourself with:

- Bold title
- Different colors
- Bullet points
- One picture
- Save with your name as filename

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WEEK 11: REVISION

COMPREHENSIVE REVIEW OF FIRST TERM



KEY TOPICS SUMMARY:

1. INTRODUCTION TO DIGITAL TECHNOLOGY

- Digital devices use 0s and 1s (binary)
- Importance: Communication, education, entertainment, banking
- Examples: Computers, smartphones, tablets, ATMs

2. HISTORICAL DEVELOPMENT

- Early tools: Abacus, Napier's Bones, Pascaline
- Charles Babbage: Father of Computer
- Five Generations:
    1. Vacuum Tubes (large, hot)
    2. Transistors (smaller, cooler)
    3. Integrated Circuits (chips)
    4. Microprocessors (personal computers)
    5. AI (present-future)
- Evolution: Analog → Digital
- Modern trends: AI, IoT, Cloud, VR/AR

3. CAREER OPPORTUNITIES

- Software: Developer, Web developer, App creator
- Hardware: Technician, Engineer
- Networking: Network Administrator
- Data: Data Analyst, Database Admin
- Emerging: AI Specialist, Cybersecurity Expert, Robotics
- Skills needed: Programming, problem-solving, teamwork

4. HARDWARE COMPONENTS I

- Input devices: Keyboard, mouse, microphone, scanner, webcam
- Output devices: Monitor, printer, speakers, projector
- Maintenance: Clean regularly, gentle handling, proper storage

5. STORAGE UNITS

- Primary: RAM (temporary), ROM (permanent)

- Secondary: HDD, SSD, Flash drive, Memory card, CD/DVD, Cloud
- Measurements: Bit → Byte → KB → MB → GB → TB → PB
- Importance: Save work, backup, organize

6. SOFTWARE CONCEPTS

- System Software: OS (Windows, Android, iOS), Drivers, Utilities
- Application Software: Word processors, Browsers, Games
- OS Functions: Manage hardware, run programs, file management

7. BOOTING AND SHUTDOWN

- Booting: Starting computer (Cold/Warm)
- Process: POST → BIOS → Load OS → Desktop
- Shutdown: Save → Close programs → Start menu → Shut down
- Safe handling: Gentle, away from water, proper voltage

8. MS WORD

- Word processor for documents
- Opening: Start menu, desktop shortcut
- Saving: File → Save As (first time), Ctrl+S (after)
- Formatting: Bold, Italic, Underline, Font, Size, Color
- Insert: Pictures, Shapes, WordArt
- Page Setup: Margins, Orientation, Size
- Printing: File → Print

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JSS1 DIGITAL TECHNOLOGIES LESSON NOTES

SECOND TERM

WEEK 1: MS POWERPOINT (INTRODUCTION)

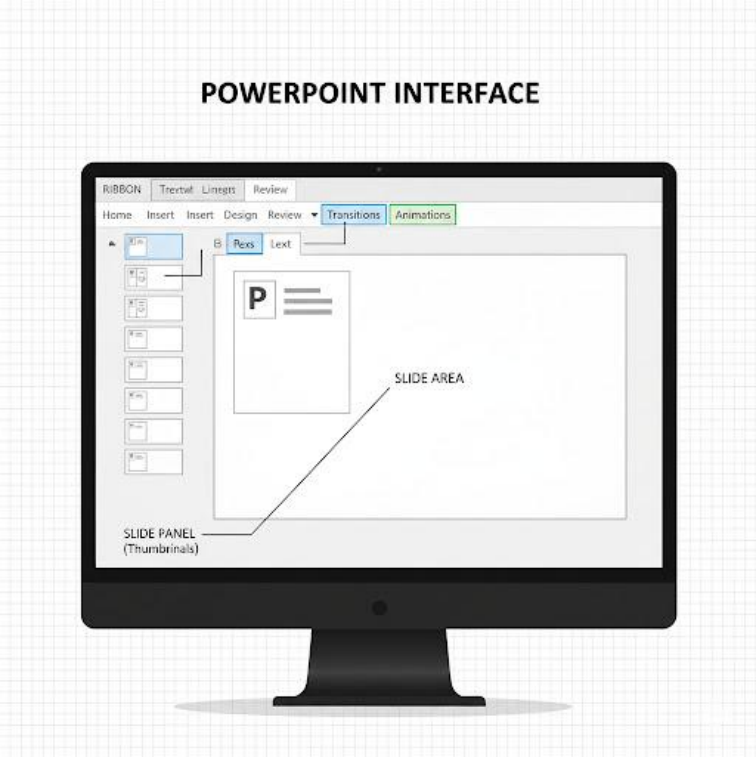
SUBTOPICS:

- MEANING AND USES OF PRESENTATION SOFTWARE
- CREATING AND SAVING SLIDES
- ADDING TEXT, IMAGES, TRANSITIONS

WHAT IS MICROSOFT POWERPOINT?

PowerPoint is a presentation software used to create slideshows that combine text, images, and effects.

Other Presentation Software: Google Slides, Apple Keynote, Canva



USES OF POWERPOINT:

- Teachers present lessons
- Students present projects
- Business meetings
- Photo slideshows
- Church presentations

PARTS OF POWERPOINT WINDOW:

1. **Title Bar:** Shows presentation name
2. **Ribbon:** Contains tools (Home, Insert, Design, Transitions, Animations)
3. **Slide Panel (Left):** Shows all slides
4. **Slide Area (Center):** Where you design
5. **Notes Section (Bottom):** Speaker notes

OPENING POWERPOINT:

- Start menu → Microsoft PowerPoint
- OR Desktop shortcut

CREATING NEW PRESENTATION:

1. Open PowerPoint (blank presentation appears)
2. OR File → New → Blank Presentation

WORKING WITH SLIDES:

Add New Slide: Home tab → New Slide (or Ctrl + M) **Delete Slide:** Click slide → Press Delete **Move Slides:** Drag slide up/down in left panel **Copy Slide:** Right-click → Duplicate Slide

ADDING TEXT:

1. Click "Click to add title" or "Click to add text"
2. Type your content
3. Format using Home tab (Font, Size, Bold, Color)

ADDING IMAGES:

1. Insert tab → Pictures
2. Choose "This Device" or "Online Pictures"
3. Select image → Insert
4. Resize by dragging corners

ADDING SHAPES:

1. Insert tab → Shapes
2. Choose shape
3. Click and drag to draw

DESIGN AND THEMES:

1. Design tab → Choose theme
2. Applies colors, fonts, and backgrounds to all slides

TRANSITIONS:

What are Transitions? Effects when moving from one slide to another.

Adding Transitions:

1. Select slide

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2. Transitions tab → Choose effect (Fade, Push, Wipe)
3. Set duration (speed)
4. "Apply To All" for all slides

ANIMATIONS:

What are Animations? Effects for objects on slides (text, images).

Adding Animations:

1. Select object
2. Animations tab → Choose animation (Appear, Fly In, Fade)

SAVING PRESENTATION:

First Time:

1. File → Save As
2. Choose location
3. Type file name → Save

After Editing: Ctrl + S

RUNNING SLIDESHOW:

- Slide Show tab → From Beginning
- OR Press F5
- Click or Spacebar for next slide
- Esc to exit

TIPS FOR GOOD PRESENTATIONS:

1. Keep text simple (short sentences)
2. Use large fonts (at least size 24)

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3. Choose clear colors
4. Don't overcrowd slides
5. Use relevant images
6. Practice before presenting

EVALUATION:

1. What is PowerPoint used for?
2. How do you add a new slide?
3. What is the difference between transitions and animations?
4. Name three parts of the PowerPoint window.
5. How do you save a presentation?

ASSIGNMENT:

1. Explain what presentation software is with examples.
2. Describe how to add text and images in PowerPoint.
3. What are transitions? How do you add them?
4. List five tips for creating good presentations.

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WEEK 2: 3D MODELLING WITH PAINT 3D

SUBTOPICS:

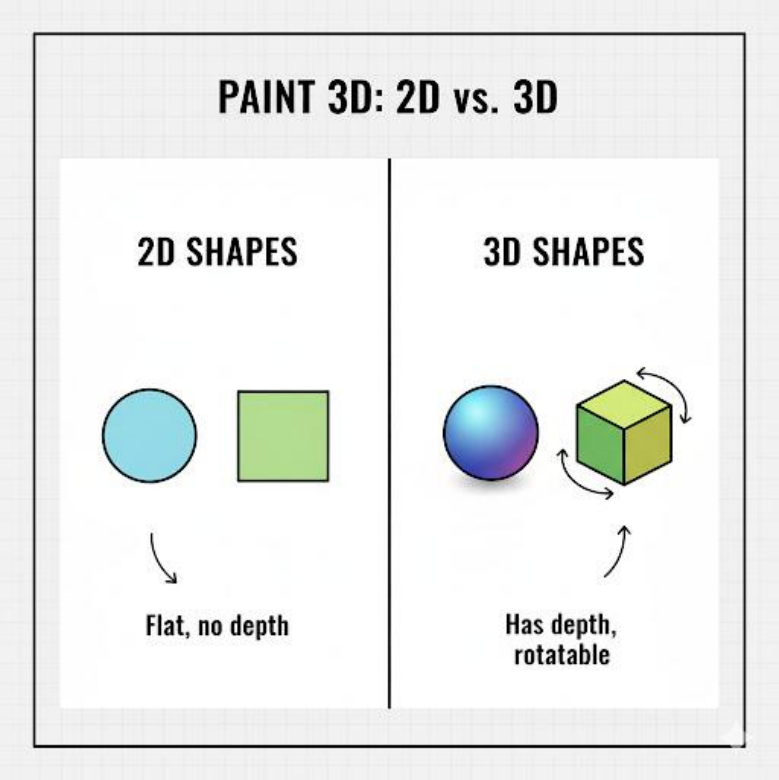
- INTRODUCTION TO PAINT 3D
- DRAWING BASIC SHAPES AND MODELS
- SAVING AND EXPORTING 3D PROJECTS

WHAT IS PAINT 3D?

Paint 3D is a free Microsoft app for creating 2D images and 3D objects.

Difference from Regular Paint:

- Regular Paint: Only flat (2D) drawings
- Paint 3D: Can create 3D objects you can rotate



OPENING PAINT 3D: Start menu → Type "Paint 3D" → Open

PARTS OF PAINT 3D:

1. **Canvas:** Center workspace
2. **Tool Menu (Left):** Brushes, 2D shapes, 3D shapes, Stickers, Text, Effects
3. **Color Picker (Right):** Choose colors and materials

2D VS 3D:

- **2D:** Flat (like paper)
- **3D:** Has depth (like real objects you can rotate)

USING BRUSHES:

1. Click Brushes icon
2. Choose brush type (Pencil, Marker, Watercolor)
3. Select color
4. Draw on canvas

2D SHAPES:

1. Click "2D shapes"
2. Choose shape (Circle, Square, Star)
3. Click and drag on canvas
4. Customize fill color, line color, thickness

3D SHAPES:

1. Click "3D shapes"
2. Choose shape (Cube, Sphere, Cylinder, Cone, Pyramid)
3. Shape appears on canvas

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Working with 3D Objects:

- **Move:** Click and drag
- **Rotate:** Use rotation circles
- **Resize:** Drag corner handles
- **Color:** Click color on right panel
- **Material:** Choose Matte, Gloss, or Metal

CREATING SIMPLE MODELS:

Example 1: Snowman

1. Add 3 spheres (large, medium, small)
2. Stack vertically
3. Color white
4. Add small spheres for eyes/buttons
5. Add cone for nose (orange)

Example 2: Simple House

1. Add cube (house body)
2. Add pyramid on top (roof)
3. Add small rectangles (windows/door)
4. Color each part

STICKERS:

- Ready-made images you can add
- Click Stickers → Choose sticker → Place on canvas

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TEXT:

- **2D Text:** Flat text
- **3D Text:** Text you can rotate

Steps:

1. Click Text icon
2. Choose 2D or 3D
3. Type text
4. Format (font, size, color)

SAVING YOUR PROJECT:

1. Menu (top left) → Save or Save As
2. Choose location
3. Name file → Save
4. Saves as .3mf file

EXPORTING:

As Image:

1. Menu → Save as → Image
2. Choose PNG or JPEG
3. Save

As Video:

1. Menu → Save as → Video
2. Creates rotating video of your 3D model

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PROJECT IDEAS:

- Solar system (different sized spheres)
- Robot (cubes and cylinders)
- Birthday cake (stacked cylinders)
- Simple car or airplane

EVALUATION:

1. What is Paint 3D used for?
2. Name five 3D shapes available.
3. How do you rotate a 3D object?
4. What is the difference between 2D and 3D?
5. How do you save your project?

ASSIGNMENT:

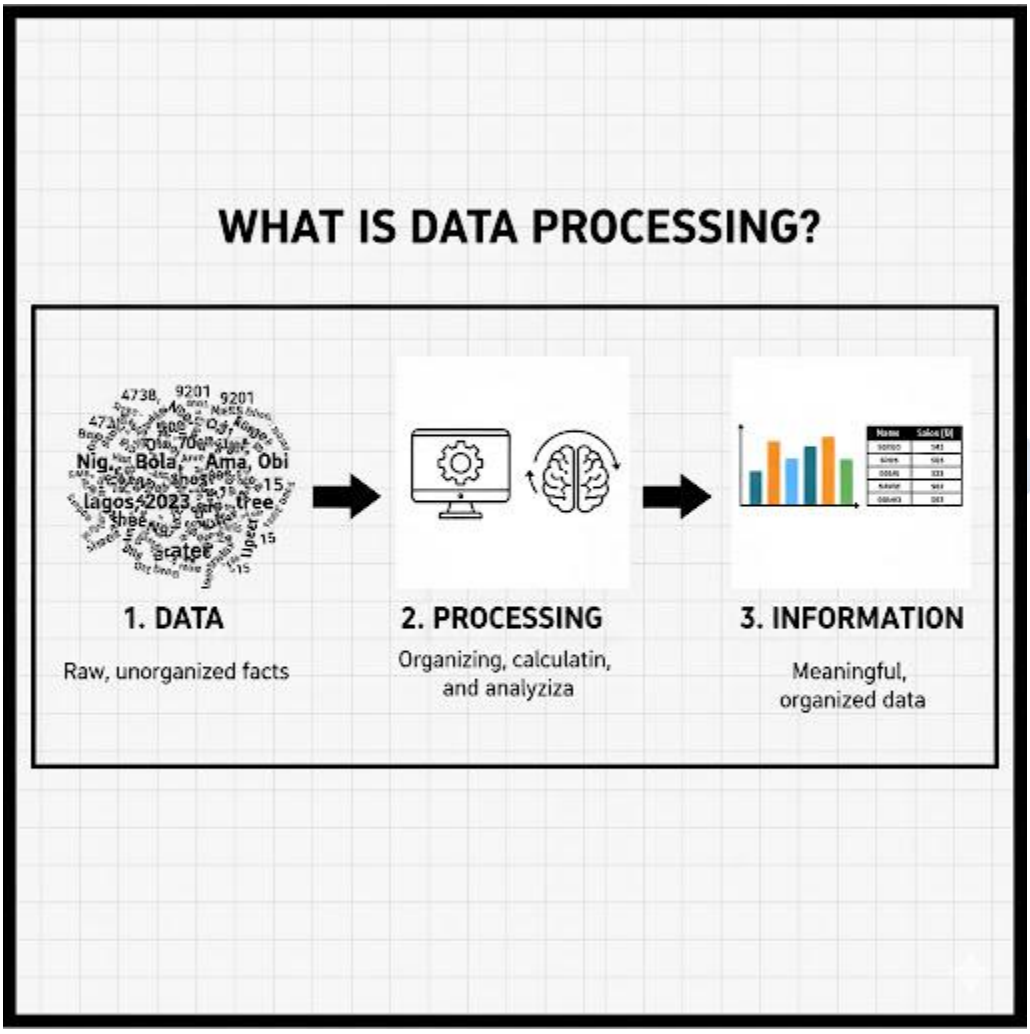
1. Explain Paint 3D and how it differs from regular Paint.
2. List the materials available for 3D objects.
3. Describe how to create a simple snowman.
4. How do you export a project as an image?

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WEEK 3: DATA PROCESSING

SUBTOPICS:

- MEANING AND STAGES OF DATA PROCESSING
- MANUAL VS ELECTRONIC DATA PROCESSING
- IMPORTANCE IN REAL-LIFE APPLICATIONS



MEANING OF DATA PROCESSING

Data: Raw facts without meaning (names, numbers, dates) **Information:** Processed data with meaning

Example:

- Data: John, 78
- Information: John scored 78 marks in Mathematics

Data Processing: Converting raw data into useful information.

STAGES OF DATA PROCESSING:

1. DATA COLLECTION (Input)

- Gathering raw data
- Methods: Forms, surveys, keyboard, scanners
- Example: School collects student names and ages

2. VALIDATION

- Checking if data is correct
- Ensures accuracy
- Example: Age can't be 200 or letters

3. PROCESSING

- Performing operations on data
- Operations: Sorting, calculating, grouping, searching
- Example: Calculating total marks, arranging names alphabetically

4. STORAGE

- Saving information for future use
- Methods: Files, computer hard drive, cloud
- Example: Keeping student records

5. RETRIEVAL (Output)

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- Getting stored information when needed
- Forms: Screen, printed paper, audio
- Example: Teacher getting report cards

6. COMMUNICATION

- Sharing information with others
- Methods: Reports, email, presentations
- Example: Sending report cards to parents

TYPES OF DATA PROCESSING:

1. MANUAL DATA PROCESSING

Definition: Processing by hand without computers

Tools: Pen, paper, calculator, files, registers

Examples:

- Teacher marks attendance in register
- Shopkeeper writes sales in notebook
- Library cards filled by hand

Advantages:

- No electricity needed
- No expensive equipment
- Simple

Disadvantages:

- Very slow
- Many errors possible

- Tiring
- Hard to store large amounts

2. ELECTRONIC DATA PROCESSING

Definition: Processing using computers

Tools: Computers, software, databases, internet

Examples:

- School management system
- Bank ATM
- Supermarket barcode scanner
- Online registration

Advantages:

- Very fast
- Accurate
- Can handle large amounts of data
- Easy to search
- Automatic

Disadvantages:

- Expensive
- Needs electricity
- Requires training
- Can have technical problems

COMPARISON:

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Feature	Manual	Electronic
Speed	Slow	Very fast
Accuracy	Many errors	Few errors
Cost	Cheap	Expensive
Storage	Large space	Small space
Retrieval	Slow	Instant

REAL-LIFE APPLICATIONS:

1. Education: Student records, report cards, timetables

2. Healthcare: Patient records, appointments, test results

3. Banking: Account balance, transfers, ATM

4. Business: Sales, inventory, customer data

5. Government: Census, ID cards, elections

EVALUATION:

1. What is data processing?
2. Name the six stages of data processing.
3. Differentiate between manual and electronic data processing.
4. Give three advantages of electronic processing.
5. State three real-life uses of data processing.

ASSIGNMENT:

1. Explain the difference between data and information.
2. Describe the six stages of data processing.
3. Compare manual and electronic data processing.

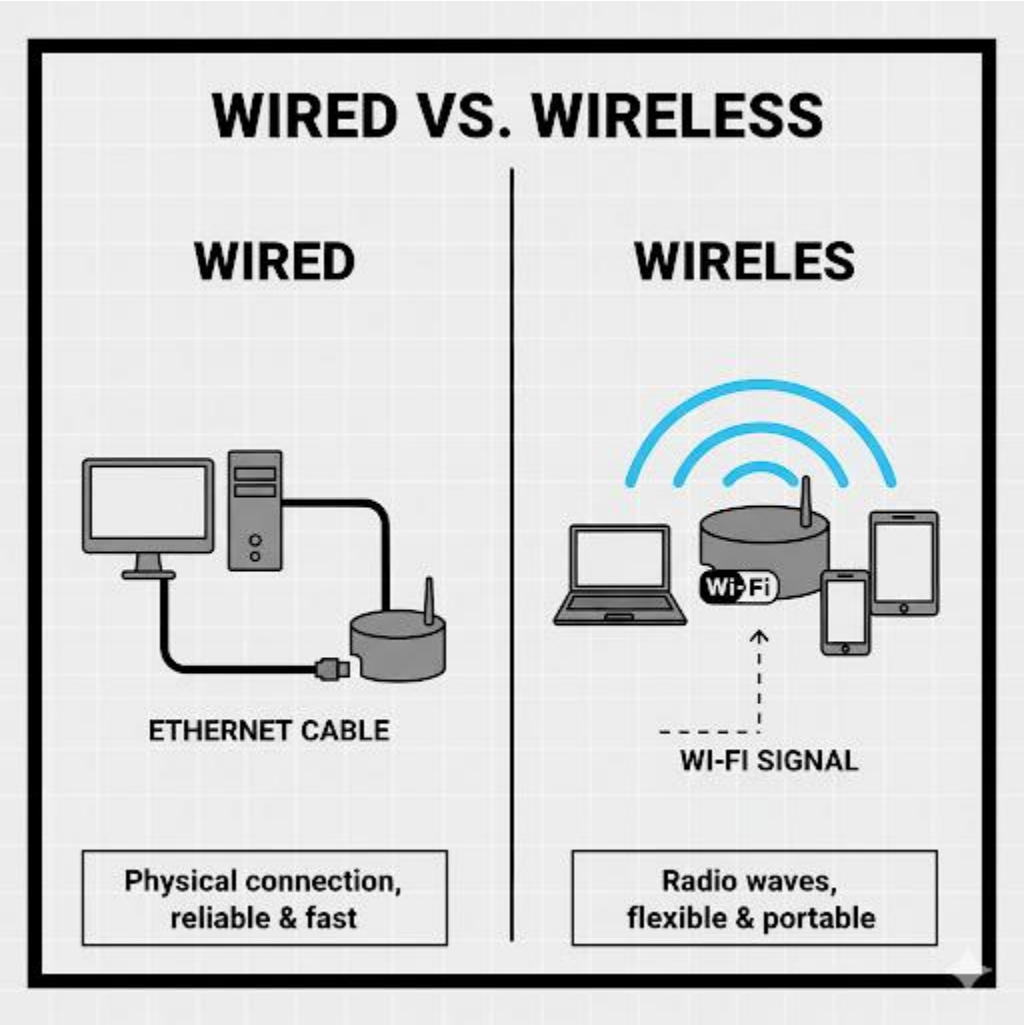
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4. How is data processing used in schools and banks?

WEEK 4: BASIC COMPUTER COMMUNICATION

SUBTOPICS:

- MEANING AND IMPORTANCE OF COMMUNICATION
- TYPES: WIRED AND WIRELESS
- INTRODUCTION TO THE INTERNET



MEANING OF COMPUTER COMMUNICATION

Computer Communication: Sharing data between computers or devices.

Elements:

1. **Sender:** Device sending information
2. **Message:** Information being sent
3. **Medium:** Path for message (cable, Wi-Fi)
4. **Receiver:** Device receiving information
5. **Protocol:** Rules for communication

IMPORTANCE:

- Fast information sharing
- Global reach
- Cost-effective
- Collaboration
- Access to resources
- Entertainment and education

TYPES OF COMPUTER COMMUNICATION:

1. WIRED COMMUNICATION

Definition: Communication through physical cables.

Types of Cables:

A. Ethernet Cable:

- Most common for networks
- Connects computer to router
- Also called LAN cable

B. Fiber Optic Cable:

- Uses light to transmit data
- Very fast
- Used for high-speed internet

Advantages of Wired:

- Fast and reliable
- Secure
- Stable connection

Disadvantages:

- Limited mobility
- Installation needed
- Cables can be messy

2. WIRELESS COMMUNICATION

Definition: Communication without cables, using electromagnetic waves.

Types:

A. Wi-Fi

- Wireless internet network
- Router broadcasts signal
- Devices connect by entering password
- Range: 30-50 meters

Uses: Home internet, schools, cafés

Advantages:

- Mobility (move while connected)
- Multiple devices

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- No cables

Disadvantages:

- Slower than wired
- Limited range
- Can be hacked if not secured

B. Bluetooth

- Short-range wireless (about 10 meters)
- Connects devices directly

Uses: Wireless headphones, mouse, keyboard, file transfer

C. Mobile/Cellular Networks (3G, 4G, 5G)

- Wireless through phone towers
- Mobile internet and calls

Advantages: Wide coverage, works while moving **Disadvantages:** Data charges, speed varies

D. Satellite

- Uses satellites in space
- Global coverage
- Used for GPS, satellite TV

COMPARISON:

Feature	**Wired**	**Wireless**
Speed	Faster	Slower
Mobility	Limited	High
Security	More secure	Less secure
Installation	Complex	Easy

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INTRODUCTION TO THE INTERNET

What is the Internet? A global network of connected computers that share information.

How to Access Internet:

1. Device (computer, phone, tablet)
2. Internet connection (Wi-Fi, mobile data)
3. ISP account (MTN, Airtel, Glo, 9mobile)
4. Web browser (Chrome, Firefox, Edge)

What You Can Do:

1. **Communication:** Email, WhatsApp, video calls
2. **Information:** Google search, news, Wikipedia
3. **Education:** Online courses, YouTube tutorials
4. **Entertainment:** Netflix, YouTube, music, games
5. **Shopping:** Jumia, Konga, online stores
6. **Banking:** Check balance, transfer money

Important Terms:

- **Website:** Collection of web pages (www.google.com)
- **URL:** Web address
- **Browser:** Software to view websites (Chrome)
- **Search Engine:** Helps find information (Google, Bing)
- **Download:** Copy from internet to device
- **Upload:** Send from device to internet
- **Streaming:** Watch/listen without downloading

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EVALUATION:

1. What is computer communication?
2. Name three types of wireless communication.
3. Give three advantages of wired communication.
4. What is the Internet?
5. State five uses of the Internet.

ASSIGNMENT:

1. Explain computer communication and its importance.
2. Compare wired and wireless communication.
3. Describe Wi-Fi and Bluetooth.
4. What is the Internet and how do you access it?
5. List six things you can do on the Internet.

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WEEK 6: INTRODUCTION TO COMPUTER NETWORKS

SUBTOPICS:

- DEFINITION OF A NETWORK
- COMPONENTS OF A NETWORK
- BENEFITS OF NETWORKING

WHAT IS A COMPUTER NETWORK?

Network: Two or more computers connected together to share resources and information.

Simple Example: Computers in your school computer lab connected together.

WHY CREATE NETWORKS?

- Share files and printers
- Share internet connection
- Communicate easily
- Work together on projects

TYPES OF NETWORKS:

1. LAN (Local Area Network)

- Small area (one building)
- School, office, home
- Fast and cheap

2. WAN (Wide Area Network)

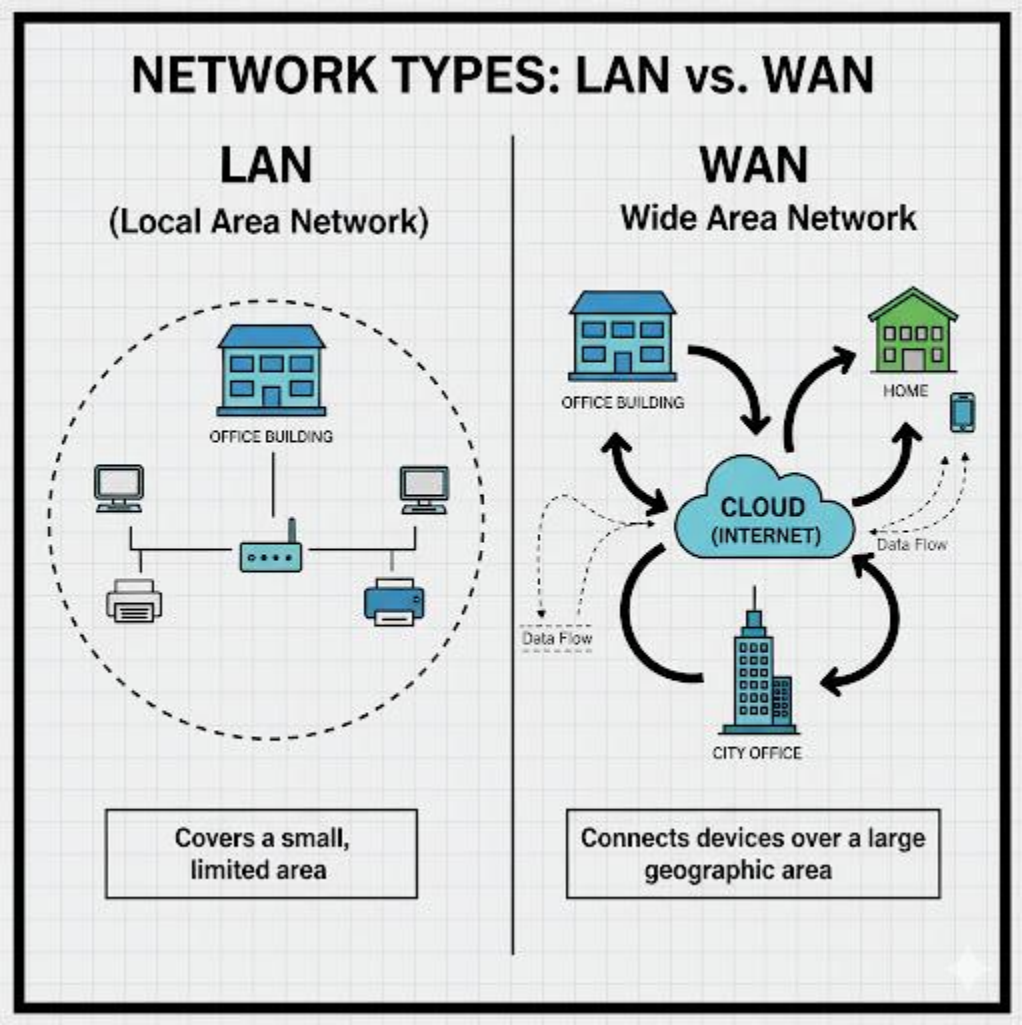
- Large area (city, country, world)

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- Internet is the largest WAN
- More expensive

3. MAN (Metropolitan Area Network)

- Covers a city
- Between LAN and WAN



COMPONENTS OF A NETWORK:

1. COMPUTERS/DEVICES

- Desktops, laptops, tablets, phones
- Called "nodes" or "hosts"

2. NETWORK INTERFACE CARD (NIC)

- Hardware inside computer
- Allows computer to connect to network
- Has unique MAC address

3. CABLES

- **Ethernet Cable:** Most common
- Connects devices together

4. ROUTER

- Connects network to internet
- Directs data to correct destination
- Wi-Fi routers broadcast wireless signal

5. SWITCH

- Connects multiple devices
- Allows them to communicate

6. MODEM

- Converts signals for internet connection
- Often combined with router

7. SERVER

- Powerful computer that provides services
- Stores files, manages network

8. NETWORK SOFTWARE

- Operating system
- Network protocols (rules)

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- Security software

HOW A NETWORK WORKS (Simple):

1. Computer A wants to send file to Computer B
2. File broken into small packets
3. Packets travel through network (cables/Wi-Fi)
4. Switch/router directs packets to Computer B
5. Computer B receives and reassembles file
6. All happens in seconds!

BENEFITS OF NETWORKING:

1. RESOURCE SHARING

- **Printers:** One printer for many computers
- **Files:** Share documents easily
- **Internet:** One connection for all
- **Software:** Share programs

Example: School computer lab - 20 computers share 2 printers

2. COMMUNICATION

- Send messages instantly
- Email within organization
- Video conferencing
- Group chats

3. DATA STORAGE

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- Central storage on server
- Access files from any computer
- Easy backup

4. COST SAVINGS

- Share expensive devices (printers, scanners)
- One internet connection
- Shared software licenses

5. COLLABORATION

- Work together on projects
- Share ideas
- Real-time updates

6. SECURITY

- Central backup
- Better virus protection
- Controlled access
- Monitor network activity

7. FLEXIBILITY

- Access from anywhere in network
- Add new devices easily

NETWORK TOPOLOGIES (Arrangement):

1. BUS TOPOLOGY

- All computers on single cable

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- Simple and cheap
- If cable breaks, network fails

2. STAR TOPOLOGY

- All computers connect to central hub/switch
- Most common
- If one cable breaks, others still work

3. RING TOPOLOGY

- Computers in circular arrangement
- Data travels in one direction

NETWORK SECURITY:

- Passwords and user accounts
- Firewall (blocks unauthorized access)
- Antivirus software
- Encryption (scrambles data)

EVALUATION:

1. What is a computer network?
2. Differentiate between LAN and WAN.
3. Name five components of a network.
4. State four benefits of networking.
5. What does a router do?

ASSIGNMENT:

1. Define computer network with examples.

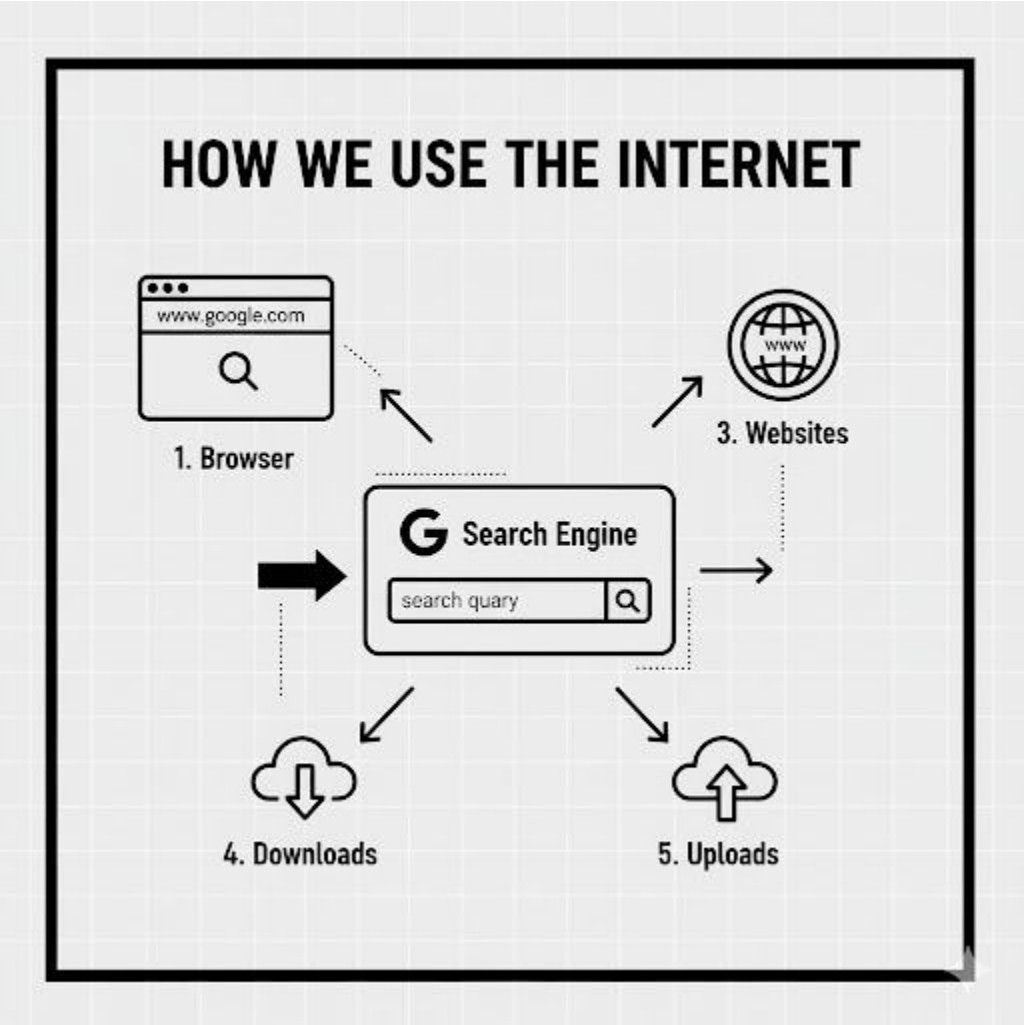
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2. Describe six components of a network.
3. Explain five benefits of networking.
4. What is the difference between LAN, WAN, and MAN?
5. Draw and explain star topology.

WEEK 8: BASIC INTERNET CONCEPTS

SUBTOPICS:

- MEANING OF INTERNET
- COMMON TERMS
- RESPONSIBLE INTERNET USE



MEANING OF INTERNET

Internet: Global network of connected computers sharing information.

Also called: The Net, The Web, Cyberspace

Brief History:

- Started in 1960s (ARPANET)
- Public in 1990s
- World Wide Web created by Tim Berners-Lee (1989)
- Now billions of users worldwide

COMMON INTERNET TERMS:

1. WEBSITE

- Collection of web pages
- Has unique address
- Example: www.bbc.com

2. URL (Uniform Resource Locator)

- Web address
- Example: https://www.google.com
- **Parts:**
    - **https://:** Protocol (secure)
    - **www:** World Wide Web
    - **google:** Domain name
    - **.com:** Extension (commercial)

3. BROWSER

- Software to view websites
- **Examples:** Chrome, Firefox, Edge, Safari

How to use:

1. Open browser
2. Type URL in address bar
3. Press Enter
4. Website loads

4. SEARCH ENGINE

- Helps find information online
- **Examples:** Google, Bing, Yahoo

How to search:

1. Go to google.com
2. Type what you want to find
3. Press Enter or click Search
4. Results appear

5. HOMEPAGE

- First page of a website
- Main page

6. HYPERLINK (Link)

- Clickable text/image
- Takes you to another page
- Usually blue and underlined

7. DOWNLOAD

- Copy file from internet to your device
- Example: Download a song, document

8. UPLOAD

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- Send file from your device to internet
- Example: Upload photo to Facebook

9. BANDWIDTH

- Speed of internet connection
- Measured in Mbps (Megabits per second)
- Higher = faster

10. STREAMING

- Watch/listen without downloading
- Example: YouTube videos, Spotify

11. ONLINE/OFFLINE

- **Online:** Connected to internet
- **Offline:** Not connected

12. ISP (Internet Service Provider)

- Company providing internet
- Nigeria: MTN, Airtel, Glo, 9mobile

13. EMAIL (Electronic Mail)

- Sending messages online
- Example: Gmail, Yahoo Mail

14. SOCIAL MEDIA

- Websites for connecting with people
- Example: Facebook, Instagram, Twitter, TikTok

15. CLOUD

- Storage on internet servers

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- Access from anywhere
- Example: Google Drive, iCloud

TYPES OF WEBSITES:

1. Educational: Schools, online courses (Khan Academy)

2. News: BBC, CNN, Punch, Vanguard

3. Entertainment: YouTube, Netflix, Spotify

4. Social Media: Facebook, Instagram

5. E-commerce: Jumia, Konga, Amazon

6. Search Engines: Google, Bing

7. Government: Official government sites (.gov.ng)

USING A BROWSER:

Basic Browser Functions:

Address Bar:

- Type web address
- Shows current URL

Back/Forward Buttons:

- Go to previous/next page

Refresh Button:

- Reload current page

Bookmarks/Favorites:

- Save websites you visit often

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Tabs:

- Open multiple websites at once

Search Bar:

- Quick search without going to search engine

History:

- See websites you visited before

RESPONSIBLE INTERNET USE:

1. USE FOR GOOD PURPOSES

- Educational research
- Learning new skills
- Positive communication
- Creative projects

2. DON'T:

- Cyberbully others
- Cheat on homework
- Visit inappropriate sites
- Spread false information
- Waste too much time

3. TIME MANAGEMENT

- Set limits
- Balance with other activities
- Don't use late at night

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4. RESPECT OTHERS

- Be polite online
- No mean comments
- Respect privacy
- Don't share others' photos without permission

5. VERIFY INFORMATION

- Not everything online is true
- Check multiple sources
- Be critical

6. ASK PERMISSION

- Ask parents before:
    - Creating accounts
    - Downloading
    - Making purchases
    - Sharing personal information

INTERNET ETIQUETTE (Netiquette):

1. Use proper language (no insults)
2. Don't type in ALL CAPS (shouting)
3. Think before posting
4. Give credit to sources
5. Respect copyright

EVALUATION:

1. What is the Internet?
2. Explain: Website, URL, Browser, Search Engine
3. What is the difference between download and upload?
4. Name three types of websites with examples.
5. State four rules for responsible internet use.

ASSIGNMENT:

1. Define Internet and explain how it works simply.
2. Explain five common internet terms.
3. Describe how to use a search engine.
4. What is responsible internet use? Give five examples.
5. List six browser functions.

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WEEK 9: ONLINE SAFETY RULES

SUBTOPICS:

- DANGERS OF THE INTERNET
- SAFE BROWSING HABITS
- RESPONSIBLE USE OF DIGITAL DEVICES



DANGERS OF THE INTERNET:

1. CYBERBULLYING

- Bullying online (mean messages, posts, threats)

- Can happen on social media, chats, gaming

What to do:

- Don't respond to bullies
- Save evidence (screenshots)
- Tell parent/teacher
- Block the person
- Report to platform

2. ONLINE PREDATORS

- Strangers who pretend to be friends
- Want to harm or trick you

Warning signs:

- Ask personal questions
- Want to meet in person
- Ask for photos
- Tell you to keep secrets

What to do:

- Don't talk to strangers online
- Never share personal information
- Tell parents immediately

3. INAPPROPRIATE CONTENT

- Violent, sexual, or disturbing material
- Not suitable for your age

How to avoid:

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- Use kid-safe search engines
- Ask parents to set parental controls
- Don't click suspicious links
- Exit immediately if you see bad content

4. SCAMS AND FRAUD

- Tricks to steal money or information
- "You won a prize!" or "Free gift!"

Warning signs:

- Too good to be true
- Asks for money
- Urgent/pressuring messages
- Poor spelling/grammar

What to do:

- Don't click suspicious links
- Don't give personal/financial information
- Tell parents

5. IDENTITY THEFT

- Someone steals your personal information
- Uses it to pretend to be you

6. MALWARE (Viruses)

- Harmful software that damages device
- Gets in through downloads, links

7. PHISHING

- Fake emails/messages pretending to be real companies
- Trick you into giving information

8. CYBERSTALKING

- Someone following your online activities
- Harassing you

9. OVERSHARING

- Sharing too much personal information
- Can be used against you

10. ADDICTION

- Spending too much time online
- Affects studies, health, relationships

SAFE BROWSING HABITS:

1. KEEP PERSONAL INFORMATION PRIVATE

Never share online:

- Full name
- Address
- Phone number
- School name
- Age/date of birth
- Photos of yourself
- Parents' information
- Where you go/what you do

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2. USE STRONG PASSWORDS

- At least 8 characters
- Mix of letters, numbers, symbols
- Don't use: Your name, birthday, "password123"
- Change regularly
- Don't share passwords

3. CHECK WEBSITE SECURITY

- Look for "https://" (s = secure)
- Padlock icon in address bar
- Be careful on sites without these

4. THINK BEFORE CLICKING

- Don't click suspicious links
- Hover over links to see real destination
- Don't download from unknown sources

5. USE PARENTAL CONTROLS

- Ask parents to set filters
- Blocks inappropriate content
- Limits screen time

6. PRIVACY SETTINGS

- Set social media accounts to private
- Control who sees your posts
- Limit friend requests to people you know

7. BE CAREFUL WITH PUBLIC WI-FI

- Not secure
- Don't enter passwords or buy things
- Use at home or secure networks

8. DON'T MEET ONLINE FRIENDS

- People may not be who they say
- Never meet without parents
- If you must, bring parent to public place

9. LOG OUT

- Always log out when done
- Especially on shared computers

10. REPORT PROBLEMS

- Tell parents/teachers about:
    - Mean messages
    - Inappropriate content
    - Strangers contacting you
    - Anything that makes you uncomfortable

RESPONSIBLE USE OF DIGITAL DEVICES:

1. SCREEN TIME LIMITS

- Not more than 2 hours daily (outside schoolwork)
- Take breaks every 30 minutes
- No screens 1 hour before bed

2. BALANCE ACTIVITIES

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- Homework first
- Physical activity
- Reading
- Family time
- Then screen time

3. APPROPRIATE CONTENT

- Age-appropriate games, videos, websites
- Educational content
- Ask parents if unsure

4. PROPER POSTURE

- Sit up straight
- Device at eye level
- Good lighting
- Protect your eyes

5. DEVICE CARE

- Handle gently
- Keep away from water
- Charge properly
- Clean screen regularly

6. FAMILY RULES

- Follow parents' rules
- Devices off during meals
- No devices in bedroom at night

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- Be honest about usage

7. BE A GOOD DIGITAL CITIZEN

- Be kind online
- Help others
- Stand up against bullying
- Report problems

RULES FOR SOCIAL MEDIA (When Older):

1. Follow age restrictions (most require 13+)
2. Private accounts only
3. Only accept friend requests from people you know
4. Think before posting (it's permanent!)
5. No location sharing
6. Don't respond to mean comments

RED FLAGS (Tell Parent Immediately):

- Someone asks you to keep secrets
- Receives gifts from strangers
- Stranger wants to meet you
- Asked for photos/videos
- Uncomfortable messages
- Threats or bullying

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EVALUATION:

1. Name five dangers of the Internet.
2. What should you never share online?
3. What is cyberbullying? What should you do?
4. State five safe browsing habits.
5. How much screen time is recommended daily?

ASSIGNMENT:

1. Explain five dangers of the Internet.
2. Describe eight safe browsing habits.
3. What personal information should you never share online?
4. What are the warning signs of online predators?
5. List six rules for responsible use of digital devices.

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WEEK 10: ONLINE PRIVACY AND SECURITY

MEANING OF ONLINE PRIVACY

Online Privacy: Protecting your personal information on the internet.

Why Privacy Matters:

- Prevent identity theft and scams
- Safety from predators
- Control your reputation
- Protect family

Personal Information Includes: Name, address, phone, photos, school, family info, passwords, location, browsing history



PROTECTING YOUR PRIVACY

Area	How to Protect
Social Media	Privacy settings (friends only), don't accept strangers, think before posting, no location tags
Emails	Don't open from strangers, don't click suspicious links, don't reply to spam
Apps/Games	Read permissions, don't give unnecessary access, use parental controls
Photos/Videos	No private photos, careful with background, no school uniform photos, ask permission before posting others
Browsing	Use secure sites (https), clear history on shared devices, use incognito mode

PASSWORD CREATION AND MANAGEMENT

Password: Secret word/phrase that protects your accounts

Why Important: Protects personal info, prevents unauthorized access, keeps accounts safe

CREATING STRONG PASSWORDS

GOOD PASSWORD Must Have:

- At least 8 characters (longer better)
- Uppercase and lowercase letters
- Numbers
- Special symbols (@, #, $, !)
- Not a real word
- Unique for each account

Examples of Strong Passwords:

- MyDog#2024@Home
- Sch00l&Fun123!
- Blue$Sky#88

BAD PASSWORDS (Don't Use):

- Your name, birthdate, simple words (password, 123456), phone number, consecutive numbers

PASSWORD TIPS

1. **Create Memorable Passwords:**
    - Use phrase: "I love playing football" = ILP@f00tb@ll!
    - Replace letters: E=3, A=@, O=0, I=1
    - "School is fun" = Sch00l1sFun!
2. **Use Different Passwords:**
    - Don't use same everywhere
    - Different for: email, social media, gaming
3. **Change Regularly:**
    - Every 3-6 months
    - Immediately if suspicious activity
4. **Never Share:**
    - Don't tell friends
    - Don't write where others see
    - Parents only (if necessary)

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5. **Password Managers:**
    - Apps that remember passwords
    - One master password

TWO-FACTOR AUTHENTICATION (2FA)

- Extra security layer
- Password + code sent to phone
- Enable when available

AVOIDING SCAMS AND PHISHING

Scam: Trick to steal money or information

COMMON ONLINE SCAMS

Scam Type	How It Works
"You Won!" Scam	Claims you won prize, asks for info/payment (you didn't enter contest)
Free Gift Scam	"Free iPhone/games!" asks for info/payment (nothing is free)
Phishing	Fake email pretending to be real company, asks to verify info or click link
Fake Charity	Asks for donations, money goes to scammer
Online Shopping Scam	Fake stores take money, don't send product

WARNING SIGNS OF SCAMS

1. **Too Good to Be True:** Amazing offers, huge discounts, free expensive items

2. **Urgent/Threatening:** "Act now!" "Account closes!" Creates panic
3. **Asks for Personal Info:** Real companies don't ask for passwords via email
4. **Poor Grammar/Spelling:** Many mistakes, unprofessional
5. **Suspicious Email Address:** Looks similar but not exact (amaz0n.com)
6. **Unknown Sender:** Don't know person/company

HOW TO AVOID SCAMS

1. **Don't Click Suspicious Links:** Hover to check, don't click if suspicious
2. **Verify Independently:** Go directly to website, don't use email links
3. **Don't Give Information:** Real companies don't ask for passwords
4. **Check URL:** Real: amazon.com vs Fake: amaz0n-deals.com
5. **Use Antivirus:** Protects from malicious links
6. **Report:** Tell parents, mark as spam, report to platform
7. **If in Doubt, Don't:** Ask parent/teacher

WHAT TO DO IF SCAMMED

1. Tell parents immediately
2. Change passwords
3. Report to platform
4. Monitor accounts
5. Learn from experience

SAFE ONLINE PRACTICES

DO ✓

- Use strong, unique passwords
- Enable two-factor authentication
- Check website security (https, padlock)
- Think before clicking
- Keep software updated
- Use antivirus
- Tell parents about problems
- Verify before trusting

DON'T ✗

- Share personal information
- Use weak passwords
- Click suspicious links
- Download from unknown sources
- Trust strangers online
- Respond to suspicious messages
- Meet online friends alone
- Share passwords

EVALUATION

1. What is online privacy and why is it important?
2. What makes a strong password? Give an example

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3. What is phishing?
4. Name five warning signs of online scams
5. What should you do if you receive suspicious email?

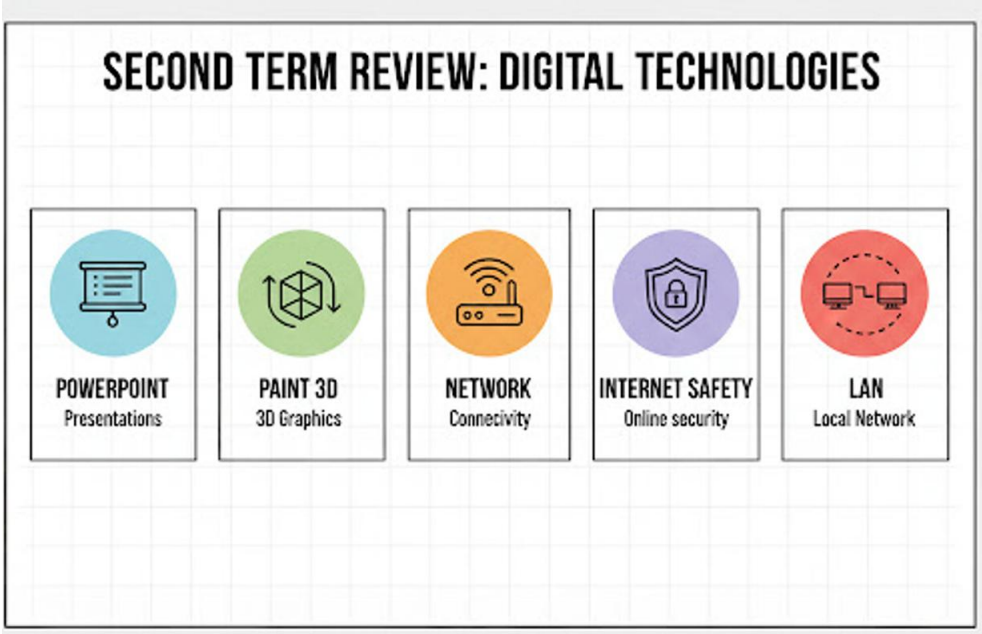
ASSIGNMENT

1. Explain online privacy and why it matters
2. Describe how to create strong passwords with examples
3. What is two-factor authentication?
4. Explain five common online scams
5. List eight ways to avoid scams and phishing

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WEEK 11: REVISION

COMPREHENSIVE REVIEW OF SECOND TERM



KEY TOPICS SUMMARY:

1. MS POWERPOINT

- Presentation software for slideshows
- Create slides with text, images, animations
- Transitions: effects between slides
- Save and present to audience

2. PAINT 3D

- Create 2D and 3D objects
- 3D shapes: Cube, sphere, cylinder, cone
- Rotate, color, resize objects
- Save as image or video

3. DATA PROCESSING

- Converting data to information
- Stages: Collection, Validation, Processing, Storage, Retrieval, Communication
- Manual vs Electronic
- Used in schools, banks, hospitals

4. COMPUTER COMMUNICATION

- Wired (Ethernet, Fiber optic)
- Wireless (Wi-Fi, Bluetooth, Mobile network)
- Internet: Global network of computers
- Uses: Communication, education, entertainment

5. COMPUTER NETWORKS

- LAN: Local area (school, office)
- WAN: Wide area (city, country)
- Components: Computers, router, switch, cables
- Benefits: Resource sharing, communication

6. INTERNET CONCEPTS

- Website, URL, Browser, Search engine
- Download, Upload, Streaming
- Use responsibly

7. ONLINE SAFETY

- Dangers: Cyberbullying, predators, scams, inappropriate content
- Safe browsing: Strong passwords, privacy settings, verify information
- Don't share personal information

8. PRIVACY AND SECURITY

- Protect personal information
- Strong passwords (8+ characters, mix types)
- Two-factor authentication
- Avoid phishing: Don't click suspicious links, verify sender

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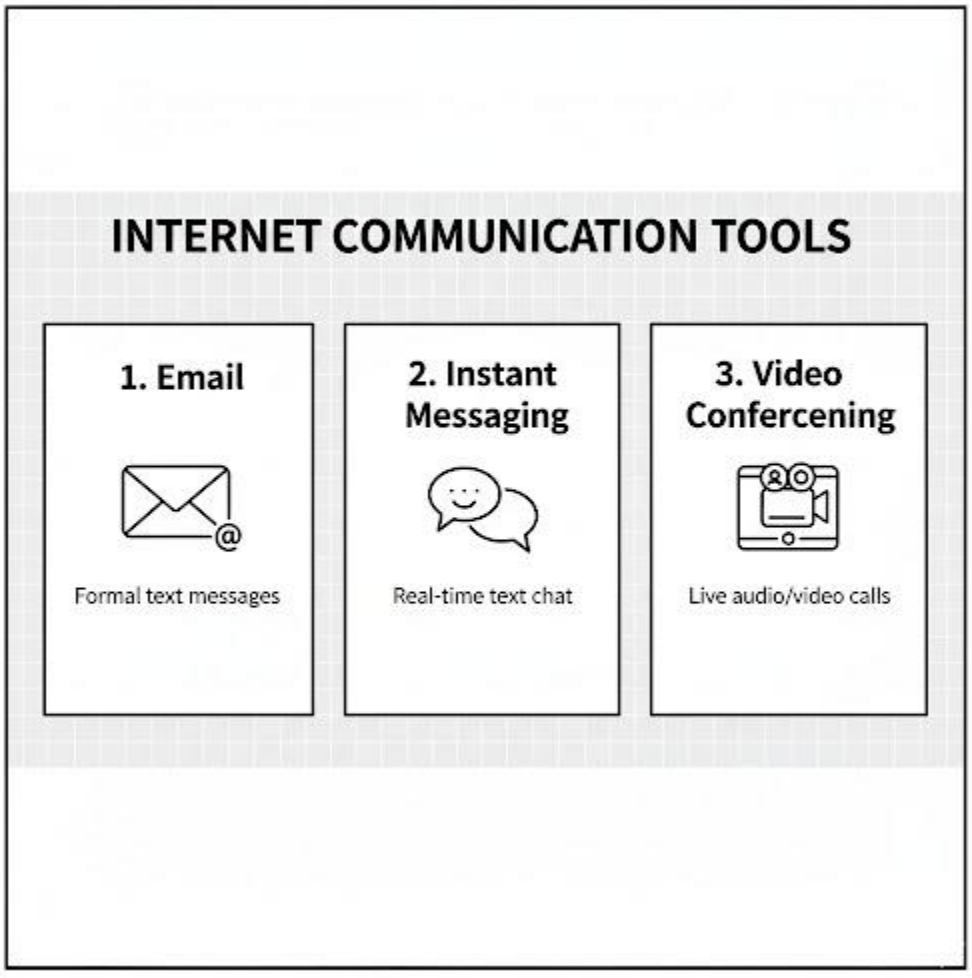
JSS 1 DIGITAL TECHNOLOGIES LESSON NOTES

THIRD TERM

WEEK 1: INTERNET COMMUNICATION PRACTICES

Meaning of Internet Communication

Internet communication is the exchange of information between individuals or groups using the internet as a medium. It enables instant global connectivity, breaking geographical barriers and allowing multimedia sharing (text, images, audio, video). Key advantages include speed, cost-effectiveness, accessibility, and the ability to maintain digital records of conversations.



Communication Tools

Email (Electronic Mail)

Email is a formal, professional communication tool used for sending messages and attachments to one or multiple recipients.

Key Features:

- Subject lines for message organization
- CC and BCC options for multiple recipients
- Attachment capabilities (documents, images, files)
- Folders and filters for organization
- Search functionality

Email Structure:

- Recipient address
- Subject line
- Greeting
- Body (main message)
- Closing/signature
- Attachments (if needed)

Common Providers: Gmail, Yahoo Mail, Outlook, ProtonMail

Instant Messaging (IM)

Real-time text-based communication for quick, informal conversations.

Popular Platforms: WhatsApp, Telegram, Messenger, Signal, iMessage

Features:

- Read receipts and typing indicators
- Voice messages and multimedia sharing

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- Group chats
- Stickers and emojis
- File sharing
- Status updates

Video Conferencing

Face-to-face communication over the internet with audio, video, and screen-sharing capabilities.

Popular Platforms: Zoom, Google Meet, Microsoft Teams, Skype

Features:

- Screen sharing for presentations
- Virtual backgrounds
- Recording capabilities
- Chat functionality
- Breakout rooms
- Waiting rooms for security

Common Uses: Online classes, business meetings, family gatherings, medical consultations, job interviews

Netiquette (Internet Etiquette)

Netiquette refers to acceptable behavior and communication standards online.

Core Principles:

1. **Respect Others:** Treat people online as you would in person
2. **Think Before Posting:** Content can be permanent; consider consequences
3. **Use Appropriate Language:** Avoid offensive or aggressive words
4. **Avoid ALL CAPS:** Interpreted as shouting

5. **Be Clear and Concise:** Respect others' time
6. **Respect Privacy:** Don't share others' information without permission
7. **Give Credit:** Acknowledge sources and original creators
8. **Proofread:** Check spelling and grammar
9. **Be Patient:** Allow time for responses
10. **Use Professional Tone:** Especially in formal settings

EVALUATION

1. Define internet communication and state three advantages it has over traditional communication methods.
2. Compare email and instant messaging. Give two uses of each.
3. Explain five netiquette rules that should be followed when communicating online.
4. List four features of video conferencing platforms and explain how they support online learning.
5. Why is it important to "think before you post" online? Give two examples.

ASSIGNMENT

1. Write a properly formatted email to your class teacher requesting permission to be absent from school for a family event.
2. Create a list of 8 differences between email and instant messaging in a table format.
3. Design a colorful poster showing 10 netiquette rules for students using the school computer lab.
4. Interview a parent or guardian about the internet communication tools they use for work. Write a 150-word report.

5. Research one video conferencing platform not discussed in class and write a paragraph about its features and uses.

WEEK 2: SPAM AND ONLINE THREATS

Meaning of Spam

Spam refers to unsolicited, unwanted messages sent in bulk over the internet, typically for advertising, phishing, or spreading malware. It wastes time, clogs systems, and can pose security risks.



Types of Spam:

- Email spam
- SMS/text spam
- Comment spam on websites

- Social media spam
- Search engine spam

Why Spam is Harmful:

- Wastes time and bandwidth
- Can spread viruses and malware
- May lead to identity theft
- Clogs email servers
- Used for phishing attacks

Common Online Scams

1. Phishing Scams

Fake messages pretending to be from legitimate organizations to steal personal information.

Warning Signs:

- Generic greetings ("Dear Customer")
- Urgent language creating panic
- Spelling and grammar errors
- Suspicious sender addresses
- Requests for passwords or financial details

2. Lottery/Prize Scams

Claims of winning money or prizes, requiring fees or personal information to claim.

Red Flags:

- You didn't enter any contest
- Requests for payment to claim winnings
- Pressure to act quickly

- Claims from unknown foreign sources

3. Romance Scams (Catfishing)

Fake online relationships developed to eventually request money for fabricated emergencies.

Prevention:

- Be cautious with people you've never met
- Never send money to online-only contacts
- Use video chat to verify identity
- Research profile photos using reverse image search

4. Fake Online Stores

Fraudulent websites that take payment but never deliver products.

Identifying Signs:

- Deals too good to be true
- Poor website design
- No physical address or contact information
- Only accepts untraceable payment methods
- Recently created websites

5. Tech Support Scams

Scammers pose as technical support, claiming device problems and requesting remote access or payment.

Warning Signs:

- Unsolicited calls about computer problems
- Pressure to act immediately
- Requests for remote device access

- Payment demands for fake fixes

Preventive Measures

Password Security:

- Use strong passwords (8-12 characters mixing uppercase, lowercase, numbers, symbols)
- Different passwords for different accounts
- Change passwords regularly
- Never share passwords

Email and Message Safety:

- Verify sender identity before clicking links
- Check email addresses for misspellings
- Don't open attachments from unknown sources
- Use spam filters
- Report suspicious messages

Account Protection:

- Enable two-factor authentication (2FA)
- Use biometric authentication when available
- Log out from shared computers
- Monitor account activity regularly

Software and Device Security:

- Keep all software updated
- Use antivirus software
- Enable firewalls
- Download apps only from official stores

- Scan downloads before opening

General Best Practices:

- Trust your instincts
- Research before acting
- Don't rush decisions
- Report scams to authorities
- Educate family members
- Keep personal information private on social media
- Monitor financial statements

EVALUATION

1. What is spam? Explain three types of spam and state why it is harmful.
2. Describe how phishing scams work and list four warning signs.
3. What is two-factor authentication (2FA)? Explain why it improves account security.
4. List and explain five ways to protect yourself from online threats.
5. Your friend receives an email claiming their bank account will be closed unless they click a link and enter their password. What type of scam is this? What should they do?

ASSIGNMENT

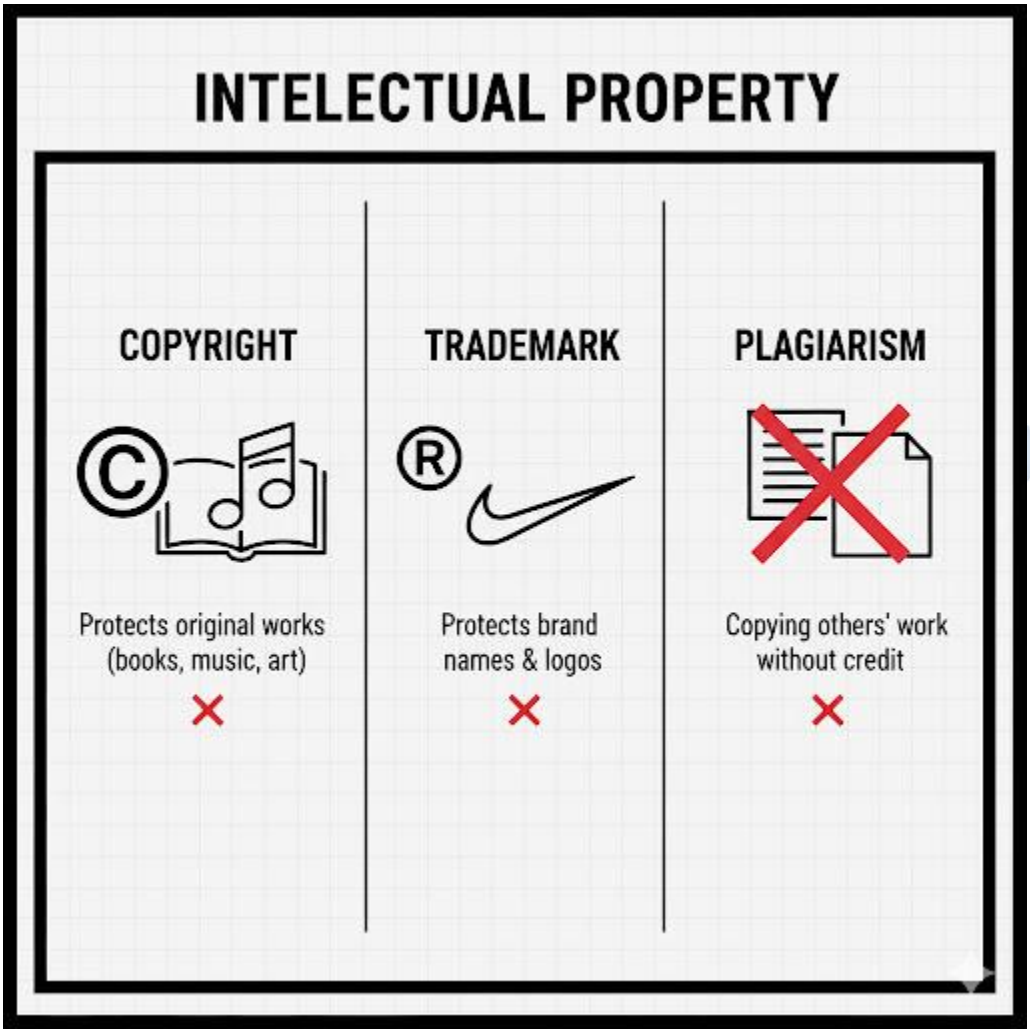
1. Create an awareness poster about ONE online scam. Include what it is, how it works, warning signs, and prevention tips.
2. Write a short story (200 words) about a student who recognizes and avoids an online scam. Highlight the warning signs they noticed.

3. Design a password security checklist with 10 tips that could be displayed in your school computer lab.
4. Research a real online scam case (with guidance). Write a 150-word report explaining what happened and lessons learned.
5. Explain in a paragraph why using the same password for all accounts is dangerous. Suggest a safe alternative method.

WEEK 3: INTELLECTUAL PROPERTY

Meaning of Intellectual Property

Intellectual Property (IP) refers to creations of the human mind that have commercial or artistic value and are protected by law. These include inventions, artistic works, designs, symbols, names, and images. IP rights give creators legal ownership and control over their work, preventing unauthorized use.



Why IP Protection Matters:

- Encourages creativity and innovation
- Protects creators' financial interests

- Ensures proper credit to original creators
- Prevents theft of ideas and work
- Supports economic growth

Types of Intellectual Property

1. Copyright

Legal protection for original creative works including books, music, films, software, artwork, photographs, and digital content.

What Copyright Protects:

- Literary works (books, articles, poems)
- Musical compositions and recordings
- Artistic works (paintings, sculptures, photographs)
- Dramatic works (plays, scripts)
- Films and videos
- Computer programs and software
- Architectural designs

Copyright Duration: Generally lasts for the creator's lifetime plus 50-70 years (varies by country).

Rights of Copyright Holders:

- Reproduce the work
- Distribute copies
- Create adaptations or derivative works
- Perform or display publicly
- License others to use the work

Copyright Symbol: © followed by year and owner's name

2. Trademark

A distinctive sign, symbol, word, phrase, logo, or design that identifies and distinguishes products or services of one company from others.

Examples:

- Nike's swoosh logo
- McDonald's golden arches
- Apple's apple logo
- Coca-Cola's script font
- Company slogans

Purpose of Trademarks:

- Brand identification
- Consumer protection
- Business reputation
- Market differentiation

Trademark Symbol: ™ (for unregistered) or ® (for registered trademarks)

3. Plagiarism

The act of using someone else's work, ideas, or words without giving proper credit or obtaining permission, presenting them as your own.

Forms of Plagiarism:

- **Direct plagiarism:** Copying word-for-word without quotes or citation
- **Self-plagiarism:** Reusing your own previous work without disclosure
- **Mosaic plagiarism:** Mixing copied phrases with your own words

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- **Accidental plagiarism:** Forgetting to cite or improperly paraphrasing

Consequences of Plagiarism:

- Academic penalties (failing grades, suspension, expulsion)
- Legal action and fines
- Damage to reputation
- Loss of credibility
- Career consequences

How to Avoid Plagiarism:

- Always cite sources properly
- Use quotation marks for direct quotes
- Paraphrase in your own words
- Keep track of sources while researching
- Use plagiarism detection tools
- Ask for clarification when unsure

Respecting Digital Content Ownership

Best Practices:

1. **Give Credit:** Always acknowledge original creators with proper citations
2. **Seek Permission:** Ask before using someone's work, especially for commercial purposes
3. **Use Legal Alternatives:**
    - Royalty-free images (Unsplash, Pexels)
    - Creative Commons licensed content
    - Public domain works
4. **Understand Licenses:** "Free to view" doesn't mean "free to use"

5. **Avoid Piracy:** Don't illegally download or share copyrighted music, movies, software, or books
6. **Respect Social Media Content:** Don't repost others' photos or videos without permission
7. **Create Original Work:** Develop your own content whenever possible

Creative Commons Licenses: Flexible copyright licenses allowing creators to specify how others can use their work:

- CC BY: Credit must be given
- CC BY-SA: Credit given, share alike
- CC BY-ND: Credit given, no derivatives
- CC BY-NC: Credit given, non-commercial use only

Digital Citizenship: Being a responsible digital citizen means respecting intellectual property rights, supporting creators by using legal sources, and promoting ethical online behavior.

EVALUATION

1. Define intellectual property and explain why it is important to protect it.
2. Differentiate between copyright and trademark. Give two examples of each.
3. What is plagiarism? List four types of plagiarism and explain how to avoid it.
4. Explain three consequences a student might face for plagiarizing a school assignment.
5. What is Creative Commons? Explain how it helps content creators and users.

ASSIGNMENT

1. Find three examples of trademarks from popular Nigerian or international companies. For each, describe the trademark and explain what makes it memorable.

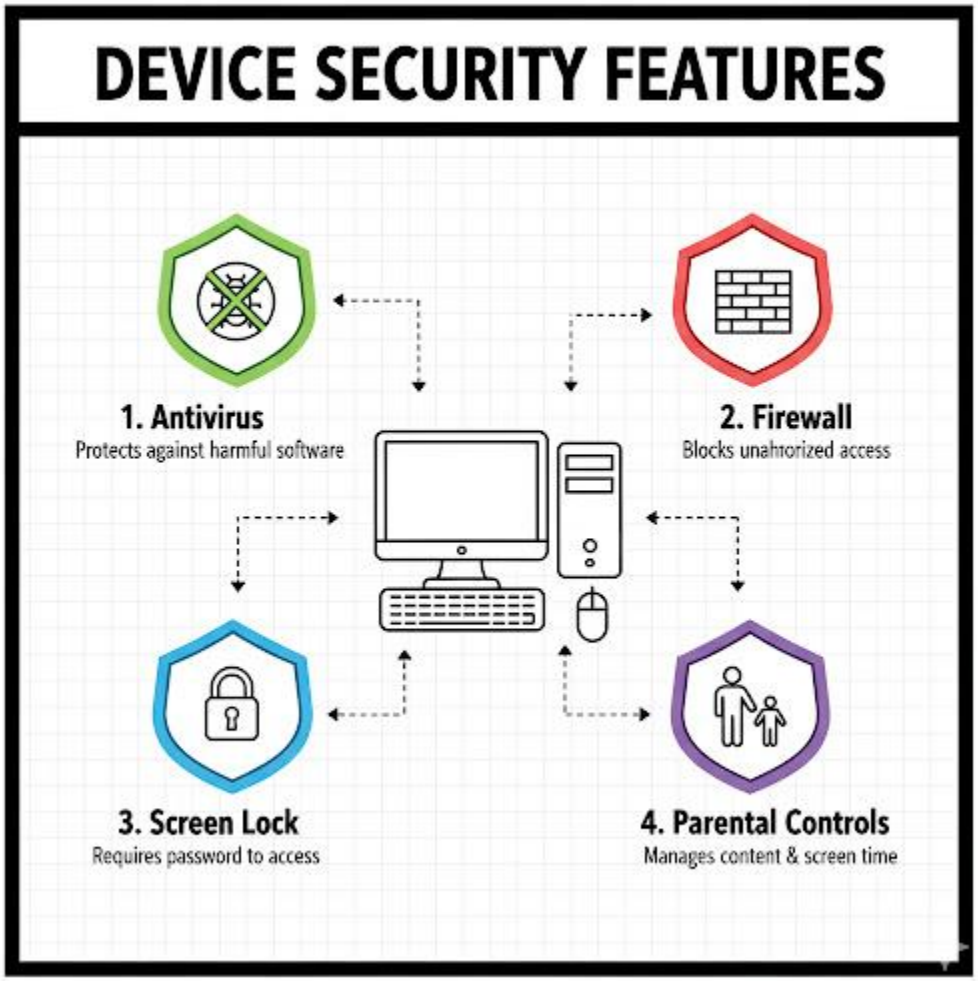
2. Write an original short story (150 words), then explain how copyright protects your work and what rights you have as the creator.
3. Create an infographic showing the differences between copyright, trademark, and patent (research patent on your own).
4. Rewrite the following plagiarized paragraph in your own words with proper citation: "The internet has revolutionized communication. It allows instant connection across the world" (Source: Digital Age Book, 2020).
5. Research and list 5 websites where students can find royalty-free images for school projects. Write one sentence about each.

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WEEK 4: SAFETY AND SECURITY FEATURES ON DIGITAL DEVICES

Antivirus Software

Antivirus software is a program designed to detect, prevent, and remove malicious software (malware) from computers and devices. It acts as a shield protecting your device from various threats.



Types of Malware:

- **Viruses:** Programs that attach to files and spread when files are shared
- **Worms:** Self-replicating malware that spreads across networks
- **Trojans:** Disguised as legitimate software but perform harmful actions

- **Spyware:** Secretly monitors and collects user information
- **Ransomware:** Encrypts files and demands payment for decryption
- **Adware:** Displays unwanted advertisements

How Antivirus Works:

1. **Scanning:** Examines files and programs for known malware signatures
2. **Real-time Protection:** Monitors system activity continuously
3. **Quarantine:** Isolates suspicious files to prevent damage
4. **Removal:** Deletes or repairs infected files
5. **Updates:** Downloads latest threat definitions regularly

Popular Antivirus Programs:

- Windows Defender (built into Windows)
- Norton
- McAfee
- Avast
- Kaspersky
- Bitdefender

Best Practices:

- Keep antivirus software updated
- Run regular full system scans
- Enable real-time protection
- Don't disable antivirus temporarily
- Scan external drives before use

Security Features

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Screen Locks

Screen locks prevent unauthorized access to devices when not in use.

Types of Screen Locks:

1. **Password:** Alphanumeric combination
2. **PIN:** Numeric code (usually 4-6 digits)
3. **Pattern:** Connecting dots in a specific sequence
4. **Fingerprint:** Biometric scan of fingerprint
5. **Face Recognition:** Facial feature identification
6. **Iris Scan:** Eye pattern recognition

Importance:

- Protects personal data
- Prevents unauthorized access
- Secures financial information
- Protects privacy
- Deters theft

Tips:

- Use strong, unpredictable codes
- Don't share with others
- Change regularly
- Enable automatic lock (30 seconds to 2 minutes)
- Use biometric options when available

Firewalls

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A firewall is security software or hardware that monitors and controls incoming and outgoing network traffic based on predetermined security rules. It creates a barrier between trusted internal networks and untrusted external networks (like the internet).

Types of Firewalls:

- **Software Firewalls:** Programs installed on individual devices
- **Hardware Firewalls:** Physical devices protecting entire networks

Functions:

- Blocks unauthorized access attempts
- Filters malicious traffic
- Prevents data leaks
- Logs network activity
- Alerts to suspicious behavior

How It Works:

- Examines data packets
- Compares against security rules
- Allows or blocks based on rules
- Creates access logs

Parental Controls

Tools that help parents manage and monitor children's device usage and online activities.

Features:

- **Content Filtering:** Blocks inappropriate websites and apps
- **Screen Time Limits:** Sets daily usage limits
- **App Restrictions:** Controls which apps can be installed or used

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- **Location Tracking:** Shows device location
- **Activity Reports:** Provides usage summaries
- **Safe Search:** Filters search engine results
- **Purchase Controls:** Requires approval for downloads/purchases

Popular Parental Control Tools:

- Google Family Link
- Microsoft Family Safety
- Apple Screen Time
- Norton Family
- Qustodio

Why They're Important:

- Protects children from inappropriate content
- Prevents cyberbullying
- Manages screen time
- Prevents online predators
- Monitors social media activity
- Prevents unauthorized purchases

Device Maintenance

Regular maintenance keeps devices running efficiently and securely.

Essential Maintenance Tasks:

1. **Software Updates**
    - Install operating system updates promptly
    - Update apps regularly

- Enable automatic updates when possible
- Updates include security patches and bug fixes

2. **Storage Management**
    - Delete unnecessary files and apps
    - Clear cache and temporary files
    - Empty recycle bin/trash regularly
    - Use cloud storage for important files
    - Keep at least 15-20% storage free
3. **Data Backup**
    - Regular backups (weekly or monthly)
    - Use external drives or cloud services
    - Test backups to ensure they work
    - Follow 3-2-1 rule: 3 copies, 2 different media, 1 offsite
4. **Battery Care**
    - Avoid complete discharges
    - Don't overcharge (unplug when full)
    - Keep battery between 20-80%
    - Use original chargers
    - Avoid extreme temperatures
5. **Physical Cleaning**
    - Wipe screens with microfiber cloth
    - Clean keyboards with compressed air
    - Remove dust from vents

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- Don't use harsh chemicals
- Keep devices in protective cases

6. **Security Checks**
    - Review installed apps monthly
    - Remove unused applications
    - Check for suspicious activity
    - Verify account security settings
    - Monitor storage for unknown files
7. **Performance Optimization**
    - Close unused apps
    - Disable unnecessary startup programs
    - Restart devices weekly
    - Clear browser history and cookies
    - Defragment hard drives (for traditional HDDs)
8. **Protection Measures**
    - Use surge protectors
    - Avoid eating/drinking near devices
    - Keep devices away from water
    - Handle with clean, dry hands
    - Store in cool, dry places

EVALUATION

1. What is antivirus software? Explain how it protects devices from malware.

2. List and describe five types of screen locks. Which do you think is most secure and why?
3. What is a firewall? Explain its function in protecting devices and networks.
4. Describe four features of parental controls and explain why they are important for child safety.
5. List six device maintenance practices that help keep digital devices secure and running efficiently.

ASSIGNMENT

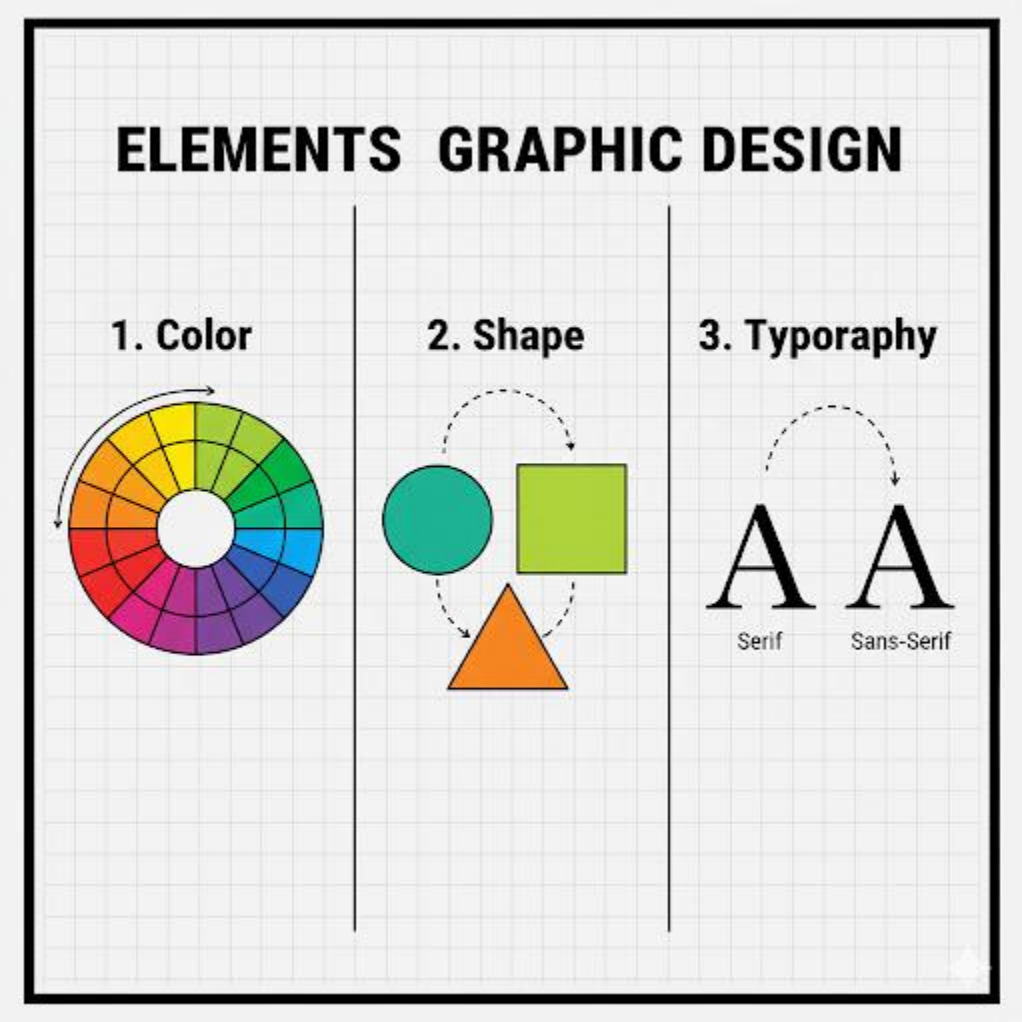
1. Research three antivirus programs. Create a comparison table showing their features, cost (free/paid), and compatibility with different operating systems.
2. Design a step-by-step guide (with illustrations) showing how to set up a screen lock on a smartphone.
3. Interview a parent or guardian about what parental controls they use (if any). Write a 150-word report on your findings and suggest additional controls they could implement.
4. Create a monthly device maintenance checklist that includes at least 12 tasks. Organize them by weekly, bi-weekly, and monthly activities.
5. Write a paragraph (100-150 words) explaining why regular software updates are important for device security. Include examples of what could happen if updates are ignored.

WEEK 6: INTRODUCTION TO GRAPHIC DESIGN

Meaning and Importance of Graphic Design

Graphic design is the art and practice of visual communication that combines images, words, colors, and ideas to convey information to a specific audience. It's both creative and strategic, solving problems through visual solutions.

Definition: The creative process of planning and projecting ideas through visual and textual content.



Importance of Graphic Design:

1. **Visual Communication:** Conveys messages quickly and effectively without many words

2. **Brand Identity:** Creates recognizable logos, colors, and styles for businesses
3. **Attracts Attention:** Eye-catching designs draw people in
4. **Professionalism:** Quality design shows credibility and trustworthiness
5. **Information Organization:** Makes complex data easy to understand
6. **Emotional Connection:** Colors and images evoke feelings and responses
7. **Competitive Advantage:** Good design helps businesses stand out
8. **User Experience:** Improves interaction with websites and apps

Where Graphic Design is Used:

- Advertisements and marketing materials
- Websites and mobile apps
- Social media posts and graphics
- Logos and brand identity
- Posters and flyers
- Magazines and newspapers
- Product packaging
- Books and publications
- Billboards and signage
- Presentations and infographics

Elements of Design

Design elements are the basic building blocks used to create visual compositions.

1. Color

Color is one of the most powerful design elements, influencing emotions, behavior, and perception.

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Color Psychology:

- **Red:** Energy, passion, urgency, danger, excitement
- **Blue:** Trust, calm, professionalism, security, stability
- **Green:** Nature, growth, health, harmony, freshness
- **Yellow:** Happiness, optimism, warmth, caution
- **Orange:** Enthusiasm, creativity, confidence, friendliness
- **Purple:** Luxury, wisdom, creativity, spirituality
- **Black:** Elegance, sophistication, power, formality
- **White:** Purity, simplicity, cleanliness, innocence
- **Brown:** Earthiness, reliability, stability, comfort

Color Concepts:

- **Primary Colors:** Red, blue, yellow (cannot be created by mixing)
- **Secondary Colors:** Green, orange, purple (mix of two primaries)
- **Tertiary Colors:** Mix of primary and secondary colors
- **Complementary Colors:** Opposite on color wheel (red/green, blue/orange)
- **Analogous Colors:** Next to each other on color wheel
- **Color Harmony:** Pleasing arrangement of colors

Using Color Effectively:

- Consider cultural meanings
- Maintain contrast for readability
- Limit color palette (3-5 colors)
- Use color to create hierarchy
- Test designs in black and white first

2. Shape

Shapes are defined areas created by lines, color, or texture. They give structure and meaning to designs.

Types of Shapes:

Geometric Shapes:

- Circles: Unity, completeness, harmony, infinity
- Squares/Rectangles: Stability, reliability, order, professionalism
- Triangles: Direction, movement, energy, conflict, stability

Organic Shapes:

- Natural, flowing, irregular forms
- Found in nature (leaves, clouds, water)
- Feel more friendly and approachable

Abstract Shapes:

- Simplified versions of natural forms
- Recognizable but stylized
- Used in logos and icons

Uses of Shapes:

- Create visual interest
- Direct eye movement
- Organize information
- Convey meaning symbolically
- Build brand identity

3. Typography

Typography is the art and technique of arranging text to make written language readable, legible, and visually appealing.

Font Categories:

Serif Fonts:

- Have small lines/strokes at letter ends
- Examples: Times New Roman, Georgia, Garamond
- Feel: Traditional, formal, authoritative, trustworthy
- Best for: Print materials, formal documents, body text

Sans-Serif Fonts:

- Clean, without decorative strokes
- Examples: Arial, Helvetica, Calibri, Roboto
- Feel: Modern, clean, minimal, straightforward
- Best for: Digital screens, headings, contemporary designs

Script Fonts:

- Mimic handwriting or calligraphy
- Examples: Brush Script, Pacifico, Dancing Script
- Feel: Elegant, personal, creative, decorative
- Best for: Invitations, logos, special occasions

Display Fonts:

- Decorative, unique, attention-grabbing
- Used sparingly for headlines
- Feel: Varied depending on style
- Best for: Titles, logos, short text

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Typography Principles:

- **Hierarchy:** Different sizes/weights show importance
- **Alignment:** How text lines up (left, right, center, justified)
- **Spacing:** Letter spacing (kerning) and line spacing (leading)
- **Contrast:** Different fonts/sizes create visual interest
- **Readability:** Easy to read and understand
- **Consistency:** Use 2-3 fonts maximum per design

Additional Design Elements:

Line:

- Can be straight, curved, thick, thin, solid, dashed
- Creates structure, directs eye movement
- Separates or connects elements

Texture:

- Surface quality or appearance
- Can be actual (physical) or visual (implied)
- Adds depth and interest

Space (White Space):

- Empty areas around elements
- Gives designs room to breathe
- Improves readability and focus
- Shows sophistication

Size/Scale:

- Relative size of elements

- Creates hierarchy and emphasis
- Guides viewer's attention

Balance:

- Visual weight distribution
- Symmetrical or asymmetrical
- Creates harmony and stability

EVALUATION

1. Define graphic design and explain four areas where it is commonly used.
2. Describe the psychology of three colors and give examples of when each would be appropriate to use in design.
3. Compare serif and sans-serif fonts. When would you use each type and why?
4. Explain the difference between geometric shapes and organic shapes in design. Give two examples of each.
5. What is typography? List four principles of good typography.

ASSIGNMENT

1. Create a color mood board showing five colors. For each color, include: color name, what emotion it represents, and an example of where it's used effectively.
2. Design a simple logo for a fictional school club using only geometric shapes. Explain your choice of shapes and colors.
3. Find three examples of graphic design in your environment (posters, product packaging, advertisements). For each, identify the design elements used (color, shape, typography) and write a brief analysis (50 words each).

4. Create a typography showcase displaying your name in three different font styles (serif, sans-serif, script). Explain what feeling or message each style communicates.
5. Research one famous graphic designer (e.g., Paul Rand, Saul Bass, Milton Glaser). Write a 150-word report about their work and contributions to graphic design.

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WEEK 8: INTRODUCTION TO CANVA

Getting Started with Canva

Canva is a free, user-friendly online graphic design platform that allows users to create professional-looking designs without advanced technical skills. It's accessible through web browsers (www.canva.com) or mobile apps for iOS and Android.



What Makes Canva Special:

- **Beginner-friendly:** Intuitive drag-and-drop interface
- **Free version available:** Access to thousands of templates and elements
- **Cloud-based:** Work from any device with internet

- **Collaborative:** Share and work with others
- **Versatile:** Create various design types
- **Templates:** Pre-designed layouts to customize
- **No software installation:** Works in web browsers

Creating a Canva Account:

1. Visit www.canva.com
2. Sign up with email, Google, or Facebook account
3. Choose account type (student/teacher accounts have extra features)
4. Verify email address
5. Complete profile setup
6. Start designing

Important: Students should create accounts with parent/teacher supervision and use school email addresses when available.

Canva Interface Overview

Main Components:

1. **Homepage/Dashboard:**
    - Recent designs
    - Design suggestions
    - Create button
    - Templates gallery
    - Search bar
2. **Templates Library:**
    - Thousands of pre-designed layouts

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- Organized by category
- Free and Pro (paid) options
- Customizable to your needs

3. **Design Canvas/Workspace:**
    - Central area where you create
    - Shows design dimensions
    - Rulers and guides for alignment
    - Zoom controls
4. **Elements Panel (Left Sidebar):**
    - Photos and images
    - Graphics and illustrations
    - Videos and audio
    - Text styles
    - Shapes and lines
    - Charts and frames
    - Free and paid options
5. **Top Toolbar:**
    - File menu (save, download, print)
    - Undo/Redo buttons
    - Resize design
    - Share options
    - Comments
6. **Properties Panel (Right Side):**

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- Appears when element selected
- Color options
- Position and size
- Effects and filters
- Layer management

Creating and Editing Designs

Starting a New Design:

Method 1: Choose Design Type

1. Click "Create a design" button
2. Select from popular types (Poster, Presentation, Social Media Post)
3. Or enter custom dimensions
4. Blank canvas appears

Method 2: Start with Template

1. Browse template library
2. Click on category (e.g., School Posters)
3. Preview templates
4. Click "Customize this template"
5. Template loads for editing

Basic Design Functions:

Adding Elements:

1. Click "Elements" in sidebar
2. Browse or search for items
3. Click to add to canvas

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4. Drag to position

Working with Text:

1. Click "Text" in sidebar
2. Choose text style (heading, subheading, body)
3. Click on canvas to place
4. Type your content
5. Use properties panel to:
    - Change font style
    - Adjust size
    - Modify color
    - Apply effects (bold, italic, underline)
    - Change alignment
    - Add letter spacing

Manipulating Objects:

- **Move:** Click and drag element
- **Resize:** Drag corner handles (hold Shift for proportional)
- **Rotate:** Use rotation handle or enter degrees
- **Duplicate:** Right-click > Duplicate or Ctrl+D
- **Delete:** Select and press Delete key
- **Layer Order:** Right-click > Bring forward/Send backward

Changing Colors:

1. Select element
2. Click color box in toolbar

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3. Choose from palette or enter color code
4. Apply to fills or borders

Adding Images:

1. Click "Uploads" to add your own photos
2. Or select from Canva's photo library
3. Drag image to canvas
4. Resize and position as needed
5. Apply filters or effects

Applying Effects:

- Transparency/Opacity adjustments
- Shadows and glows
- Frames and borders
- Filters (brightness, contrast, saturation)
- Background removal (Pro feature)

Aligning Elements:

- Use alignment tools in toolbar
- Distribute evenly
- Snap to guides and grids
- Group elements together (Ctrl+G)

Saving Your Work:

- Canva auto-saves to cloud
- Manual save: File > Save
- Download: Click Download button

- Choose format (PNG, JPG, PDF)

Templates and Customization

Understanding Templates: Templates are pre-designed layouts created by professionals that serve as starting points for your designs. They include placeholder text and images that you customize with your own content.

Popular Template Categories:

For School:

- Posters and flyers
- Presentations
- Reports and assignments
- Certificates
- Class schedules
- Book covers
- Worksheets

For Social Media:

- Instagram posts and stories
- Facebook posts
- YouTube thumbnails
- Twitter headers

For Personal Use:

- Birthday cards
- Invitations
- Photo collages

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- Resumes
- Calendars

Customization Process:

Step 1: Select Template

- Browse by category or search
- Preview before selecting
- Consider color scheme and layout
- Choose template matching your purpose

Step 2: Replace Text

- Click on placeholder text
- Delete and type your content
- Adjust font size if needed
- Change font style to match your preference

Step 3: Replace Images

- Click on placeholder image
- Upload your photo or choose from library
- Adjust positioning using crop tool
- Apply filters if desired

Step 4: Adjust Colors

- Change background color
- Modify element colors to match theme
- Ensure good contrast for readability
- Use color picker for consistency

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Step 5: Add Personal Touches

- Include additional elements (icons, shapes)
- Add decorative elements
- Insert your logo or signature
- Apply unique effects

Step 6: Review and Refine

- Check spelling and grammar
- Ensure all elements aligned properly
- Test readability from distance
- Get feedback from others
- Make final adjustments

Tips for Effective Customization:

- Maintain design balance
- Don't overcrowd with elements
- Keep color palette consistent (3-4 colors)
- Use high-quality images
- Ensure text is readable
- Stay true to design purpose
- Test different variations

Sharing and Exporting:

- **Download:** Various formats available
- **Share Link:** Collaborate with others
- **Present:** Full-screen presentation mode

- **Print:** High-quality print options
- **Social Media:** Direct posting to platforms

EVALUATION

1. What is Canva? List four reasons why it is suitable for beginners in graphic design.
2. Describe the main components of the Canva interface and their functions.
3. Explain the step-by-step process of creating a design from a template in Canva.
4. What are five basic editing functions you can perform on elements in Canva?
5. Describe the process of customizing a Canva template for a school poster about "Reading Week."

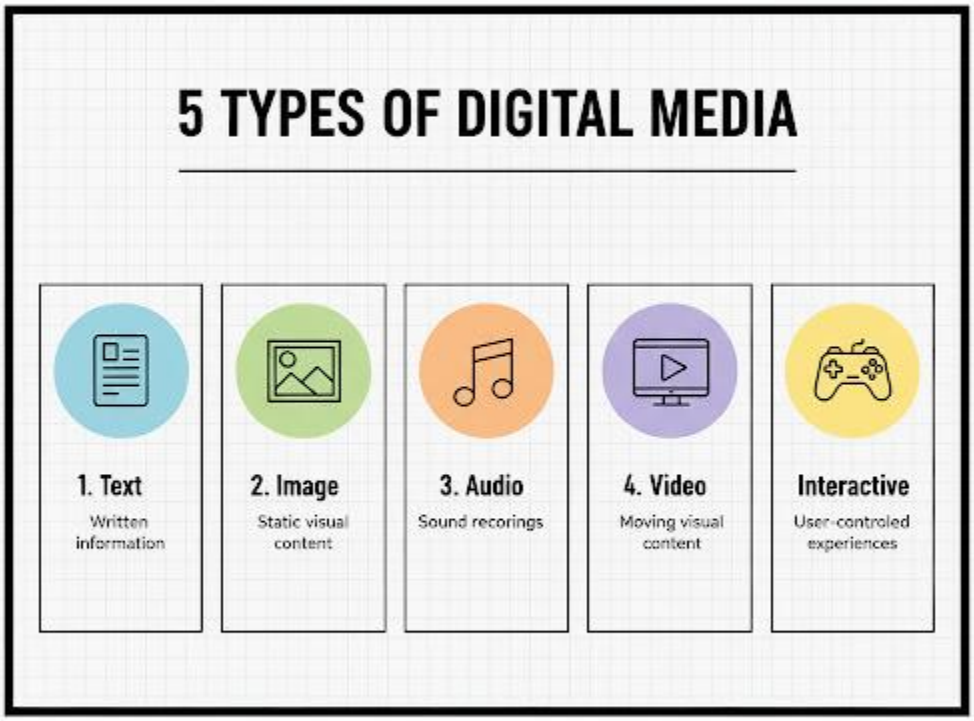
ASSIGNMENT

1. Create a Canva account (with teacher/parent supervision). Take screenshots of the homepage and write a brief description (100 words) of what you see.
2. Using Canva, design a birthday card for a friend or family member. Include personalized text, images, and colors. Download and print or share digitally.
3. Create a simple poster in Canva promoting your favorite book. Include: book title, author, brief description, and appealing graphics. Download as PNG.
4. Watch a Canva tutorial video (provided by teacher) and write a 150-word summary of three new features you learned.
5. Design a personal study timetable for one week using Canva. Include all subjects, time slots, and use colors to differentiate subjects. Download as PDF.

WEEK 9: DIGITAL MEDIA

Meaning and Types of Digital Media

Definition: Digital media refers to any content created, stored, distributed, and consumed in digital electronic format using digital technology.



Characteristics:

- Exists in binary code (0s and 1s)
- Easily copied and distributed
- Can be edited and manipulated
- Accessible across multiple devices

- Interactive and engaging

Types of Digital Media

1. Text-Based Media

Written content in digital format.

Examples: Blogs, e-books, articles, social media posts, websites, emails, e-magazines

Uses: Information sharing, education, communication, entertainment, marketing

2. Images/Visual Media

Still visual content in digital form.

Examples: Photographs, graphics (logos, illustrations), infographics, memes, digital art, screenshots

Formats: JPEG, PNG, GIF, SVG, TIFF

Uses: Visual storytelling, brand identity, social media content, documentation, artistic expression

3. Audio Media

Sound content in digital format.

Examples: Music, podcasts, audiobooks, sound effects, voice messages, radio streams

Formats: MP3, WAV, AAC, FLAC

Uses: Entertainment, education, communication, storytelling

4. Video Media

Moving visual content with audio.

Examples: Movies, YouTube videos, tutorials, documentaries, animations, live streams, short videos (TikTok, Instagram Reels)

Formats: MP4, AVI, MOV, MKV

Uses: Entertainment, education and training, marketing, news, social connection

5. Interactive Media

Digital content that responds to user input.

Examples: Video games, mobile apps, interactive websites, Virtual Reality (VR), Augmented Reality (AR), educational software, simulations

Uses: Entertainment, learning and skill development, professional training, social interaction, problem-solving

Ethics and Responsible Use of Digital Media

Digital Ethics Principles

1. Verify Before Sharing

- Check facts and sources
- Avoid spreading misinformation
- Cross-reference information
- Use fact-checking websites

2. Respect Copyright and Give Credit

- Don't use others' work without permission
- Provide proper attribution
- Use royalty-free or licensed content

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- Link to original sources

3. Protect Privacy

- Respect others' personal information
- Don't share private photos/videos without consent
- Be careful with location sharing
- Ask permission before posting about others

4. Avoid Cyberbullying and Hate Speech

- Treat others with respect online
- Don't participate in or share harmful content
- Report bullying when you see it
- Think about impact of your words

5. Be Mindful of Screen Time

- Balance online and offline activities
- Set time limits for device use
- Take regular breaks (20-20-20 rule)
- Prioritize sleep over screen time

6. Consider Your Digital Footprint

- Everything online can be permanent
- Future employers/schools may see your content
- Think long-term before posting
- Build a positive online presence

7. Practice Critical Thinking

- Question content you see

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- Recognize bias and manipulation
- Identify clickbait and sensationalism
- Don't believe everything you see

8. Be Authentic

- Don't create fake profiles or impersonate others
- Be honest in online interactions
- Take responsibility for your actions
- Admit mistakes and apologize when wrong

Sharing and Collaboration Tools

Cloud Storage Services

Google Drive:

- 15GB free storage
- Document, spreadsheet, presentation creation
- Real-time collaboration
- Sharing with permissions (view, comment, edit)
- Works across devices

Dropbox:

- File storage and syncing
- Easy sharing via links
- Version history
- Good for large files

Microsoft OneDrive:

- Integrated with Microsoft Office
- 5GB free storage
- Automatic backup options
- Collaboration on Office documents

iCloud:

- For Apple users
- 5GB free storage
- Automatic device syncing
- Photo and document storage

Collaboration Platforms

Google Workspace (Docs, Sheets, Slides):

- Multiple users edit simultaneously
- See who's editing in real-time
- Comment and suggest modes
- Revision history
- Chat while editing

Uses: Group projects, shared note-taking, collaborative presentations, team planning

Microsoft Teams:

- Team communication hub
- Video meetings
- File sharing and collaboration
- Integration with Office apps

Slack:

- Team messaging platform
- Organized channels
- File sharing
- Video/audio calls

File Transfer Tools

Email Attachments:

- Quick for small files (under 25MB)
- Familiar and universal

WeTransfer:

- Transfer files up to 2GB free
- No account needed
- Email delivery
- Good for large media files

File-Sharing Links:

- Create shareable links from cloud storage
- Control access permissions
- Track who downloads
- Can set expiration dates

Social Media Sharing

Instagram:

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- Visual content sharing
- Stories (24 hours)
- Reels for short videos
- Direct messaging

YouTube:

- Video hosting and sharing
- Public, unlisted, or private options
- Comments and community interaction
- Educational content platform

Facebook:

- Multiple content types (text, photos, videos)
- Groups for communities
- Events organization
- Long-form content support

Best Practices for Sharing and Collaboration

- Set clear permissions (who can view/edit)
- Organize files with clear names and folders
- Communicate expectations with collaborators
- Back up important work
- Respect deadlines and commitments
- Give constructive feedback
- Keep sensitive information secure

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EVALUATION

1. Define digital media and list the five main types with one example of each.
2. Explain four ethical principles that should guide the responsible use of digital media.
3. What is a digital footprint? Why is it important to consider your digital footprint when posting online?
4. Compare Google Drive and Dropbox. List three features of each cloud storage service.
5. Describe three ways digital media can be used for education and learning.

ASSIGNMENT

1. Create a chart categorizing 10 different digital media examples you use or encounter daily. Classify each under: Text, Image, Audio, Video, or Interactive.
2. Write a 200-word essay on "The Impact of Social Media on Students." Include both positive and negative effects and your recommendations for responsible use.
3. Design an infographic (using Canva or paper) showing 5 rules for ethical digital media use. Make it colorful and easy to understand.
4. Research one collaboration tool (Google Docs, Microsoft Teams, or Slack). Write a 150-word guide explaining how students can use it for group projects.
5. Keep a "digital media diary" for one day. Record all types of digital media you consume and create. Calculate time spent and write a reflection (100 words) on your findings.

WEEK 10: COMPUTER WASTE MANAGEMENT

Meaning of E-waste

Definition: Electronic waste (e-waste) refers to discarded electrical or electronic devices and their components that have reached the end of their useful life.



Common Examples:

- **Computing Devices:** Computers, laptops, tablets, keyboards, mice
- **Mobile Devices:** Smartphones, smartwatches
- **Display Equipment:** Monitors, televisions, projectors

- **Peripherals:** Printers, scanners, hard drives, USB drives
- **Home Appliances:** Microwaves, refrigerators, washing machines (with electronics)
- **Entertainment:** Game consoles, DVD players, cameras, speakers
- **Batteries and Accessories:** Chargers, headphones, adapters

Why E-waste is a Problem

Environmental Concerns

1. Toxic Materials E-waste contains hazardous substances:

- **Lead:** Damages nervous system (in batteries, monitors)
- **Mercury:** Affects brain and kidneys (in switches, screens)
- **Cadmium:** Causes kidney damage (in rechargeable batteries)
- **Chromium:** Can cause cancer (in metal casings)
- **Brominated Flame Retardants:** Disrupt hormones (in circuit boards)

2. Soil and Water Contamination

- Toxins leach into soil from landfills
- Contaminate groundwater
- Enter food chain through plants and animals

3. Air Pollution

- Burning e-waste releases toxic fumes
- Health risks for nearby communities

Health Concerns

- Respiratory problems
- Skin diseases and allergies

- Neurological damage
- Increased cancer risk
- Particularly dangerous for children

Resource Waste

- E-waste contains valuable materials (gold, silver, copper, platinum)
- Throwing away means losing these resources
- Requires more mining for new materials

Global Scale

- Over 50 million tons generated globally per year
- Fastest-growing waste stream
- Only 17-20% properly recycled

Safe Disposal Methods

1. Return to Manufacturer

How it works: Check manufacturer's website for take-back programs; some offer trade-in incentives

Examples: Apple Recycling Program, Dell Reconnect, HP, Samsung

Benefits: Ensures proper handling, may receive discount on new purchase

2. Donation

Give working or repairable devices to those who need them.

Where to Donate: Schools, community centers, non-profit organizations, churches, libraries, charities

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Before Donating:

- Ensure device works properly
- Delete all personal data
- Include cables and accessories
- Clean the device

Benefits: Extends device lifespan, helps others access technology, reduces e-waste

3. Certified E-waste Recyclers

Specialized facilities that safely process electronic waste.

What They Do:

- Safely dismantle electronics
- Separate hazardous materials
- Recover valuable metals and components
- Follow environmental regulations

How to Find: Search online for certified recyclers with R2 or e-Stewards certifications

4. Government Collection Centers

Features: Free drop-off locations with regular collection hours

Finding Centers: Contact local government environmental office or check municipal websites

5. Retail Store Take-Back Programs

Examples: Best Buy, Staples, Office Depot

Features: Often free for small electronics; can combine with shopping trips

Important: Never Do These

- ❌ Don't throw in regular trash
- ❌ Don't burn electronic waste
- ❌ Don't dump in nature or water
- ❌ Don't dismantle without proper training
- ❌ Don't give to uncertified collectors

Before Disposal - Data Security

1. Back up important data
2. Factory reset device
3. Remove SIM cards and memory cards
4. Log out of all accounts
5. For computers: wipe hard drive or physically destroy

Recycling Practices

The E-waste Recycling Process

Step 1: Collection and Transportation

- E-waste collected and transported to recycling facilities

Step 2: Manual Sorting

- Devices categorized by type
- Working items identified for reuse
- Batteries and hazardous materials removed

Step 3: Mechanical Shredding

- Items broken into small pieces

Step 4: Separation

- Magnetic separation removes iron and steel
- Water separation divides plastic from metal
- Screening sorts by size

Step 5: Material Recovery

- Precious metals extracted (gold, silver, platinum)
- Base metals recovered (copper, aluminum)
- Plastics sorted and processed

Step 6: Purification

- Metals refined to pure form
- Materials prepared for reuse in new products

Benefits of E-waste Recycling

Environmental Benefits:

- Reduces landfill waste by 80-90%
- Prevents soil and water pollution
- Conserves natural resources
- Reduces greenhouse gas emissions

Economic Benefits:

- Creates jobs in recycling industry
- Recovers valuable materials worth billions

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- Supports circular economy

Resource Conservation:

- One ton of e-waste contains more gold than 17 tons of gold ore
- Recoverable copper, silver, aluminum, and rare earth elements

Individual Actions for E-waste Management

1. Extend Device Lifespan

- Proper care and maintenance
- Use protective cases
- Regular software updates

2. Repair Instead of Replace

- Fix minor problems
- Seek authorized repair services
- Support right-to-repair movement

3. Upgrade Components

- Add RAM to computers
- Replace hard drives with SSDs
- Often cheaper than buying new

4. Buy Responsibly

- Choose durable, quality products
- Consider repairability before purchasing
- Avoid unnecessary upgrades

5. Data Management

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- Always wipe data before disposal
- Use data destruction software

6. Educate Others

- Share information about proper disposal
- Organize community awareness programs

7. Participate in Collection Programs

- Attend e-waste collection events
- Organize school or community drives

The Circular Economy Approach

- **Design:** Create products easy to repair and recycle
- **Use:** Maximize product lifespan
- **Reuse:** Pass on working devices
- **Recycle:** Properly process end-of-life electronics
- **Recover:** Extract materials for new products

EVALUATION

1. What is e-waste? List six common examples of electronic waste.
2. Explain four reasons why improper e-waste disposal is harmful to the environment and human health.
3. Describe three safe methods for disposing of electronic waste properly.
4. What are the benefits of recycling e-waste? Explain at least four benefits.
5. List and explain five ways individuals can help reduce e-waste generation.

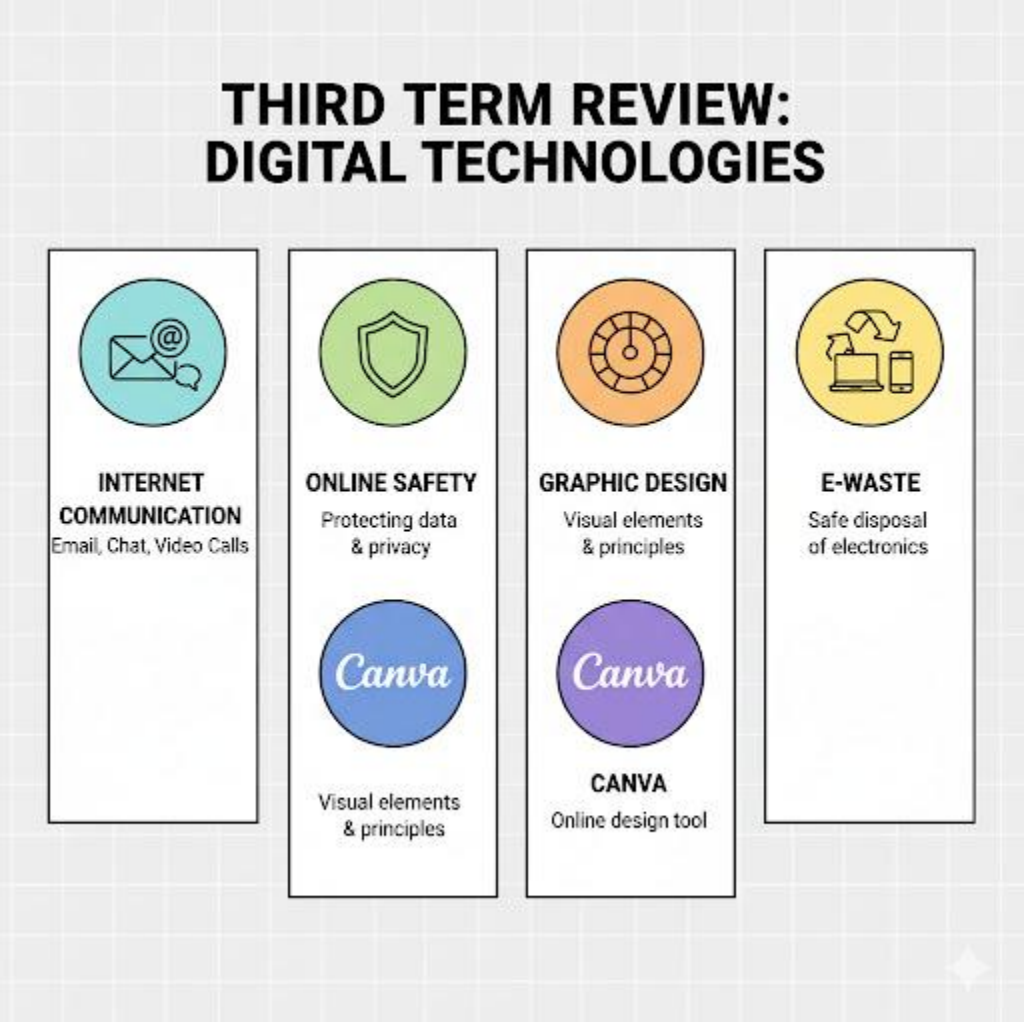
ASSIGNMENT

1. Conduct an e-waste audit of your home. List all unused or broken electronic devices you find. Write a 150-word report suggesting proper disposal methods for each item.
2. Create an educational poster promoting proper e-waste disposal. Include: what e-waste is, why it matters, where to dispose it, and what happens during recycling. Use colors and illustrations.
3. Research an e-waste recycling center in Nigeria (or your country). Write a report (200 words) about: location, what they accept, their process, and how people can use their services.
4. Design a step-by-step guide (with illustrations) showing how to safely prepare a smartphone for disposal or donation. Include data security steps.
5. Write a proposal (250 words) for starting an e-waste collection program at your school. Include: objectives, collection methods, partnerships needed, and expected benefits.

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WEEK 11: REVISION

Comprehensive Review of Third Term Topics



Week 1: Internet Communication Practices

- **Key Points to Review:**
    - Definition and advantages of internet communication
    - Email structure and uses
    - Instant messaging features and platforms
    - Video conferencing tools and applications

- Netiquette principles and rules
- Proper online communication etiquette

Week 2: Spam and Online Threats

- **Key Points to Review:**
  - Definition and types of spam
  - Common online scams (phishing, lottery, romance, fake stores, tech support)
  - Warning signs of scams
  - Preventive measures and security practices
  - Two-factor authentication
  - Password security best practices

Week 3: Intellectual Property

- **Key Points to Review:**
  - Definition of intellectual property
  - Copyright: protection, duration, rights
  - Trademark: purpose and examples
  - Plagiarism: types and consequences
  - Creative Commons licenses
  - Respecting digital content ownership
  - Proper citation and attribution

Week 4: Safety and Security Features

- **Key Points to Review:**
    - Antivirus software and malware types
    - Screen lock methods
    - Firewall functions
    - Parental controls features
    - Device maintenance practices
    - Battery care and physical cleaning
    - Backup procedures

Week 6: Introduction to Graphic Design

- **Key Points to Review:**
    - Definition and importance of graphic design
    - Color psychology and meanings
    - Types of shapes and their uses
    - Typography categories (serif, sans-serif, script, display)
    - Design principles (hierarchy, balance, spacing)
    - Where graphic design is used

Week 8: Introduction to Canva

- **Key Points to Review:**
    - What Canva is and its features
    - Interface components (canvas, elements panel, toolbar)
    - Creating designs from templates

- Basic editing functions (resize, rotate, color change)
- Customization process
- Adding text and images
- Sharing and exporting options

Week 9: Digital Media

- **Key Points to Review:**
  - Definition of digital media
  - Five types (text, images, audio, video, interactive)
  - Ethical principles for digital media use
  - Digital footprint and its importance
  - Sharing and collaboration tools
  - Cloud storage services
  - Responsible online behavior

Week 10: Computer Waste Management

- **Key Points to Review:**
  - Definition of e-waste and examples
  - Environmental and health impacts
  - Toxic materials in electronics
  - Safe disposal methods (return, donate, recycle)
  - Certified recyclers and collection centers
  - Benefits of recycling

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- Individual actions to reduce e-waste
- Data security before disposal