Introduction to Computer Components

Standard: ISTE Standard 4: Innovative Designer (4b)
A. GRADE LEVEL: 6th–7th
B. SUBJECT: STEM/Computer Science
C. DATE:
D. DURATION: 2 days (45–60 minutes per day)
E. LESSON FOCUS: Understanding the parts of a computer and their functions.
F. MATERIALS:

- Desktop or laptop computer (open case if possible)
- Diagram of computer components (motherboard, CPU, RAM, storage, etc.)
- Labels or cards for matching activity
- Internet-enabled device for research (optional)
- Worksheet for recording observations

G. LESSON OBJECTIVES: By the end of the lesson, students will be able to:

1. Identify major computer components, including the CPU, RAM, storage, motherboard, and peripherals.
2. Explain the function of each component in a computer system.
3. Apply their understanding to match components with their corresponding functions.

H. PROCEDURES:

1. **INTRODUCTION (15 minutes):**
    - Begin with a discussion: *What makes a computer work?*
    - Show a real or virtual image of a computer and its components.
    - Explain the importance of each part briefly (e.g., CPU as the "brain," RAM for short-term memory).
    - Use an analogy to make it relatable, such as comparing a computer to a human body (e.g., CPU = brain, RAM = short-term memory).
2. **EXPLORATION/DISCUSSION (Day 1):**
    - Introduce the main components: CPU, RAM, storage (SSD/HDD), motherboard, power supply, and input/output devices (keyboard, mouse, monitor).
    - Show each part physically or using diagrams/videos.
    - Use matching cards where students match the component with its function.
3. **HANDS-ON ACTIVITY (Day 2):**
    - If possible, allow students to explore the inside of a computer case (supervised).
    - Distribute worksheets to record their observations: What does each part look like? What does it do?
    - For virtual settings, use an interactive simulation or online video to show computer components in detail.
4. **OBSERVATION:**
    - Encourage students to share insights from their worksheet.
    - Discuss any challenges they faced in identifying or understanding components.
5. **GENERALIZATION:**
    - Summarize how the components work together to make the computer function.
    - Emphasize real-world applications (e.g., how understanding components is important for troubleshooting or building computers).
6. **ASSESSMENT:**

- Conduct a short quiz where students identify components and explain their functions.
- Students can also create a labeled diagram of a computer and write a brief explanation of each part.

Note 1:

Safety Precautions: For hands-on exploration, ensure that all computers are unplugged and powered off before opening cases. Supervise closely to prevent damage to components or injury.

Note 2:

Accommodations:

- For ELL students: Provide visual aids and translated labels if necessary.
- For ESE students: Allow extra time for matching activities and hands-on exploration. Pair them with a peer for support.
- For advanced students: Offer a research task on the latest innovations in computer hardware, such as quantum computing or GPUs.