*technology in action*

Chapter 2

looking at computers:   
understanding the parts

# ChAPTER REVIEW

**Buzz Words/Word Bank**

|  |  |  |
| --- | --- | --- |
| CPU | LCD | QWERTY |
| CRT | microphone | RAM |
| Dvorak | monitor | ROM |
| ergonomics | mouse | speakers |
| inkjet printer | optical | system unit |
| laser printer | parallel | USB |

**Instructions:** Fill in the blanks using the words from the Word Bank above.

Austin had been getting a sore back and stiff arms when he sat at his desk, so he redesigned the **(1)** **ergonomics** of his computer setup. He placed the **(2)** **monitor** so that it was 25 inches from his eyes and bought an adjustable chair. He also decided to improve his equipment in other ways. His **(3) mouse** was old, so he replaced it with a(n) **(4)** **optical** mouse that didn’t need a mousepad. To plug in the mouse, he used a(n) **(5)** **USB** port on the back of his **(6) system unit**. He considered buying an alternative keyboard to replace the **(7)** **QWERTY** keyboard he got with his computer, but he didn’t know much about alternative keyboards like the **(8) Dvorak** keyboard so he decided to wait.

Because he often printed flyers for his band, Austin decided to buy a printer that could print text-based pages quickly. Although he decided to keep his **(9) inkjet** **printer** to print photos, he decided to buy a new **(10)** **laser printer** to print his flyers faster. While looking at printers, Austin also noticed **(11) LCD** monitors that would take up less space on his desk than the **(12) CRT** monitor he had. Unfortunately, he couldn’t afford to buy a new monitor. However, he decided he could afford new **(13) speakers**, because the ones that came with his computer didn’t have subwoofers. He also bought a professional **(14) microphone** a while back for use with his band. Finally, knowing his system could use more memory, Austin checked out prices for additional **(15)** **RAM**.

**Self-Test**

**Instructions:** Answer the multiple choice and true/false questions below for more practice with key terms and concepts from this chapter.

**MULTIPLE CHOICE**

1. Which devices below are considered input devices?
   1. Mouse and monitor
   2. Scanner and printer
   3. Monitor and scanner
   4. Keyboard and microphone

ANSWER: D

1. Which is a true statement?
   1. The function keys perform the same special tasks in all applications.
   2. The Windows key may be used alone or in combination with other keys as shortcuts.
   3. The Control key when used alone is a shortcut to bring up the Start menu.
   4. All of the above

ANSWER: B

1. Which is NOT an advantage of an LCD monitor?
   1. Has better color accuracy and clarity
   2. Causes less eyestrain
   3. Has a larger viewable area
   4. None of the above

ANSWER: A

1. Higher refresh rate of a monitor:
   1. controls the clarity of the image.
   2. improves color brightness.
   3. reduces eyestrain.
   4. Only a and b
   5. Only a and c

ANSWER: E

1. Restarting the system when it’s powered on is called:
   1. a cold boot.
   2. a warm boot.
   3. hibernation.
   4. standby.

ANSWER: B

1. The modem port and the Ethernet port are considered:
   1. connectivity ports.
   2. universal serial bus ports.
   3. FireWire ports.
   4. parallel ports.

ANSWER: A

1. Which of the following are the fastest ports?
   1. USB 2.0 and parallel ports
   2. USB 1.1 and Ethernet ports
   3. USB 2.0 and FireWire ports
   4. FireWire and parallel ports

ANSWER: C

1. Which of the following devices is considered the “brains” of the computer?
   1. Random access memory
   2. Motherboard
   3. Central processing unit
   4. Read-only memory

ANSWER: C

1. The type of device that plugs into a slot on a motherboard is a(n):
   1. accessory card.
   2. processing card.
   3. expansion card.
   4. extension card.

ANSWER: C

1. Which of the following is important to consider when working at your computer?
   1. Ensure the lighting is adequate
   2. Position the monitor about two feet from your face
   3. Adjust the chair for proper support
   4. All of the above
   5. None of the above

ANSWER: D

**TRUE/FALSE**

**False** 1. The optical mouse is basically like a rollerball mouse, but the rollerball is on the side or top of the mouse.

**False** 2. RAM is permanent storage that is located on the motherboard.

**True** 3. Some flash devices can hold as much information as a CD-ROM.

**True** 4. Traditional serial ports are becoming legacy technology.

**False** 5. Inkjet printers are faster and quieter than laser printers.

**Critical Thinking Questions**

**1. Keyboard of the Future**

What do you think the keyboard of the future will look like? What capabilities will it have that keyboards currently don’t have? Will it have ports? Cables? Special communications abilities?

*Students with limited experience will not have a lot of foundation with respect to this topic, but it is a safe bet that most will respond that keyboards will either be wireless (no ports/cables) or nonexistent, replaced by speech-recognition devices.*

**2. Mouse of the Future**

What do you think the mouse (or other pointing device) of the future will look like? What sorts of improvements on the traditional mouse can you imagine? Do you think there will ever be a day when we won’t need mice and keyboards to use our computers?

*Students with limited experience will not have a lot of foundation with respect to this topic, but it is a safe bet that most will respond that mice will either be wireless or nonexistent, replaced by speech-recognition devices.*

**3. Storage Devices of the Future**

How do you think storage devices will change in the future? Will increased storage capacity and decreased size affect the ways in which we use computers?

*As computer circuitry becomes less real-estate intensive, computers will become more portable, perhaps hand held. Some students may be aware that it is very likely that storage of data and programs may not even be local to their own computers but accessed remotely. This is already true in many environments.*

**4. Computers Decreasing Productivity?**

Can you think of any situations in which computers actually decrease productivity? Why? Should we always expect computers to increase our productivity? What do you think the impact of using computers would be:

1. in a third-grade classroom?
2. in a manager’s office for a large chain supermarket?
3. for a retired couple who purchase their first PC?

Every student (and instructor no doubt!) will have a horror story to tell about how computers decreased their productivity at some point. Time spent implementing software, fixing failures, coping with the fallout from viruses, and unwanted adware are all challenges we face every day, costing us time, patience, and energy. At some point, most people will be tempted to take a sledgehammer to their computer. Additionally, gaming software, blogging, instant messaging, and e-mail can all be seen as features that may lower productivity. With all these features (and more) so close at hand, it is easy for individuals to become sidetracked!

**5. “Smart” Homes**

The Smart Medical Home project of the University of Rochester’s Center for Future Health is researching how to use technology to monitor many aspects of your health. The Smart Medical Home is the creation of a cross-disciplinary group of scientists and engineers from the college, the Medical Center, and the university’s Center for Future Health. This particular “smart home” includes a sophisticated computer system that helps keep track of items such as eyeglasses or keys, and the kitchen is equipped with a new kind of packaging to signal the presence of dangerous bacteria in food. Spaces between ordinary walls are stuffed with gadgetry, including banks of powerful computers.

1. What abilities should a smart home have to safeguard and improve the quality of your life?
2. Could there be potential hazards of a smart home?

There will be many pros and cons stated here! The hazard of a smart home would be a computer failure—if you have ever experienced the inability to open your garage door remotely on a cold, rainy night, that will explain it! But if every aspect of your home is computer-dependent, this could be a real disaster if there is no backup plan.

**6. Toy or Computer?**

When do you think a toy becomes a computer? The Microsoft Xbox 360 has a hard disk drive, a processor with three cores, internal RAM, and wireless capability. Apple iPods also have hard disk drives (or flash memory and a processor). Are these devices computers or toys? What capabilities do you think the next generation Xbox and iPods should have?

*If we take the book’s definition literally, the Xbox 360 and Apple iPods are both, in fact computers, containing the four main components of input, processor, storage, and output. Increased ability to communicate wirelessly between devices, or between the device and the user’s home computer, may be one idea that is offered.*

**Team Time**

**PCs vs. Apples: Which Is Best?**

*This exercise gives students the opportunity to explore computer systems they may not be familiar with and to learn that different situations may require different responses. The following rubric may be useful for grading purposes.*

| **Rubric** | **Beginning**  **1 point** | **Developing**  **2 points** | | **Proficient**  **3 points** | | **Exemplary**  **4 points** | **Score** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Individual Effort** | There was very little effort or understanding of the topic shown. | There was evidence of effort but it lacked in preparation and understanding. | | Clear learning on the topic has occurred. | | A sound understanding of the topic was exhibited with enthusiasm and creativity. |  |
| **Team Effort** | Team members did not function as a group when given the opportunity. There was only individual work with no evidence of collaboration. | Team members had some major problems working as a group. There was little collaboration and teamwork evident. | | The team members mostly worked well together, with few problems. There could have been improvement in the level of teamwork that was utilized. | | The team worked as a cohesive unit. There was mature collaboration, compromise, and discussion evident at all times. |  |
| **Final Product** | The final presentation had major factual, grammatical, spelling, and formatting errors. It seemed rushed and incomplete. | The final presentation had factual, grammatical, spelling, or formatting errors but was complete. | | The final presentation was a carefully developed product with few factual, grammatical, spelling, or formatting errors. | | The presentation was developed with care and creativity making it interesting, polished, and error-free. |  |
| **Instructor Feedback** | Little or no attempt was made to receive or incorporate feedback from the instructor. | Feedback was received, but none of the suggestions were incorporated into the presentation. | | Feedback was received and some suggestions were incorporated into the presentation. | | Feedback was received and the suggestions were incorporated into the presentation. |  |
| **Evaluation** | 0 points  No assessments were completed and handed in to the instructor. | | 1 point  One assessment was completed and handed in to the instructor. | | 2 points  All assessments were completed and handed in to the instructor. | |  |

**Multimedia**

In addition to the review materials presented here, you’ll find additional materials featured with the book’s multimedia, including the *Technology in Action* Student Resource CD and the Companion Web site ([www.prenhall.com/techinaction](http://www.prenhall.com/techinaction)), which will help reinforce student understanding of the chapter content. These materials include the following:

**ACTIVE HELPDESK**

These exercises are designed to provide the student with an interactive experience that will help them to extend their knowledge of topics in this chapter. The student plays the “role” of a Helpdesk analyst and provides answers to *commonly* asked questions in a rich, simulated online experience. Helpdesk calls can be found on the Train and Assess IT Web site, through your online course, or on the Student CD. After successfully completing the Helpdesk call, students will be able to access the Helpdesk Cheat Sheet, which summarizes the key points in each call.

The Helpdesk calls related to this chapter are:

* Using Input Devices
* Using Output Devices

***Using Input Devices******Helpdesk Cheat Sheet***

***A. Mice***

*Mice are devices you use to input data into a computer. There are many types of mice:*

1. ***Standard Rollerball Mouse:*** *Contains a rollerball. To clean a rollerball mouse, turn the mouse over and remove the rollerball by turning the surrounding disk. Gently brush out the inside area and clean the rollers and the rollerball using a cotton swab dampened in rubbing alcohol.*
2. ***Wireless Mouse:*** *Uses batteries and sends data to the computer via radio or light waves.*
3. ***Optical Mouse:*** *Uses an internal laser to control the mouse’s movement*
4. ***Trackball Mouse****: Is basically a traditional mouse that has been turned on its back.*
5. ***Laptop Mice:*** *On laptops, the mouse is built into the keyboard through a touchpad or trackpoint.*

***B. Keyboards***

1. ***Standard keyboards*** *use the QWERTY keyboard layout, which gets its name from the first six letters on the top-left row of keys.*
2. ***The Dvorak keyboard*** *is the leading alternative keyboard, which puts the most commonly used letters in English on the keys in the middle row of the keyboard.*
3. ***Ergonomic keyboards*** *curve and contain built-in wrist rests to minimize strain on wrists.*
4. *There are two types of* ***wireless keyboards:*** *those that use infrared light waves and those that use radio frequency (RF) technology. RF keyboards are considered superior because they don’t require that you point the keyboard at the receiver for it to work.*
5. *Some newer* ***PDAs*** *feature miniature keyboards integrated into the front of the PDA. Small folding keyboards can also be attached to some PDAs.*

***C. Special Keyboard Keys***

1. ***Function keys*** *act as shortcut keys you press to perform special tasks.*
2. ***The Control key*** *and the* ***Alt key*** *are used in with other keys to perform tasks.*
3. ***The Windows key*** *is specific to the Windows operating system.*
4. ***Multimedia and Internet keys****/buttons enable you to open a Web browser, view e-mail, access Help features, or control your CD/DVD player.*
5. ***The cursor control keys*** *move your cursor.*
6. *Some keys move the cursor up or down one full page or to the beginning (****Home****) or end (****End****) of a line. The* ***Delete (Del)*** *key allows you to delete characters, whereas the Insert key allows you to insert or overwrite characters within a document.*

***Using Output Devices******Helpdesk Cheat Sheet***

***A. Types of Monitors***

1. ***Cathode Ray Tube*** *(****CRT):*** *Resemble a traditional TV and take up quite a bit of space. The CRT screen is a grid made up of millions of pixels, which when illuminated create images on the monitor.*

*•* ***CRT Monitor Quality:*** *Factors affecting the quality of a CRT monitor include its refresh rate, resolution, and dot pitch.*

1. ***Liquid Crystal Display (LCD):*** *Are flat and therefore take up less space. LCD monitors are made of two sheets of material filled with a liquid crystal solution. A fluorescent panel at the back of the monitor generates light waves. When electric current passes through the solution, the crystals move around, blocking the light waves or letting them shine through, creating images on the screen.*
2. ***CRT vs. LCD:*** *CRT monitors offer images that are viewable from all angles, more adjustable resolution, better color accuracy, and they are less expensive. LCD monitors are smaller and weigh less, cause less eyestrain, are more environmentally friendly, and offer a larger viewable area.*

***B. Types of Printers***

1. ***Inkjet:*** *Work by spraying tiny drops of ink onto paper. They offer quiet, fast, and high-quality printouts and are affordable. They can also print images that look like professional-quality photos.*
2. ***Laser:*** *Work by using static electricity to signal to the printer where to print ink. They offer faster printout times and higher quality printouts than inkjet printers, although they are more expensive to purchase.*
3. ***Choosing the Best Printer:*** *When choosing a printer keep in mind its printing speed (ppm), its resolution (ppi), its color output capabilities, and its memory needs.*