

## Chapter 1 - Introduction to Information Technology

### 1.1 - Computers Are Everywhere

Grading:

Notes: \_\_\_\_\_/20

Lesson Review: \_\_\_\_\_/20

Embedded computers: \_\_\_\_\_/20

Emerging tech: \_\_\_\_\_/20

Digital Citizenship: \_\_\_\_\_/20

Total points: \_\_\_\_\_/100

#### Essential Question

- How has the digital revolution changed communication?

#### Competencies

- 6670.34 Investigate the history and emerging advances of information technology.
- 6670.35 Describe the impact of information technology on business and society.

After completing this section, you will be able to:

- List the phases of the digital revolution.
- Describe embedded computers.
- Identify communication technologies.
- Discuss emerging technologies.

#### Terms

- augmented printing
- augmented reality (AR)
- bandwidth
- cloud computing
- computer
- digital revolution
- e-mail
- embedded computers
- emerging technologies
- information technology (IT)
- quick response (QR) codes
- interactive books
- smartphone
- software as a service (SaaS)
- software-defined storage

## Digital Revolution

- **Information technology (IT)** \_\_\_\_\_ all work done with computers
- **Digital revolution** is the ever-expanding progression of technical, economic, and cultural brought about by computers
- **Computer** is a device that \_\_\_\_\_ input, processes data, stores data, and produces usable output according to sets of stored instructions
- Giant Computers
  - Phase occurred from the \_\_\_\_\_s through the \_\_\_\_\_s
  - Characterized by room-sized computers
  - Connect via “dumb” terminals

## Personal Computers

- Phase occurred from \_\_\_\_\_s through \_\_\_\_\_s
- Complete desktop-sized computers
- Communication via telephone lines

## Networked Computers

- Phase occurred from mid-\_\_\_\_\_s to early \_\_\_\_\_s
- **E-mail** is communication sent to a computer address where the message is stored to be read at a later time by the recipient
- Internet
  - Began in 1960s as a US Department of Defense project called
  - Last restrictions for commercial use lifted in 1995



## Networked Computers

- \_\_\_\_\_ Wide Web
  - Launched in 1991
  - Part of the Internet
- \_\_\_\_\_ Computing
  - Cell phones, tablets, e-readers, GPS devices
  - Capable of using Wi-Fi to minimize cost of transmissions

## \_\_\_\_\_ Computing

- Involves storing and retrieving data from Internet-based spaces
- Began in early 2000s
- Similar to giant computer with personal computing devices like terminals

## Embedded Computers

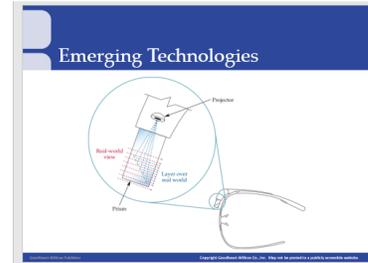
- \_\_\_\_\_ **computers** are small digital computers found inside other devices
- Not readily visible



- Location
  - Easily incorporated into many devices
  - Any programmable devices likely contain an embedded computer
- Continuous Operation
  - Expected to run continuously for \_\_\_\_\_ without error
  - Some must be kept running for safety reasons; others for lack of access

#### Communication Technologies

- A \_\_\_\_\_ is a handheld computer that contains a telephone, software applications, and the ability to quickly connect to the Internet
- Speed
  - \_\_\_\_\_ is a measure of the amount of data that can travel on a network
  - High bandwidth called broadband communications
- Reach
  - All that is required is an \_\_\_\_\_ connection
  - Global communication
- Advantages
  - Global \_\_\_\_\_ via social media, global discussions
  - Economic growth via wider access to money
- Disadvantages
  - Epidemic of crime and attacks on computers
  - Privacy and \_\_\_\_\_ at risk via ease of access



#### Emerging Technologies

- **Emerging technologies** are innovations that represent significantly new fields or technologies
- Visual Displays
  - Google Glass; smartphone apps
  - **Augmented reality (AR)** is a view of the live world that has been with computerized graphics, sound, or other outputs
- Visual Displays
  - **Augmented printing** is a form of AR in which the user holds a mobile device over a \_\_\_\_\_ page, and instantly associated videos or other content appears on the screen
  - Printed page is connected to the virtual world
- Medical Technology
  - Diagnoses can be done remotely
  - Three-dimensional \_\_\_\_\_ for organ-transplant surgery
- \_\_\_\_\_ **Books**
  - Enhanced e-books that contain integrated multimedia features
  - Enhanced educational opportunities
- New and Emerging Classes of Software
  - **Software as a Service (SaaS)**

- Software that resides in the cloud and is accessed by users downloading or installing it on their local computers
    - Some of the software is free; others require a monthly subscription fee
  - **Software-Defined Storage**
    - Cloud-based \_\_\_\_\_ storage
    - Dropbox, Apple iCloud, Google Drive, Amazon Cloud
  - New and Emerging Classes of Software
    - \_\_\_\_\_ **response (QR) codes**
      - Two-dimensional bar codes
      - Contain information that can be read in two directions
      - Encoded with a web or e-mail address, but may contain numeric, alphanumeric, binary, and kanji data types
  - Software-Defined Networking
    - Local modification to network
    - Modifies OSI model
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## Chapter 1: Introduction to Information Technology

### Section 1.1 Review (page 17)

1. List the four Phases of the digital revolution:
  - a.
  - b.
  - c.
  - d.
2. Name three items that currently are enhanced due to embedded computer technology:
  - a.
  - b.
  - c.
3. Use of high bandwidth is also referred to as:

4. How does augmented printing connect the printed page to the virtual world?
  
5. List four new and emerging classes of software:
  - a.
  - b.
  - c.
  - d.
  
6. Which event is not a major phase of the digital revolution?
  - a. Giant computers
  - b. The Industrial Revolution
  - c. Cloud computing
  - d. Personal computers
  
7. The Internet began as:
  - a. The World Wide Web
  - b. NSFNET
  - c. ARPANET
  - d. WWW
  
8. Which communication technologies are NOT found in modern smartphones?
  - a. Telephones
  - b. Teletypes
  - c. Software applications
  - d. Nearly instantaneous connections to the Internet
  
9. In which period did cloud computing begin?
  - a. Late 1990s
  - b. Early 2000s
  - c. Late 1800s
  - d. 2030s
  
10. The Electronic Numerical Integrator and Computer (ENIAC) is an example of which phase of the digital revolutions?
  - a. Giant computers
  - b. Personal computers
  - c. Networked computers
  - d. Cloud computing

**Application and Extension:**

1. Research common locations of embedded computers. Make a list of devices you use each day that contains embedded computers. Minimum of 6
  - a.
  - b.
  - c.
  - d.
  - e.
  - f.
2. Identify three emerging technologies. List one positive and negative effect of each.

Technology	Positive	Negative

**Internet Research:**

Digital Citizenship. Research digital citizenship using various Internet resources. List and analyze specific elements of digital citizenship that users of technology should understand when using the Internet. What are the day-to-day effects of digital citizenship on society? Summarize your findings into a minimum of **two** paragraphs in a Google document. Share with your teacher when done.