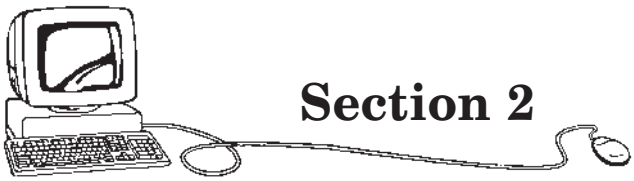
Lesson 6

Review and Quiz 1

Use this checklist to prepare for Quiz 1.

- ☐ Study the *Terms to Know* for this section.
- ☐ Review the *Looking Back* sections.
- ☐ Review Lesson 5.

◯ **Tell your teacher when you are ready for Quiz 1.**



Section 2

A Computer of Your Own

Computers have come a long way; they are now readily affordable for small business and home use. A very capable computer can be bought for considerably less than a thousand dollars. In 1992 a similar computer cost $3,000, and in 1989 it cost $5,000. Before then, it wasn't even available! True, even at today's prices, it is an investment not to be entered into lightly. And there is always that thought that next month the prices will be lower. Perhaps the purchase should be postponed. Unless there is a particular feature you want that is currently unavailable, remember that putting off the purchase also postpones the increased productivity a computer could provide.

Buying a computer can be frustrating and confusing. There are many options, and those options may be unfamiliar. The purpose of this section is to take some of the mystery out of buying an IBM compatible personal computer (PC). The information is somewhat transferable to the process of buying an Apple computer. These few pages cannot be a comprehensive guide or speak to every situation, but at least they will give you some help. If you have mastered the material thus far in this course, you are well on your way to making an informed, wise choice in the computer marketplace.

There are many vendors vying for your money; this requires you to do your homework. You will need to define your needs, become knowledgeable about hardware and software, and shop around.

Section 2 Objectives

After you complete this section, you will be able to –

- list three methods for getting specific information about software.
- describe nine hardware considerations that are important in purchasing a computer system.
- tell why each of the nine considerations are important to a computer user.
- list four general locations for purchasing a computer system.
- describe four factors that will influence where you buy a computer system.

Lesson 7

Software Needs

Term to Know

system requirements. Hardware and/or software capabilities required for running other software successfully.

When you buy a computer you will want it to last for quite a while. You will outgrow it less rapidly if you consider your computer needs now and what they might be in several years. Careful thought, research, and planning will help you to ask more intelligent questions when you speak to a computer salesperson.

Software needs determine hardware needs since different software has different hardware requirements. Hardware requirements are usually called **system requirements** and can be found in advertisements or on the software box itself. Note that system requirements may also include certain software as well, such as a particular operating system.

So software is the place to start when you are thinking about buying a computer. Begin by thinking in broad terms. What do I want my computer to do? Word processing? Spreadsheets? Databases? Accounting? Taxes? Money management? Desktop publishing? Presentations? Educational programs? Depending on whether you are buying the computer for home or business use, your answers may differ. Perhaps your main interest at the present time is for word processing to write your research papers. But you should also keep in mind your plans for courses in business math and accounting next year. Would a computer be helpful in those classes? How? The family business should be considered too. Will the financial records be kept on computer eventually? Think ahead. Buying additional software later to handle growing needs is relatively inexpensive; upgrading your hardware so it will run the new software might not be. So plan ahead for future software needs before deciding what hardware to purchase now.

Once you have determined the broad category or categories of software you want to buy (database, tax preparation, etc.), you need to narrow it down to a specific piece of software in each category. The possibilities

are many, so how can a person make an informed choice between multiple pieces of software without buying them all and trying them out? Here are some suggestions.

Computer store. Visit a computer store. Ask about advantages of one piece of software over another of the same type. If the store sells both of them, the salesman's opinion could be quite valuable.

Computer magazines. Buy a few issues of a computer magazine or *Consumer Reports*.

1) Manufacturers' ads about specific software are helpful and educational.
2) Computer magazines print reviews of specific packages of a particular type of software such as desktop publishing and give pros and cons for each software package evaluated.

Computer user. Ask a person who is using or has used a particular piece of software. Keep in mind that once a person uses certain software, he often quickly becomes biased to that software. He knows how to use it. Its commands are familiar. So when he looks at a different brand of the same type of software that does the same things, it will not be as appealing to him as the old software is. Ask these questions:

1) Why did you choose this software?
2) What do you like about it?
3) What do you dislike about it?
4) If you were purchasing this type of software again, would you buy this particular package?
5) Could you show me how it works?
6) What hardware does it require?
7) Where did you buy it?
8) How would you rate the technical support for this product?

Throughout this process, you'll also discover that the same software can vary greatly in price depending on where you buy it. So it will pay to shop around.

In summary, decide what type(s) of software you want—now and in the future. Research specific software products of those types to determine which software packages will best meet your needs. Shop around. Then you will be ready to determine hardware needs.

Write *true* **or** *false*.

1. _____ Computers keep decreasing in price.
2. _____ Postponing a purchase until it has a lower price is always the best option.
3. _____ Home and business computer needs are the same.
4. _____ Determine software needs before hardware needs.
5. _____ Computer magazines are too expensive and too quickly outdated to be helpful in deciding which software to buy.
6. _____ People usually prefer software they are familiar with as opposed to something they have not used that might be just as good.
7. _____ Someone who has used a particular piece of software can be an excellent source of information about it.

Number in order.

8. ____ Think of hardware needs.
____ Decide type(s) of software you need.
____ Shop for software.
____ Research specific software packages.

List three general sources for finding information about buying software.

9. _____

_____

LOOKING BACK . . .

Follow the directions.

10. Tell three ways computers can be hazardous to one's health.

_____

_____

11. Explain how a virus is spread and what its effects are. _____

_____

_____

12. List three questions a Christian should consider when purchasing software. _____

_____

_____

13. List five ways the security of computer data can be threatened. _____

_____

_____

Lesson 8

Hardware Needs

Terms to Know

CRT. Cathode Ray Tube; monitor that is large and uses a lot of electricity but is best for viewing graphics.

dot pitch. A measure of how closely pixels are packed next to one another.

LCD. Liquid Crystal Display; monitor that takes up little space and uses minimal electricity; best for viewing text.

pixel. Tiny dot that can glow with a variety of colors and intensities; many of these make up the display on a monitor.

refresh rate. Number of times per second the image on a monitor is redrawn.

response rate. Number of milliseconds between each time the image on the monitor is redrawn.

resolution. Number of pixels horizontally and vertically, such as 1280 by 1024.

Technology changes. As new technology, whether hardware or software, becomes commonplace, older technology becomes unavailable. As an example, the Windows 2000 operating system is no longer sold new. But suppose you are buying a used computer from a friend, or maybe it's a computer you saw advertised in the newspaper. You need to be able to make informed decisions about older technology that would not even be a consideration if you are buying new.

Unless you make your own computer by buying the components and putting them together, your computer will come to you with an operating system already loaded onto it. There will be an assortment of software programs as well, all of which will work with the existing hardware; but for any more software you want to add, be sure the hardware can handle it. Look at the following hardware considerations as you ponder buying a computer.

Processor speed. The speed of a computer is largely indicated by its microprocessor designation. Ask about the various brands and names of processors available and how they compare with one another in regards to speed. Also note the speed stated in terms of megahertz. A given processor model can operate at different speeds. The higher the number, the faster the microprocessor. The greater the speed, the more quickly the computer will respond to your requests. For tasks such as word processing and moderately sized spreadsheets, speed is not especially important, but it becomes more necessary when dealing with graphics, massive databases, complex software, and extensive Internet use.

Monitor. Monitors come in two basic types: **CRT** (Cathode Ray Tube) and **LCD** (Liquid Crystal Display). There are tradeoffs with either type, and within a given type there is a variation in quality. CRTs are larger, heavier, and require more electricity, but are better for viewing graphics. The LCD is great for viewing text but is more difficult to view at angles other than straight ahead. Familiarize yourself with a few terms so you can make an informed decision when choosing a monitor.

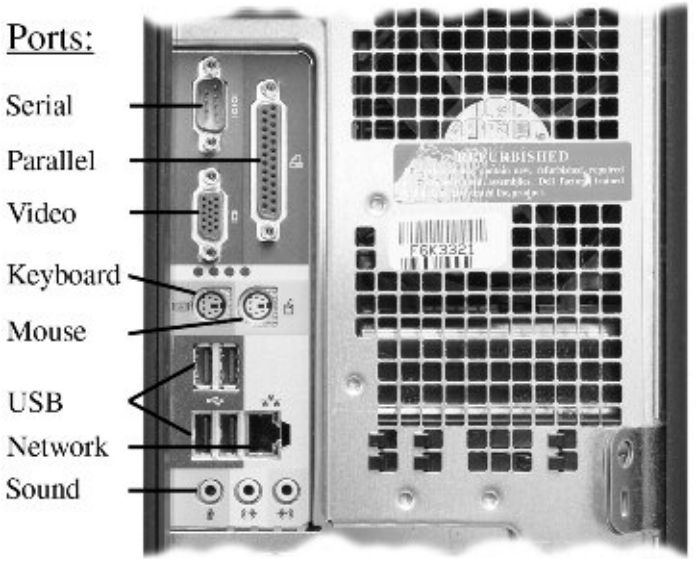
The display on a computer screen is actually made of many tiny dots called **pixels**. A monitor having 1024 by 768 pixels will appear fuzzier than one with 1280 by 1024 pixels. See how a high **resolution** monitor would be easier to read?

The display on a monitor appears to be a constant picture, whether it is numbers, graphs, photos, or letters. But that is only an illusion. The display is actually being redrawn or refreshed many times each second. **Refresh rate** on a CRT is stated in hertz (Hz), and a refresh rate of less than 70 will likely produce an annoying flicker. LCD monitors are rated by their **response rate** stated in terms of milliseconds (ms). An LCD monitor with a response rate of less than 40 is very good. Refresh rate is the number of times per second the screen is redrawn; the higher the number the better the monitor. Response rate is how many milliseconds between screen redraws; the lower the number the better the monitor.

Dot pitch, a measurement of how closely the pixels are packed next to one another, can be important too. The smaller the number, the better. But don't rely on the specifications alone. The best test is to actually look at sample monitors and see for yourself which one provides the best display for the money.

Ports. Ports are the outlets on the back of a computer. Peripheral devices plug into these ports so that the computer can access

them. Serial, parallel, and VGA (Video Graphics Array) ports have been around a long time, but newer ports include DVI (Digital Video Interface) and USB (Universal Serial Bus). A monitor may plug into a VGA port and a printer into a parallel one while many different types of devices may use a USB port. Just be aware of the differences in ports and the differences in the equipment that will be plugged into them. A peripheral without a port to plug into is little more than a high-tech doorstop. Expansion cards can add ports, if you have extra expansion slots. (See the illustration.)



RAM. The larger and more sophisticated a computer program is, the more RAM it takes to run it. As you recall, the computer loads a program into RAM when a person is ready to use it. Data is then read from and written to RAM much more quickly than it can be written to or read from a disk.

The RAM specifications of the computer you are considering may say something like *512 MB 333 MHz DDR memory (Exp. to 3 GB).* There are several components to such a statement. First is the amount of memory. With today's software, get at least 256 megabytes (MB) of RAM. The second is speed. The higher the megahertz, (MHz) the faster and smoother your applications will operate. Third is the type of memory. This is constantly changing, so you will need to do some research to figure out the balance you want between performance and price. Finally is expandability. A computer with the above specifications comes with 512 megabytes of RAM, but more can be added to give a total of 3 gigabytes (GB). The additional RAM will likely come on its own circuit board that plugs into an expansion slot in the motherboard.

Secondary storage. Secondary storage, as opposed to primary storage (RAM), includes hard disks, floppy disks, CDs, and DVDs. A 2 gigabyte hard disk, although at one time considered huge, is now deemed small and fills up very rapidly. The Windows operating system, several software programs, a number of documents and several years of e-mail can fit comfortably on a 5 gigabyte hard drive, but graphic, audio, and video files use up disk space very quickly. Floppy disks as movable secondary storage are being phased out, and high capacity CDs and similar-looking higher capacity DVDs are taking their place as standard fare. Be aware, however, that not all CD drives and DVD drives can read and write files. Also be aware of the different speeds available in secondary storage and make an informed decision accordingly. Another type of storage technology is approximately the size of a pack of chewing gum and plugs directly into a (USB) port in the computer. It does not hold as much data as the compact disk, but it has hundreds of times the capacity of a floppy disk.

Expansion slots. Expansion slots are the computer's way of expanding its hardware. An expansion slot, attached directly to the motherboard, is analogous to an electrical outlet. What you plug into the slot (an expansion card) fits only one way. The card is merely a circuit board with one edge of it made so it will plug into an expansion slot. A metal plate is usually attached to one end of the card. This provides a method for fastening the card to the back of the computer and provides an additional port out the back of the computer where a peripheral device can be attached. Without empty expansion slots, adding new hardware components in

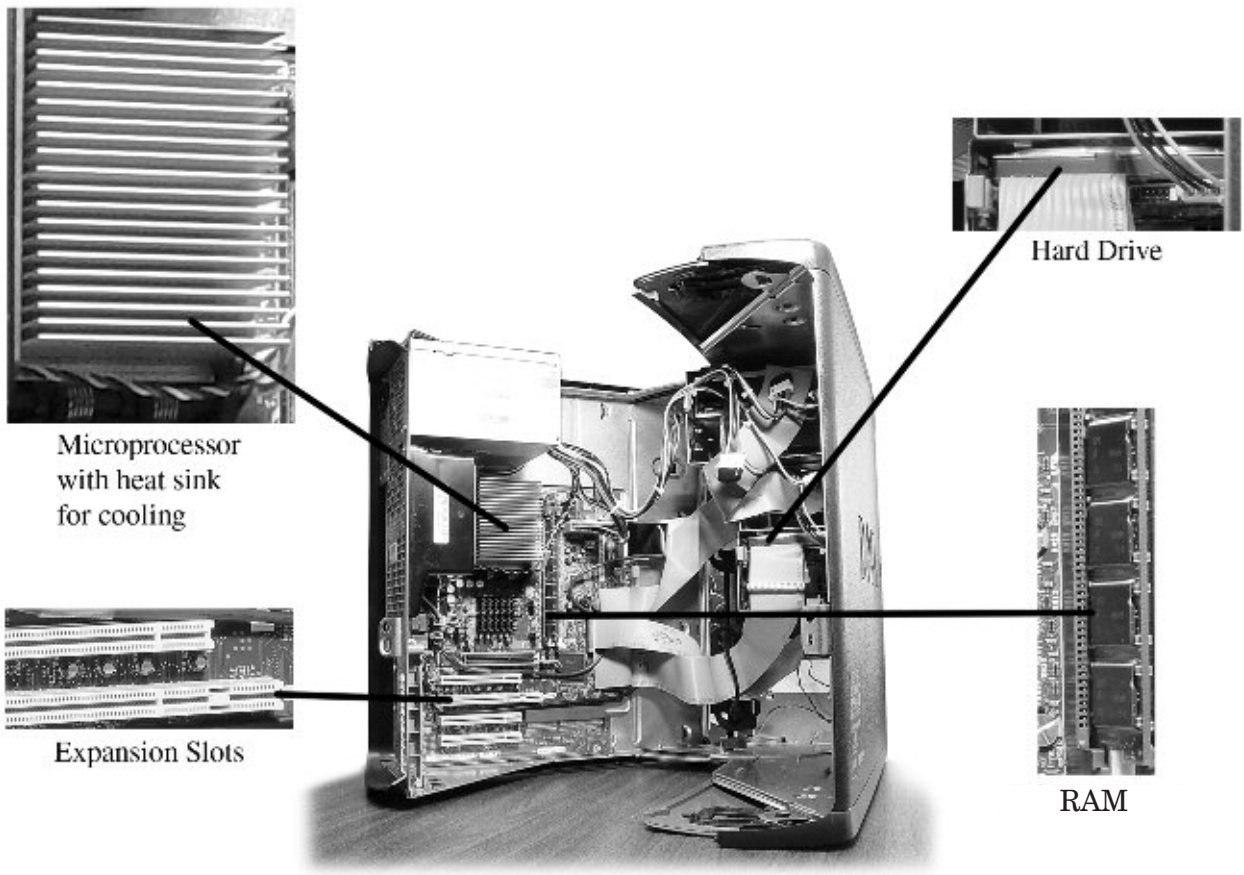
the future will be limited. Give yourself room to grow.

Keyboard. Since the keyboard is a primary method of input, it should be one that is comfortable and easy to use. If you have not used a computer keyboard extensively before, you have not become accustomed to any particular "feel." Keyboards *are* different. Ask to try a couple of different ones at the computer store before you determine which type you like best. They can make a difference in your typing speed and accuracy. Don't be afraid to try an ergonomic one. It angles the keys toward each other so your hands can be positioned more normally than they are when your fingers are pointing perfectly straight ahead.

Mouse. Although many computer functions can be accomplished with a keyboard, a mouse is necessary. Other kinds of pointing devices, such as trackballs, touch pads, or light pens, are variations on the theme. Purchase a mouse with two buttons and a scroll wheel. An optical mouse or a wireless mouse is less affected by dirt and grime.

Printer. A computer is not useful for very long if there is no way to print out the reams of data you have so carefully put into it. A printer choice in itself can be a difficult one; there are many options and possibilities. Bear in mind that there may be a wide range of quality and price even among printers of the same general type.

The two most common types are inkjet and laser. A laser will likely last longer but cost more. It is an expert text printer, while the inkjet can print almost photo-quality graphics, particularly if you use the right paper. However, either printer is able to print both text and graphics quite well. If printing speed is important to you, check the printer's speed given in pages per minute (ppm), but be aware that actual printing times will probably *not* achieve those advertised. Also consider operating costs. Find out



how many pages you can expect to print before you need to replace ink cartridges, toner, and/or drums. What are their costs? Another printer consideration is the kind of paper on which you will be printing. Will it be only the standard 8.5″ by 11″ sheets? Will it print well on envelopes? index cards? checks? continuous paper? Regardless of what you decide you need, there is a great difference in prices.

Place each term and phrase under the hardware component to which it is most closely related.

gigabytes	serial	megahertz	add-on capabilities
response rate	DDR	dot pitch	ink cartridge
resolution	CD	parallel	pointing device
pixels	LCD	inkjet	scroll wheel
VGA	CRT	toner	primary storage
DVD	ppm	laser	refresh rate
ergonomic	DVI	USB	hertz

1. Microprocessor

   _____

2. RAM

   _____ _____

   _____

3. Secondary Storage

   _____ _____

4. Expansion Slots

   _____

5. Monitor

   _____ _____

   _____ _____

   _____ _____

   _____ _____

6. Ports

   _____ _____

   _____ _____

   _____

7. Keyboard

   _____

8. Mouse

_____ _____

9. Printer

_____ _____

_____ _____

_____

Write *true* **or** *false*.

10. _____ Some monitors cause more eyestrain than others.
11. _____ Not all CD drives can read and write files.
12. _____ Printers vary in quality, speed, and price.
13. _____ All printers cost the same to operate.
14. _____ CD drives and DVD drives are similar in appearance.
15. _____ The speed of a microprocessor depends not only on the type of processor but also on amount of megahertz.
16. _____ A CRT monitor will require more space and electricity than an LCD.
17. _____ The fewer the pixels, the easier the monitor is to read.
18. _____ More complex software requires more RAM, hard disk space, and microprocessor speed.
19. _____ CDs have more storage room than DVDs.

LOOKING BACK . . .

Follow the directions.

20. List three general sources of computer buying information.

_____

_____

_____

21. List the four steps of shopping for a computer.

_____

_____

_____

_____

Answer the questions.

22. Why are system requirements important to you as a buyer of hardware or software?

_____

_____

_____

23. How do security and ethics in computer use relate to one another?

_____

_____

_____

24. Why might someone be biased about software? _____

_____

Do this project.

☆ 25. Visit a business in your area. Find out how computers are used there and why. Write a few paragraphs discussing their use of computers. Do they include computer jobs and jobs using computers? What skills are required? What training? What experience?

Lesson 9

Getting Information

In a field where the options are many and technology is changing so rapidly, one of the best sources of current information is periodicals or magazines. Much can be learned through studying advertisements and reading articles. *Computer Shopper, PC Magazine,* and *PC World* are among the most common and most readable publications. Plenty of books are available too, but magazines can be printed in much less time than it takes to print a book, so books obviously take a backseat when it comes to the most recent information.

Computer magazines are full of advertisements from companies who are eager to sell their product, and they usually have toll-free telephone numbers. They are ready sources of information, but they don't get too technical because most of the people that answer the phones are trained to take orders, not to be reference people. They may not know the detailed information, such as the capabilities of a piece of software, but they should be able to tell you the system requirements for a particular package. Be considerate of their time and expertise.

Local computer stores have a wealth of information as well. Remember, however,