

Chapter 1 – Introduction

Technology: At Your Service

Learning Objectives

- Explain a variety of ways in which technology is used in today's world.
- Define basic terms in computing and technology such as processing, input, output, storage, and networking.
- Identify the main categories of multi-user and personal computers.
- Identify a variety of mobile and wearable technology.
- Discuss the benefits of hands-free computing.
- Discuss safe and courteous mobile computing practices.
- Describe the various advances in mobile technology, such as real-time information and mobile payments.
- Describe the benefits of using mobile cloud services.

Teaching Tips, Strategies, and Additional Material

The focus of this chapter should be on the variety of computers and devices used by organizations and consumers. Challenge students on the way they are using mobile devices, especially when it comes to productivity (appointments, reminders, tasks, speech/hands-free, etc.). In addition to the chapter's content, "more online," and research exercises, consider the following topics, discussions, and activities:

- **Shopping.** As you introduce different computer and devices, go shopping with your students online. Newegg.com offers excellent photos and detailed specifications for everything they sell. Ask for a few volunteers who are in the market for a new device, such as a laptop, so that the class can offer suggestions based on the student's needs.
- **Internet of Things.** Spend some time discussing the "Internet of Things," whereby non-computer devices throughout a home or business will be permanently connected to the Internet. Anything from a smoke alarm to a clothes washer can now be online. This should be brought up during Home Automation.
- **Messaging.** Ask students which tools/methods they use most often to communicate with friends and relatives. Do they use traditional SMS/MMS or do they use a messaging app? Ask them to explain their answers. Discuss the benefit of using complete tools such as Skype or Google Hangouts, especially if you have unlimited data or are often near a Wi-Fi hotspot.

More Online – Discussion Ideas

“More Online” refers to the blue boxes located throughout the chapter. To find this chapter’s associated links and additional information, visit the textbook’s website at:

<http://techatyourservice.com/additional-content/chapter-1/>

Laptop Battery

The most important thing to stress to students here is to avoid having your laptop plugged into the power outlet every time you use it. The battery needs “exercise,” so to speak. This would also be a good time to discuss the possible purchase of an extra battery for your laptop or an external battery back for your mobile device(s) for heavy users.

Fastest Supercomputers

Before visiting the link, ask students which country has the fastest supercomputer and what it does on regular basis. After looking at the top500 list, visit a few of these computing centers for pictures and a possible discussion of how these computers are used.

Nest Thermostat

This is a great time to discuss the possibilities of home automation. Discover other appliances that can connect to the Internet such as security cameras, refrigerators, and even mattress covers. Research additional companies working on home automation (such as Belkin) and ask students whether they find this to be useful.

Switching Wireless Providers and SIM Cards

Compare various wireless companies (carriers) and their data/calling plans. Is it better to purchase your device separately? Should you go with one of the new plans that lets you “rent” the device and get a new one each year?

The Need for Physical Activity

You can introduce ergonomics or connect this with fitness devices or smartwatches that count your steps each day.

Travel Apps

Complete a live demonstration with a student who speaks a foreign language using the Google Translate mobile app. Be sure to use the feature that allows one person to speak in one language followed by the app playing back the same phrase in the listener’s language.

Chapter Review – Answers

Multiple Choice:

- 1) C
- 2) A
- 3) C
- 4) B
- 5) D
- 6) D
- 7) B
- 8) C
- 9) D
- 10) A

Fill in the Blank:

- 11) Mainframe
- 12) Data
- 13) Smartphone
- 14) Hands-free
- 15) Network
- 16) All-in-one
- 17) Blade
- 18) Location-based services
- 19) Cloud storage
- 20) Augmented reality

True/False:

- 21) False
- 22) True
- 23) True
- 24) False
- 25) True

Short Answer:

26) **Input** = whatever you put into a computer.

Processing = the ability of a computer to perform a variety of actions based on instructions from the user or a program.

Output = the processed results that a computer sends out to you.

Storage = the ability of a computer to hold or remember the information it processes.

27) A variety of medical **procedures**

Helping **researchers** discover new medications and treatments

Training students in the health sciences

Electronic **medical records**

28) **Security**. Remote monitoring of your home.

Temperature. Intelligent thermostats.

Lighting. Control lighting remotely and via sensors.

Appliances. Embedded systems in appliances, including automated vacuums

29) **Military**: Radar, rockets, drones, etc.

Security: Gather intelligence (NSA, CIA) and cyber security

Taxes: IRS calculates tax bills

Police: Search millions of records in police cruisers

30) **Protective case** can protect the device

Lock screen security can prevent someone from getting into the device

Remote wipe apps allow you to erase all of your information remotely in case the phone is stolen

Connect to the proper **wireless network** and be careful which websites you visit

- 31) Two of these: Apple iMessage, Google Voice, Google Hangouts, Skype, Facebook Messenger
- 32) Two of these: Google+, Facebook, Instagram, Snapchat
- 33) Two of these, along with a short description: Pandora, iHeartRadio, Songza, Spotify, Google Play Music, Amazon Cloud Drive, Apple iCloud
- 34) Two of the following apps: Accupedo, RunKeeper, Jefiit, HealthTap, Sleepbot, Lose It!
Two of the following devices: Fitbit Flex, Nike+ Fuelband, Scanadu Scout
- 35) Evernote, Google Docs (or Google Drive), Microsoft Office Online (or Microsoft OneDrive)

Research Exercises – Possible Responses and Discussions

1) **Cutting the cord.** Advantages: (1) save hundreds (maybe over a thousand) dollars per year. (2) Various streaming services have an excellent library of shows (multiple seasons) and movies that you can watch on multiple devices. Disadvantages: (1) Non-network sports games are unavailable. (2) Shows from some premium channels are not available for streaming.

Keep in mind that an HD antenna gives you access to all local channels and an old tower or laptop can be used as a DVR with Windows Media Center.

2) **Video surveillance.** Make sure the student's choice(s) offer Internet connectivity and a companion app or access from a browser. Dropcam, D-Link, and several others offer these products. Also look for an example of a professional installation, such as by a security/alarm company.

3) **Chromebook.** Advantages: (1) Very low cost. (2) Lightweight. (3) Great for those who are already in Google's ecosystem. (4) Compatible with some Android apps. Disadvantages: (1) Very low storage (relies on cloud). (2) Internet connectivity is required to get the most of these laptops. (3) Your Mac and/or Windows software cannot be installed.

4) **Medical devices.** Sensors are being placed inside various pill-like objects that will send data to a nearby patch (and smartphone) after the patient swallows it. Implantable chips are currently being used to treat certain diseases, such as Parkinson's.

5) **Automobile interfaces.** Many examples here, but Ford Sync and Cadillac Cue are two possible choices. Some cars systems, such as Audi Connect, offer a SIM card and Internet connectivity for your car.

6) **Google Glass.** The main privacy concern is other people's fear that you are secretly recording them.

7) **Drones.** The FAA is in charge of setting rules for drone in the U.S. While police could use drones to enter dangerous areas, investigate crashes, and so on, their use is opposed by various civil liberties organizations. Private companies, such as Amazon, are planning drone use for the speedy delivery of local packages.

8) **Wireless charging.** This technology, also known as inductive charging, allows users to charge devices without plugging in a wire. The device must be placed on top of a charging pad that will emit an

electromagnetic field. “Qi” is a popular wireless charging standard that is supported by numerous devices such as the latest from Samsung, LG, and Motorola. Wireless charging over longer distances, such as throughout your home, is possible and research is currently ongoing.