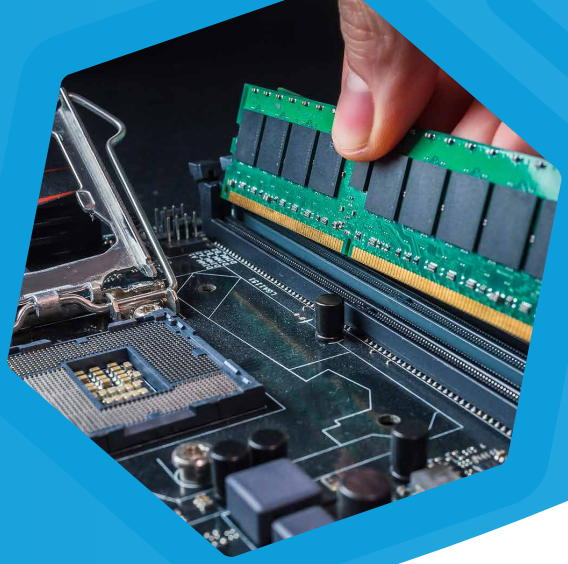

IT Fundamentals

Unit - Hardware

Lesson 2.5.1 - Storage Devices

IT Fundamentals Objectives (FC0-U61)

Objective 2.5 - Compare and contrast storage types

- Volatile vs. Non-volatile
- Local storage types
  - RAM
  - HDD
  - SSD
  - Optical
  - Flash drive

Grade Level(s)

8, 9

Cyber Connections

- **Hardware & Software**

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Teacher Notes:

Storage Devices

Unpredictability

When building or buying a computer, one thing to consider (among many) is storage. Storage can refer to a variety of parts, whether it's RAM, HDDs, or SSDs. Each type of storage has a different purpose. RAM is a form of ***volatile memory***, meaning it only retains data for as long as there is power. Reading and writing data to and from RAM is many times faster than even the fastest disk storage. Disk storage, whether it be on an HDD or an SSD, is ***non-volatile***, meaning it will retain data even if power is lost. We also refer to storing data on disk as ***persistent storage*** (similar to non-volatile), whereas data in a memory cache is referred to as ***nonpersistent storage*** (similar to volatile).

Storage Types

As mentioned in the previous paragraph, there are many types of storage: RAM, HDD, SSD, Optical, and Flash drives. ***Random access memory*** (RAM) is a computer's short-term memory. Without RAM, programs, files, or streams, etc. couldn't work. ***Hard disk drives*** (HDD) and ***solid-state drives*** (SSD) are our two most common forms of internal (non-volatile) storage. HDDs use mechanical platters and a moving read/write head to access data. SSDs store data on instantly-accessible memory chips. ***Optical storage*** is any storage type in which data is written and read with a laser. CDs, DVDs, and Blu-ray are different formats for optical storage. It's becoming less common today to see optical drives on computers, especially laptops. A ***flash drive*** is a data storage device that includes flash memory, typically integrated with a USB interface. Flash memory is another type of solid-state memory.