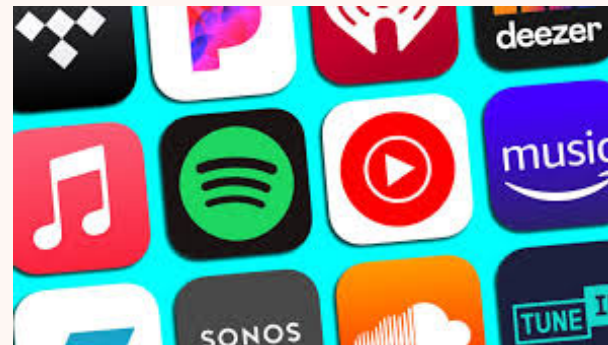


# AP Computer Science Principles

Unit 1 – Introduction to Computer Systems and Components

# Computers are used in every part of our lives!





# Unit 1 Learning Targets

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- I understand the setup of a basic computer workstation - CPU, Motherboard, Hard Drives, RAM, GPU
- I can identify input/output ports - keyboards, monitors, printers, touch screens, mice, USB, Lightning, HDMI & emerging technologies; microcontrollers, and sensors (GPS, temperature, accelerometer)
- I can describe current & emerging software - operating systems, application s/w & applications for s/w development
- I know the main elements needed to design a PC



# Computer Systems - Components

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**Central Processing Unit (CPU) – “Control Center”** - Research and understand the importance of CPU performance for different tasks, such as programming, running simulations, or multimedia editing. Determine the suitable CPU models for various departments.



**Motherboard – “Communication Hub”** - Learn about motherboard compatibility with different CPUs, RAM types, and other components. Ensure that the chosen motherboards support the necessary features for future upgrades and expansions.



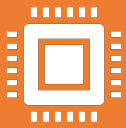
**Hard Disk Drives (HDD) & Solid-State Devices (SSD) – “Storage”** - Analyze the storage needs of each department. Compare the benefits of SSDs (speed, reliability) versus HDDs (capacity, cost-effectiveness) and decide on the best storage solutions.



**RAM (Random Access Memory) – “Short Term Memory”** - Assess the memory requirements for running multiple applications and handling large datasets. Choose appropriate RAM configurations to optimize performance.

# Computer Systems – Components (cont.)

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**GPU (Graphics Processing Unit) – “High Speed Calculations”** - Evaluate the need for powerful GPUs, especially for departments involved in graphic design, video editing, and software development. Select GPUs that provide the best performance for the tasks at hand.



**Input/Output Peripherals – “External Devices”** - Identify essential peripherals, such as monitors, keyboards, mice, and printers. Ensure these peripherals meet ergonomic and functional needs.



**Software/Operating Systems – “Instructions”** - Investigate different operating systems (e.g., Windows, macOS, Linux) and software applications required for each department. Consider factors such as compatibility, security, user-friendliness, and cost.



## Background

You have been hired as an IT Support Specialist for *Omega Tech*, a fast-growing tech company. To ensure smooth operations and support the technical infrastructure, you must become proficient in various computer components, including the **CPU, motherboard, hard drives (HDD & SSD), RAM, GPU, input/output peripherals, and software/operating systems.**



## Objective

As part of your job, you are tasked with overseeing the setup and maintenance of the company's computer systems. Each department has unique requirements, and **understanding each computer component's function and compatibility is crucial for making informed decisions**, when designing PCs for the company.

# AI-POWERED QUICK START

**Objective:** Gain a foundational understanding of the assigned PC component's function and basic design principles.

**Tools:** AI Chatbots (e.g., Gemini, ChatGPT)



# Visual Learning with Videos

**Objective:** Develop a visual understanding of the component, see it in action, and grasp its practical application and installation.

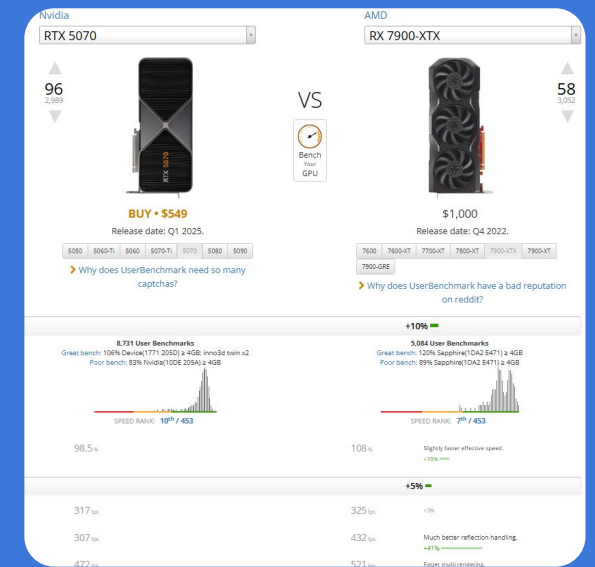
**Tools:** YouTube or other video platforms



# DEEP DIVE

**Objective:** Explore the variety of components available, understand specifications, performance metrics, and make informed purchasing decisions based on user needs and budget.

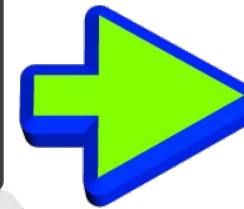
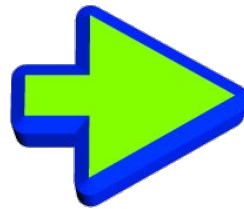
**Tools:** Reputable Tech Websites, Online Retailers, Forums/Communities, User Reviews



# Deliverable

# Visual artifact

Create a **simple visual artifact** (**no words on it; labels ok**), that can be displayed while presenting your computer component to audiences. You will have **4 minutes** to present *as much details as possible about your component*. You should also cover *details needed when users want to purchase the component for a PC Design*.





# Rapid Research - Component Assignments – 1<sup>st</sup> Period

**Assignment  
details in  
Google  
Classroom**

Name	Component
Brown, Sophia	CPU
Guo, Angela	CPU
Le, Landon	CPU
Richards, Lauren	CPU
Fatema, Amrin	GPU
Kelly, Abigail	GPU
Nyaberi, Brayden	GPU
Vo, Jacob	GPU
Degny, Briella	HDD/SSD
Ip, Marcy	HDD/SSD
Liu, Yiyang	HDD/SSD
Tao, Aidan	HDD/SSD
Flores, Jeremy	I/O Peripherals
Kheav, Sovannarith	I/O Peripherals
Omozegie, Christopher	I/O Peripherals
Zhang, Eric	I/O Peripherals
Darkshly, Rahma	Motherboard
Hwang, Jayden	Motherboard
Leonard, William	Motherboard
Sanders, Amy	Motherboard
Endrabi, Anya	RAM
Jung, Daniel	RAM
Mattox, Mia	RAM
Torres-Ortiz, Susana	RAM
Fowlkes, Aaliyah	Software/OS
Kim, Yebin	Software/OS
Park, Gyumin	Software/OS

# Rapid Research - Component Assignments – 7<sup>th</sup> Period

**Assignment  
details in  
Google  
Classroom**

Name	Component
Chen, Wei	CPU
Ma, Isaac	CPU
Nguyen, Benjamin	CPU
Tchuenche, Talia	CPU
Kim, Edward	GPU
Mondal, Sagnik	GPU
Scott, Cooper	GPU
Yang, Evan	GPU
Jean-Louis, Kristen	HDD/SSD
McDonnough, Joshua	HDD/SSD
Park, Hyeri	HDD/SSD
Wang, Lucas	HDD/SSD
Kim, Yejin	I/O Peripherals
Nazimi, Mohammad	I/O Peripherals
Shrivastava, Sahaj	I/O Peripherals
Cooke, Joshua	Motherboard
Mai, Michael	Motherboard
Park, Haena	Motherboard
Tran, Khue	Motherboard
Kim, Benjamin	RAM
Merchant, Aayan	RAM
Rodriguez, Sophia	RAM
Wei, Jacklyn	RAM
Lee, Johnleo	Software/OS
Ngo, Nicholas	Software/OS
Tanupo, Lady Alexia Gabrie	Software/OS

# Check Your Knowledge

Central Processing Units

Motherboard

HDD/SSD

Random Access Memory

Graphics Processing Unit

I/O Peripherals

Softwares/Operating Systems

