# *Discovering Computers Essentials 2018 Digital Technology Data and Devices 1st edition Vermaat Solutions Manual*

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Discovering Computers Essentials 2018 Digital Technology Data and Devices 1st edition Vermaat Solutions Manual

# Discovering Computers 2018: Digital Technology, Data, and Devices

## Module Two: Connecting and Communicating Online: The Internet, Websites, and Media

### A Guide to This Instructor's Manual:

We have designed this Instructor's Manual to supplement and enhance your teaching experience through classroom activities and a cohesive summary at the end of each module.

This document is organized chronologically, using the same headings found in the textbook formatted in **red** for easy visibility. Below each heading you will find (in order) the following: Lecture Notes that summarize the section; Figures and Boxes found in the section, if any; Teacher Tips; Classroom Activities; and Lab Activities. Pay special attention to teaching tips and activities geared toward quizzing your students, enhancing their critical thinking skills, and encouraging experimentation within the software.

In addition to this Instructor's Manual, our Instructor's Resources also contain PowerPoint presentations, test banks, and other supplements to aid in your teaching experience.

### SAM:

This text is available with SAM Assessment, Training, and Projects that map directly to the learning objectives covered in each module. SAM's active, hands-on training and skill-based assessment help you master Microsoft Office skills. SAM Projects let you apply skills in real-world scenarios using the actual Microsoft Office applications. Immediate feedback and comprehensive study guides give you the practice and support you need to succeed.

If you have a SAM account, login at *www.cengage.com/sam*. To obtain a SAM account, visit *www.cengagebrain.com* or contact your instructor or bookstore for additional information.

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## Module Objectives

Students will have mastered the material in Module Two when they can:

- Discuss the evolution of the Internet
- Briefly describe various broadband Internet connections
- Describe the purpose of an IP address and its relationship to a domain name
- Describe features of browsers and identify the components of a web address
- Describe ways to compose effective search text
- Explain benefits and risks of using online social networks
- Describe uses of various types of websites: search engines; online social networks; informational and research; media sharing; bookmarking; news, weather, sports, and other mass media; educational; business, governmental, and organizational; blogs; wikis and collaboration; health and fitness; science; entertainment; banking and finance; travel and tourism; mapping; retail and auctions; careers and employment; e-commerce; portals; content aggregation; and website creation and management
- Explain how the web uses graphics, animation, audio, video, and virtual reality
- Explain how email, email lists, Internet messaging, chat rooms, online discussions, VoIP, and FTP work
- Identify the rules of netiquette

## The Internet (p. 2-2)

### LECTURE NOTES

- Explain what the Internet is
- Discuss widely used Internet services
- Use Figure 2-1 to illustrate services available on the Internet
- Describe ARPA and ARPANET, and mention the goals thereof
- Discuss the networks of which the Internet consists
- Define W3C

### FIGURES AND TABLES

Figure 2-1

### BOXES

1. Consider This: *Who owns the Internet?* Students may be surprised to learn that there is no single/central entity that controls the Internet. Introduce them to the World Wide Web Consortium (W3C).

### CLASSROOM ACTIVITIES

1. Class Discussion: Every student is aware of, and most students probably are very comfortable with, the Internet. Throughout this module, encourage students to share their Internet-related experiences.

2. Class Discussion: A Microsoft vice president has maintained that "in the long run, it's hard to exaggerate the importance of the Internet." Yet, has the Internet's importance been exaggerated? *Newsweek*'s Robert Samuelson has suggested that technologies are historically important when they change lifestyles or beliefs. Technologies such as Gutenberg's printing press, the automobile, and antibiotics reshaped the human

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condition by leading to mass literacy, altering where people live, and lengthening life spans. Samuelson argues that, to date, although still relatively recent, historically speaking, the Internet's impact has been less significant. The importance of the Internet, and its rank among other innovative technologies, could be an absorbing discussion topic.

3. Assign a Project: A number of Internet-related books are available in the library or in a local bookstore. These books cover a variety of topics, from creating a good and bad webpage (*Web Pages That Suck* by Vincent Flanders and Michael Willis) to the evolution of an online community (*Cyberville* by Stacy Horn) to the Internet's potential impact on our quest for knowledge (*Silicon Snake Oil: Second Thoughts on the Information Highway* by Clifford Stoll). As an extra-credit project, have students visit a library or bookstore and obtain a book on an Internet-related subject. Ask them to prepare a report on the book, summarizing the book's content, detailing the author's message, and presenting their own opinions. Was the book worth reading? Why or why not?

4. Assign a Project: The Internet also has been the source of controversy. Some of the concerns raised by individuals and the news media are the following:

1) Censorship: Should certain material be restricted to select groups, or banned entirely from the Internet?
2) Copyright protection: Should originators of work on the Internet have the same protection as creators in other media?
3) Authentication: Should regulations ensure that the purported author of material on the Internet is, indeed, the author?
4) Security: How can private information and sensitive communications be kept from eavesdroppers?
5) Overload: How can current resources handle a burgeoning number of users and increasingly complex webpages?

These topics could be the subjects of panel discussions, class debates, individual reports, or presentations while studying this module.

### LAB ACTIVITIES

1. Encourage students to visit the W3C website in order to learn more about the role of the World Wide Web Consortium with regard to the medium's research and standards.

## Connecting to the Internet (p. 2-3)

### LECTURE NOTES

- Distinguish between wired and wireless connections
- Explain what a modem is and discuss wireless modems using Figure 2-2
- Define dongle
- Use Table 2-1 to describe broadband Internet service technologies like cable Internet service, DSL (digital subscriber line), Fiber to the Premises (FTTP), Wi-Fi (wireless fidelity), mobile broadband, fixed wireless, and satellite Internet service, and contrast these with dial-up access
- Define hot spot, and use Figure 2-3 to explain tethering
- Define Internet service provider (ISP) and mobile service provider

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- Use Table 2-2 to distinguish between megabyte (MB) and gigabyte (GB) in terms of bandwidth transmission
- Discuss the media involved in both wired and wireless transmission
- Define traffic, and explain what the Internet backbone is
- Use Figure 2-4 to walk students through the transfer of data and information from one network to another in the course of a user's request for a webpage
- Define IP address, and use Figure 2-5 to parse an address
- Use Table 2-3 to define domain name, top-level domain (TLD), and ccTLD
- Define Public Technical Identifiers (PTI) and ICANN
- Use Figure 2-6 to define domain name system (DNS) and DNS server
- Discuss Anticybersquatting Consumer Protection Act

## FIGURES AND TABLES

Figures — 2-2, 2-3, 2-4, 2-5, 2-6;
Tables — 2-1, 2-2, 2-3

## BOXES

1. Secure It 2-1: *Using Public Wi-Fi Hot Spots Safely*. Review all these guidelines for connecting wirelessly to a public hot spot with a safer browsing experience.

2. Consider This: *Does everyone use broadband Internet?* Discuss the different ways home users connect computers and devices to the Internet.

3. BTW: *Byte.* Offer a definition of the term.

4. Consider This: *Does the term data have multiple meanings?* Discuss the term, data, and explore data plans offered by mobile service providers.

5. How To 2-1: *Register a Domain Name*. Walk students through the steps involved in registering a domain name.

6. Ethics & Issues 2-1: *Should Cybersquatters Be Prosecuted?* Define cybersquatter, and encourage students to engage in this debate, from the perspective of both a major corporation and a smaller company.

## CLASSROOM ACTIVITIES

1. Class Discussion: Ask students about access providers with which they are familiar. Consider contacting a regional ISP about sending a representative to explain how the ISP works and detail the services it offers. Encourage students to describe access providers they have used. Ask students familiar with an ISP or online service provider to describe the advantages, and disadvantages, of each. Like any company in the limelight, Comcast has had its supporters and detractors over the years. Encourage students familiar with Comcast to tell what they like, and dislike, about the service. Ask students who use other online service providers (e.g., Earthlink, Cox) to describe their feelings about these services. From student responses, compose a list of the

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most important features of an online service provider. Which service, or services, most closely reflects these features? Why?

2. Assign a Project: When people decide to connect to the Internet using an online service provider, they have to choose the online service provider that is best for them. The choice usually is based on individual needs, interests, and budgets. To find out more, have students visit the webpage or call the toll-free number for at least two popular Internet or online service providers (such as Verizon, Comcast, EarthLink, Cox, or another national or regional service). What features or benefits does the service offer? How much does the service cost? If possible, students should talk to people they know who use each service and discover what the people like and do not like about the online service provider. Based on everything they learn, which online service provider seems best for them? Why?

3. Quick Quiz:

1) What is a domain name? (Answer: a text-based name that corresponds to the IP address of a server that hosts a website)
2) A registrar is a small device that connects to a computer. True or false? (Answer: False)
3) What is Internet traffic? (Answer: the communications activity on the Internet)

4. Critical Thinking: As mentioned in the text, selling domain names has become a cottage industry. Individuals register domain names they think will be in demand — such as the names of budding public figures or companies — and then attempt to sell the domain name to the figure or company. But, the practice can turn ugly. One entrepreneur purchased a domain name that appeared related to a recent presidential candidate (the name consisted of the candidate's initials and last name) for the standard $70. After trying, and failing, to sell the name to the candidate's campaign for $350,000, the rejected seller turned the webpage into a parody of the candidate, complete with distorted "facts" and fake pictures that some felt bordered on slander. Should domain names be regulated? Why? Should selling domain names be illegal? Why? How else can people deal with buying and selling domain names?

## The World Wide Web (p. 2-11)

### LECTURE NOTES

- Describe the World Wide Web (WWW) or web
- Define the following related terms: webpage, website, and web server
- Compare and contrast static and dynamic webpages
- Define and discuss HTML, along with CSS and JavaScript
- Use Figure 2-7 to recall what a browser is, and define mobile browser
- Explain what a home page is
- Explain what tabbed browsing is (using Figure 2-7 again)
- Use Figure 2-8 to define web address (or URL [Uniform Resource Locator])
- Point out each of the components of the web address, including the protocol (http), host name, domain name, path, and webpage name
- Explain what a mobile app is, and discuss downloading a mobile app from a mobile device's app store
- Compare and contrast web apps and mobile apps, touching on cloud storage
- Use Figure 2-9 to discuss how web apps and mobile apps work together

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## FIGURES AND TABLES

Figures — 2-7, 2-8, 2-9

## BOXES

1. BTW: *Web vs. Internet*. Recall the terms, web and Internet, and remind students that the WWW is a service of the Internet.

2. Secure IT 2-2: *Safe Browsing Techniques.* Discuss in detail the guidelines that students should follow when browsing. Include definitions of the following terms in your discussion: location, cache, phishing, phishing filter, pop-up ad, pop-under ad, pop-up blocker, pop-under blocker, private browsing, and proxy server.

3. Tech Feature 2-1: *Browsers.* Discuss the foundational role that browsers play in accessing webpages and web apps. Explain what favorites (bookmarks) are and what filters and secure connections are. Discuss the role of shareware websites. Survey students about their experience with all of these browsers listed in the text: Chrome, Edge, Firefox, Opera, and Safari as well as a variety of mobile browsers.

44. Consider This: *Although you entered the web address correctly, your screen does not match Figure 2-8. Why?* Point out that many organizations update or redesign their websites, which may cause your screens to look differently.

5. Consider This: *Do you need to type the protocol and host name in a web address?* Point out that many browsers and websites do not require http:// or www in the web address. Discuss what happens when you begin typing a web address in a browser.

6. Consider This: *What are GPS receivers?* Explain what GPS is, and discuss the use of a GPS receiver.

## TEACHER TIPS

One of the biggest misconceptions about computing technology today, and certainly about the Internet, is that the terms web and Internet are not interchangeable. Emphasize to students that the web is a service on the Internet, just like email, instant messaging, and the like. The ubiquity of the web contributes to this misconception, but it is an important myth to deconstruct in the service of explaining what the web actually is (and is not).

Explain to students that they may encounter three different kinds of links on webpages.
The three types of links are the following:

1) Target links move from one location to another in the same document.
2) Relative links move from one document to another on the same Internet computer.
3) Absolute links move to another document on a different Internet computer.

Another fact about the web that warrants cautioning students is the way in which the web democratizes information ownership. Anyone can access, and publish, a webpage. The web makes it easy to obtain information but requires more effort on the part of consumers to evaluate the quality of that information. Emphasize that it should not be assumed that all information on the web is correct and accurate. The web is

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not an encyclopedia. Both experts and nonexperts create webpages, with a range of quality and depth. Some of the information on the web is inaccurate, biased, out-of-date, shallow, or inappropriate for academic use. Present the guidelines from the text for evaluating the value of a website or webpage. Other factors to be considered include the sponsor or owner of the website, the purpose of the site, the presentation of the site, and evident biases or inaccuracies.

## CLASSROOM ACTIVITIES

1. Group Activity: Compile a class list of web addresses with which students are familiar and the associated companies or organizations.

2. Class Discussion: Like the Internet, no single person or organization manages or controls the web. Disagreements over how to apply local laws to the web have yet to be resolved. For example, two French human rights groups sued Yahoo! for selling historical Nazi items on the company's U.S.-based website. (Yahoo! has no physical presence in France.) The groups argued that showing the items violated a French law prohibiting the display of racist material. This is an example of companies that do business online being subject to lawsuits in foreign courts for selling products or posting materials that are legal in their own countries but offend people or violate laws in other countries. Although jurisdictional disputes sometimes occur in the physical world, they usually can be resolved with established rules supported by years of international treaties. The international, unregulated character of the web introduces new questions about applying cross-border laws. So far, most court cases concerning website content have been brought in the United States, France, and Canada, countries considered fairly liberal and even-handed. What will happen when countries with harsher laws — such as those governed by dictators or strict religious sects with severe restrictions on what can be sold, displayed, or said in public — try to enforce them? What can be done about web content that is legal in one country but illegal, or offensive, in another? Should web content be regulated by international treaties, or would a disclaimer on the site (e.g., "This website is intended for U.S. citizens only.") be sufficient? Why?

3. Class Discussion: Drug sales, gambling, terrorism resources, fraudulent deals, and child exploitation all are present on the web. Some people call websites catering to these activities the dark web. The web makes illegal activities more accessible than ever — no more meeting in dark alleys, just sit down at your computer. Web watchers claim the dark web is growing at an alarming rate. According to researchers, illegal online sales approach $36.5 billion a year, just a little less than legitimate online sales (about $39.3 billion). One expert goes farther and claims that, if actual figures were collected, more than 70 percent of all e-commerce would be based on unacceptable or illegal activity. Consider:

1) Prescription drugs (and sometimes illegal drugs) are available at hundreds of websites, often with no prescription necessary.
2) Illegal online gambling is the eighth-largest business on the Internet.
3) Law-enforcement officials claim the September 11 terrorists used the Internet to plan their attack.
4) Seventy percent of fraud complaints received by the government occur on the web.
5) Complaints about child pornography on the web have increased 600 percent since 1998.

Some experts estimate that every 44 seconds a sleazy or criminal act is committed on the web. Should the web be monitored for illegal and/or unsavory activities? If so, how? Should a single agency be created, or should different law-enforcement agencies be assigned to different criminal activities on the dark web?

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4. Assign a Project: While more people use the Internet every day, perhaps the fastest growing audience segment is children from 10 to 14 years old. A recent survey found almost 10 million children use the Internet to participate in chat rooms, send email, surf the web, or even publish newsletters, and that number is expected to triple in the next few years. Another study found that almost 30 percent of teenagers felt they could live without a television, but only a little more than 20 percent could survive without a computer. Have students obtain permission to visit a local junior high school and talk to students about their use of the Internet. How frequently do they use the Internet? Why? Do parents put any restrictions on Internet use? If so, what? How do they feel about these restrictions? How important to them is using the Internet? Why?

5. Critical Thinking: A father sat down at a computer with his young child, typed what he thought was the web address for a site of national interest, and was surprised to encounter explicitly pornographic material. "[I] should have paid closer attention to the [URL] suffix," he later admitted. Stealth URLs — addresses similar to those of other webpages — are an Internet annoyance. To attract visitors and potential subscribers, some webpages adopt the domain names of popular websites, with minor changes in spelling or top-level domain. Critics claim stealth URLs mislead consumers and weaken the value of the original name. Defendants counter that restrictions on URLs would violate rights to free speech. Should URLs be regulated? Why or why not?

## Types of Websites (p. 2-16)

### LECTURE NOTES

- Review the categories of websites
- Discuss searching on the web, explaining the terms (web) search engine, search text, hits, and keywords
- Discuss the items for which search engines allow you to search
- Use Table 2-4 to review the available search engine operators
- Define subject directory
- Review the meaning of the term, online social network (or social networking site)
- Use Figure 2-10 to discuss information and research websites
- Use Figure 2-11 to explain what a media sharing site is
- Use Figure 2-12 to discuss bookmarking sites
- Use Figure 2-13 to discuss the use of websites for news, weather, sports, and other mass media
- Discuss the use of websites for educational, business, governmental (as shown in Figure 2-14), and organizational purposes
- Define blog, blogosphere, microblog (as shown in Figure 2-15), and blogger
- Use Figure 2-16 to discuss what a wiki is
- Discuss the use of websites for health and fitness, science, and entertainment purposes
- Define streaming
- Discuss the use of websites for finance (as shown in Figure 2-17), travel and tourism, and mapping (as shown in Figure 2-18) purposes
- Define and discuss e-retail (electronic retail)
- Explain the function of an electronic storefront and a shopping cart using Figure 2-19
- Discuss online auction
- Discuss the use of websites for career and employment-related purposes
- Define e-commerce (electronic commerce) and m-commerce

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- Review the three different types of e-commerce: business-to-consumer (B2C), consumer-to-consumer (C2C), and business-to-business (B2B)
- Use Figure 2-20 to define portal
- Use Figure 2-21 to define content aggregation, also called a curation
- Define and discuss web publishing
- Use Table 2-5 to discuss web publishing, and review the five steps to web publishing, defining the terms content management system and web hosting service in the course of your discussion
- Define responsive web design (RWD), and explain why website developers might use this approach

## FIGURES AND TABLES

Figures — 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-21;
Tables — 2-4, 2-5

## BOXES

1. Consider This: *How can you improve search results?* Offer these strategies to students as a means of keeping superfluous items out of their search results.

2. Tech Feature 2-2: *Online Social Networks.* Review the variety of social networking sites and their personal uses. Survey students about their experience with Facebook, LinkedIn, Twitter, Google+, and others. Discuss friends, status update, and the like. Explain what a timeline or wall is, what a news feed is, and define mobile social networking apps and hashtag. Explain what it means to check in at a location.

3. Secure IT 2-3: *Privacy and Security Risks with Online Social Networks.* Review all these guidelines for preventing thieves from invading the private aspects of your life via the abuse of social networking sites.

4. Consider This: *Why would you use a media sharing site instead of a social networking site?* Compare and contrast what the offerings of media sharing sites are with those of social networking sites, and survey students about their experiences with both.

5. Consider This: *What is a hashtag?* Review the definition of hashtag, and explain how they are used to classify posts.

6. Ethics & Issues 2-2. *Is It Ethical to Use a Fake Name or ID on a Website?* Define the terms, catfishing and troll. Encourage students to engage in this debate — and to discuss their overall opinion about protecting anonymity in their online activities.

7. Consider This: *How can you locate Tweets about certain topics?* Explain how you can use hashtags to locate specific posts.

8. Secure IT 2-4: *Protecting Yourself from Identity Theft.* Review all these guidelines for preventing identity thieves from stealing your personal data. Include a definition of keyloggers in your discussion, and explain the role of the three major credit reporting agencies and the FTC help line.

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9. Consider This: *Is it safe to enter financial information online?* Discuss the use of an online payment service like PayPal as an alternative to entering credit card or bank account information in the course of an online transaction.

10. Consider This: *Can you assume that content on a website is correct and accurate?* Discuss who can publish a webpage on the Internet and criteria to evaluate a website or webpage.

## TEACHER TIPS

Recommend to students that, when choosing a search engine, or when looking for obscure information, they turn first to the larger search engines (Yahoo!, Google, metasearch tools like Dogpile, and so on) because they are easiest to use and cast the largest net in the search for information. Mention that Google has become so large and so dominant in this space as to become a verb ("to google," meaning to look up something in a search engine).

Caution students that one difficulty faced by search tool users is an "embarrassment of riches." Often, simple queries yield an overwhelming number of results. This is attributed to several factors:

1) The limitations of search engines. A query about mustangs on the American plains might produce results involving Southern Methodist University's football team *and* the Ford car.

2) The nature of queries. While a traditional researcher, such as a librarian, uses queries averaging 14 words, the typical Internet query is just one or two words.

3) The creators of webpages. Developers of commercial webpages sometimes distort results by repeating frequently requested keywords in the background, where spiders see them but people do not.

## CLASSROOM ACTIVITIES

1. Class Discussion: Encourage students to describe searches they have conducted and search engines they have used (both successfully and unsuccessfully) to find information on the web. Based on their experiences, have them suggest tips to use, and pitfalls to avoid, in order to conduct a successful search.

2. Class Discussion: The *San Jose Mercury News* argues that "Yahoo! is closest in spirit to the work of Linnaeus, the eighteenth-century botanist whose classification system organized the natural world." In recalling its company history, Yahoo! claims it "began as an idea, grew into a hobby, and lately has turned into a full-time passion." Ask students who have used Yahoo!, or any other popular portal, to describe their experience.

3. Class Discussion: Ask students what, if any, are disadvantages of doing business on the web. What products would they be most likely to purchase on the web? What products would they be least likely to purchase? Why?

4. Class Discussion: Encourage students to visit their school or college's website and discuss their opinions. What information does the site offer? How accurately does it reflect college life? Will the website attract potential freshmen?

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5. Class Discussion: List sponsors of business/marketing websites, and encourage students to visit the sites supported by these, or other, businesses.

6. Class Discussion: Ask students to describe educational websites they have visited. As a related topic, ask students to describe entertainment websites they have visited. Why did they visit the website? Have they used an entertainment website to cast a vote about a topic on a television show? How did they feel when the results of the vote were revealed?

7. Assign a Project: The Internet has had a tremendous impact on business. For some businesses, that impact has not been positive. For example, recent surveys suggest that as a growing number of people are making their own travel plans online, travel agents are seeing a significant reduction in their customer base. What does the future hold for travel agents and other businesses that are "competing" with the Internet? Have students interview a travel agent or an individual in another business that might be impacted negatively by the Internet. What effect has the Internet had on the business? How has the Internet changed the way business is done and how businesses compete for business? What services does the business offer that cannot be found on the Internet? What can be done to minimize, or even take advantage of, the Internet's impact?

### LAB ACTIVITIES

1. In the lab, have students use a search engine to identify a sample site in each of the categories listed in the text.

2. Ask students to use computers in the lab to use two or three of the search engines listed in the text to search for the same query. Have students document the results of their searches and compare them across the search engines that they use.

## Digital Media on the Web (p. 2-30)

### LECTURE NOTES

- Define multimedia
- Use Figures 2-22 and 2-23 to define graphic, thumbnail, and infographic
- Introduce the formats JPEG and PNG using Table 2-6
- Discuss the use of animation, audio, media players (as shown in Figure 2-24), video, virtual reality (VR) (as shown in Figure 2-25), VR worlds, and plug-ins (or add-ons)
- Define MP3
- Define virtual reality

### FIGURES AND TABLES

Figures — 2-22, 2-23, 2-24, 2-25;
Table — 2-6

### BOXES

1. BTW: *Compressed Files.* Offer an explanation of the significance of compressed files.

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2. How To 2-2: *Download Digital Media from Online Services*. Review the steps for downloading digital media from a range of online services.

### CLASSROOM ACTIVITIES

1. Quick Quiz:
   1) Why are audio files compressed? (Answer: to reduce their file size)
   2) What is the term for images displayed in motion? (Answer: video)
   3) What is a plug-in, or add-on? (Answer: a program that extends the capability of a browser)
   4) With PNG files, the more compressed the file, the smaller the image and the lower the quality. True or false? (Answer: False)
   5) Which of the following is an electronic image format by Adobe Systems that mirrors the appearance of an original document? a) PDF, b) GIF, c) PNG, or d) JPG (Answer: a)

2. Critical Thinking: Encourage students to suggest other ways in which VR could be applied. To reinforce understanding of multimedia, choose a topic for a webpage, such as your school or your class, and ask students how multimedia could enhance the page. What multimedia elements would they use? How?

### LAB ACTIVITIES

1. In the lab, have students use a search engine to find a virtual reality website and, if they are authorized to download the necessary plug-ins to the lab computers, to enter the VR world and experiment with this technology.

## Other Internet Services (p. 2-33)

### LECTURE NOTES

- List additional services available on the Internet
- Define email (electronic mail), and explain how an email program works and what an email address is
- Discuss what a user name is and a contacts folder
- Use Figure 2-26 to illustrate how an email message may travel from a sender to a receiver
- Use Figure 2-27 to discuss what an email list is and what it means to subscribe to and unsubscribe from a mailing list
- Discuss the original use of email lists, and define LISTSERV and email marketing services
- Use Figure 2-28 to describe what instant messaging (IM) is and what real time means
- Use Figure 2-29 to define chat and chat room
- Use Figure 2-30 to explain what an online discussion or discussion forum is, and define the related term, thread
- Describe what VoIP (or Voice over IP) is, and describe what elements are necessary for placing these Internet phone calls
- Describe what FTP (File Transfer Protocol) is, and define the related terms: uploading, FTP server, and anonymous FTP

### FIGURES AND TABLES

Figures — 2-26, 2-27, 2-28, 2-29, 2-30

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## BOXES

1. Consider This: *What are good practices to follow when using email?* Review the list of guidelines for ways to send effective emails.

2. BTW: *VoIP Microphone.* Discuss the use of a headset for use while using VoIP.

3. How To 2-3: *Set Up a Personal VoIP Service and Make a Call.* Explain what a VoIP service is, and review the steps for setting up a VoIP service and making a call.

4. Tech Feature 2-3: *Digital Communications.* Walk students through the scenario of a student who is immersed in digital communication technology throughout a typical day.

## TEACHER TIP

It may be useful to introduce some definitions that are closely linked with FTP software. Many files on anonymous FTP sites are public domain software, freeware, or shareware. Public domain software is not copyrighted and, therefore, can be distributed at no cost. Freeware also is available at no cost but, because it is copyrighted, it cannot be resold. Shareware can be downloaded and tried for free, but a license fee must be paid if the software is kept. Shareware users who pay the license fee might receive a manual, notification of new releases or tips, and access to technical support. The quality of freeware, public domain software, and shareware varies greatly.

## CLASSROOM ACTIVITIES

1. Class Discussion: In an effort to reduce the amount of time spent on email, some writers have suggested rules, such as check email only twice a day, print messages only if they are going to be filed, and store messages immediately or delete them. Ask students why email is such a popular form of communication. Can (and should) anything be done to curb the flow of email? What other rules can students invent to reduce the time spent on email?

2. Class Discussion: Ask students to brainstorm why an individual might subscribe to an email list.

3. Class Discussion: Ask students which of the Internet services described in this module they have used. How? What services would they like to try? Why?

4. Assign a Project: A study of Pittsburgh families discovered a disturbing trend: the more time subjects spent online, the more depressed and lonely they tended to be. The report concluded that one hour a week of Internet use led to an average increase of 1 percent on the depression scale and 0.04 percent on the loneliness scale. Researchers think time spent on the Internet might be deducted from contact with real, living people. Study participants reported a decline in interaction with family members and a reduction in numbers of friends. No matter how heartfelt, email, chat rooms, and newsgroups have an ephemeral quality compared to real human relationships. How does Internet communication affect mental health? Why? In terms of mental health, what is the best way to use the Internet?

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5. Quick Quiz:
   1) In an Internet email address, what symbol separates the user name from the domain name? (Answer: @)
   2) What is anonymous FTP? (Answer: a file transfer resource whereby anyone can transfer some, if not all, available files)

### LAB ACTIVITIES

1. If possible, to help students better appreciate these Internet services, bring them into the lab to experiment with IM, email, FTP, and so on.

## Netiquette (p. 2-38)

### LECTURE NOTES

- Define netiquette, and use Figure 2-31 to review the guidelines. Introduce these terms: flames, flame wars, emoticons, emojis, and FAQ
- Define cyberbullying

### FIGURES AND TABLES

Figure — 2-31

### BOXES

1. Ethics & Issues 2-3. *Who Is Responsible for Monitoring Cyberbullying?* Encourage students to engage in this debate — and to discuss their overall opinion about who should be responsible for punishing and reducing cyberbullying.

### CLASSROOM ACTIVITIES

1. Class Discussion: Ask students which netiquette rules they feel are most important. Which rules are least important? Why? What rules, if any, would they add?

2. Survey students to see if they have been a subject of cyberbullying. Do they know of anyone who has? Discuss the repercussions of the practice. Did their previous school have policies regarding cyberbullying? Does their current one? If so, what are they?

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3. Assign a Project: Not surprisingly, new tools or means of communication, such as email, usually are introduced before people agree upon courteous ways to use them. Eventually, standards are established, either based on general agreement or through the recommendations of experts. In her book, *Guide for the Turn-of-the-Millennium*, syndicated columnist Judith Martin (Miss Manners) offered guidelines for the use of the Internet and other technological innovations. For example, Martin believes that email is unsuitable for momentous messages (e.g., "You're fired") and too casual for formal salutations (e.g., "Dear Sir"). Websites like albion.com/netiquette/ also offer advice on Internet manners. Have students interview a number of people about their opinions on the proper, and improper, use of email, cellular telephones, or other modern methods of communication. What, if any, opinions are widely held? Why? Do any factors (such as age, gender, education, economic level) seem to affect people's opinions? How?

## End of Module Material (p. 2-40)

- **Study Guide** materials reinforce module content.
- **Key Terms** present the terms from the text to help students prepare for tests and quizzes. Students should know each Primary Term (shown in bold-black characters in the module) and be familiar with each Secondary Term (shown in italic characters in the module).
- **Checkpoint** activities provide true/false and matching exercises to reinforce understanding of the topics presented in the module.
- **Problem Solving** activities call on students to relate concepts to their own lives, both personally and professionally, as well as provide collaboration opportunity.
- **How To: Your Turn** activities enable students to learn and to reinforce new practical skills with personally meaningful and applicable exercises.
- **Internet Research** exercises require follow-up research on the web and suggest writing a short article or presenting the findings of the research to the class.
- **Critical Thinking** activities provide opportunities for creative solutions to the thought-provoking activities presented in each module. They are constructed for class discussion, presentation, and independent research and designed for a team environment.

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## Glossary of Primary Terms

- blog (2-23)
- blogger (2-23)
- chat (2-36)
- chat room (2-36)
- Chrome (2-13)
- content aggregation (2-28)
- domain name (2-8)
- e-commerce (2-27)
- Edge (2-13)
- email (2-33)
- email list (2-35)
- email program (2-33)
- emojis (2-39)
- emoticons (2-39)
- favorites (2-13)
- Firefox (2-13)
- FTP (2-37)
- GB (2-6)
- GPS (2-15)
- GPS receiver (2-15)
- graphic (2-30)
- hashtag (2-19)
- home page (2-12)
- HTML (2-11)
- Internet messaging (2-35)
- Internet service provider (ISP) (2-6)
- IP address (2-8)
- MB (2-6)
- mobile service provider (2-7)
- netiquette (2-38)
- online auction (2-26)
- online discussion (2-36)
- Opera (2-13)
- pop-up blocker (2-12)
- portal (2-28)
- responsive web design (2-29)
- Safari (2-13)
- search engine (2-16)
- social media (2-18)
- streaming (2-25)
- tabbed browsing (2-12)
- tag (2-21)
- traffic (2-7)
- user name (2-33)
- virtual reality (2-32)
- VoIP (2-37)
- web address (2-14)
- web publishing (2-29)
- webpage (2-11)
- wiki (2-24)
- World Wide Web (WWW) (2-11)

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## Glossary of Secondary Terms

- address book (2-34)
- analog (2-6)
- animation (2-31)
- anonymous FTP (2-37)
- Anticybersquatting Consumer Protection Act (2-10)
- ARPANET (2-3)
- audio (2-31)
- bandwidth (2-6)
- blogosphere (2-23)
- bookmarks (2-13)
- bookmarking site (2-21)
- broadband (2-4)
- business-to-business (B2B) e-commerce (2-27)
- business-to-consumer (B2C) e-commerce (2-27)
- cable Internet service (2-4)
- cache (2-12)
- catfishing (2-22)
- ccTLD (2-9)
- cloud storage (2-15)
- consumer-to-consumer (C2C) e-commerce (2-27)
- contacts list (2-34)
- content management system (2-29)
- CSS (cascading style sheets) (2-11)
- curation website (2-28)
- cyberbullying (2-39)
- discussion forum (2-36)
- DNS server (2-10)
- domain name system (DNS) (2-10)
- dongle (2-3)
- DSL (2-4)
- dynamic webpage (2-11)
- electronic storefront (2-26)
- e-retail (2-26)
- email address (2-33)
- email marketing services (2-35)
- extended contacts (2-19)
- FAQ (2-39)
- Fiber to the Premises (FTTP) (2-4)
- fixed wireless (2-4)
- flames (2-39)
- flame wars (2-39)
- friends (2-19)
- FTP server (2-37)
- gigabyte (2-6)
- hits (2-17)
- host (2-3)
- hot spot (2-5)
- http (2-15)
- ICANN (2-9)
- infographic (2-31)
- Internet backbone (2-7)
- intranet (2-24)
- JavaScript (2-11)
- JPEG (2-31)
- keyloggers (2-25)
- keywords (2-17)
- like (2-18)
- LISTSERV (2-35)
- location sharing (2-12)
- m-commerce (2-27)
- media player (2-32)
- media sharing site (2-21)
- megabyte (2-6)
- microblog (2-23)
- mobile app (2-15)
- mobile broadband (2-4)
- mobile browser (2-11)
- mobile web app (2-15)
- MP3 (2-32)
- multimedia (2-30)
- phishing (2-12)
- phishing filter (2-12)
- plug-in (2-33)
- PNG (2-31)
- pop-under ad (2-12)
- pop-up ad (2-12)
- private browsing (2-12)
- Public Technical Identifiers (PTI) (2-9)
- real time (2-35)
- registrar (2-9)
- satellite Internet service (2-4)
- search text (2-17)
- shopping cart (2-26)
- spoiler (2-39)
- static webpage (2-11)
- status update (2-19)
- subscribe (2-35)
- subject directory (2-18)
- tethering (2-5)
- thread (2-36)
- thumbnail (2-30)
- top-level domain (TLD) (2-9)
- troll (2-22)
- unsubscribe (2-35)
- uploading (2-37)
- URL (2-14)
- video (2-32)
- W3C (2-3)
- web feed (2-15)
- web hosting service (2-29)
- wireless data provider (2-7)
- wireless modem (2-3)

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# DISCOVERING COMPUTERS ©2018

## MODULE TWO: CONNECTING AND COMMUNICATING ONLINE

## PROBLEM SOLVING TIP SHEET

Use this Tip Sheet as suggested starting points for the Problem Solving exercises.

---

**Personal**

| | |
|---|---|
| 1. | • Contact local law enforcement to have them investigate |
| 2. | • Do not accept friend requests from people you do not know or trust |
| 3. | • You might have typed the web address incorrectly<br>• Malicious software on your computer might have redirected your browser from Google's home page to another home page |
| 4. | • Access the browser's settings and make sure the browser is configured to display images<br>• Determine whether a slow Internet connection simply is causing the images to display slowly |
| 5. | • Use the forgotten password utility to retrieve the password |

**Professional**

| | |
|---|---|
| 6. | • The supervisor may be monitoring employee web browsing habits<br>• Respond by stating how and when you are using the Internet, and consider asking to clarify company policy regarding internet usage |
| 7. | • Some email programs send automatic responses only one time per sender<br>• Some email programs send automatic responses to each sender only once every several days<br>• Automatic responses may be going directly to a Junk or Spam folder |
| 8. | • Your email program might not support receiving email messages formatted with HTML |
| 9. | • Mobile hot spot might not be configured properly<br>• Verify the device is turned on<br>• Reset the hot spot and attempt to configure it or contact the service provider or your information technology department |
| 10. | • The settings for sending and receiving email messages might have changed; review the settings and specify how often you want the email program to send outgoing email messages and check for new email messages |

**Answers to Problem Solving - Collaboration exercise will vary.**

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# DISCOVERING COMPUTERS 2018: DIGITAL TECHNOLOGY, DATA, AND DEVICES

## MODULE TWO: CONNECTING AND COMMUNICATING ONLINE: THE INTERNET, WEBSITES, AND MEDIA

## END OF MODULE SOLUTIONS

### Study Guide

Answers to Study Guide questions are below.

1. The Pentagon's Advanced Research Projects Agency (ARPA) is an agency of the U.S. Department of Defense. ARPA's goal was to build a network that (1) allowed scientists at different physical locations to share information and work together on military and scientific projects and (2) could function even if part of the network were disabled or destroyed by a disaster such as a nuclear attack. That network, called ARPANET, became functional in September 1969, linking scientific and academic researchers across the United States. By 1984, ARPANET had more than 1,000 individual computers linked as hosts. Today, millions of hosts connect to this network, which now is known as the Internet.
2. A host, more commonly known today as a web server, is any computer that provides services and connections to other computers on a network.
3. The World Wide Web Consortium (W3C) oversees research and sets standards and guidelines for many areas of the Internet. The mission of the W3C is to ensure the continued growth of the web.
4. A dongle is a small device that connects to a computer and enables additional functions when attached. Broadband Internet service is known for its fast data transfer speeds and its always-on connection. Popular wired broadband Internet services include cable Internet, DSL, and FTTP. Wireless options include Wi-Fi, mobile broadband, fixed wireless, and satellite Internet.
5. A hot spot is a wireless network that provides Internet connections to mobile computers and devices. Follow these guidelines when using a hot spot: avoid typing passwords and financial information; sign out of websites when finished using an account; disable your wireless

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connection when not needed; do not leave your computer or mobile device unattended; and beware of over-the-shoulder snoopers.

6. ISP stands for Internet service provider.

7. Computers and devices connected to the Internet work together to transfer data around the world using servers and clients and various wired and wireless transmission media. On the Internet, your computer or device is a client that can access data and services on a variety of servers. Several main transmission media carry the heaviest amount of traffic, or communications activity, on the Internet. These major carriers of network traffic are known collectively as the Internet backbone.

8. An IP address is a sequence of numbers that uniquely identifies the location of each computer or device connected to the Internet or any other network. Due to the growth of the Internet, the original IPv4 addresses began dwindling in availability. The IPv6 scheme increased the available number of IP addresses exponentially.

9. A domain name is a text-based name that corresponds to the IP address of a server, such as a server that hosts a website. To register for a domain name: run a browser; use a search engine to locate a domain name registrar and then navigate to the website; perform a search on the domain name registrar's website for the domain name you wish to register; and follow the steps on the domain name registrar's website to select and complete the purchase and registration of the desired domain name.

10. Some generic TLDs and their purposes include .biz (businesses); .com (commercial organizations, businesses, and companies); .edu (educational institutions); .gov (government agencies); .mil (military organizations); .museum (museums and individual museum professionals); .name (individuals); .net (network providers or commercial companies); .org (nonprofit organizations); .pro (licensed professionals); .technology (technology information); and .travel (entities whose primary area of activity is in the travel industry). The organization that approves and controls TLDs is called ICANN, which stands for Internet Corporation for Assigned Names and Numbers.

11. Cybersquatters purchase unused or lapsed domain names so that they can profit from selling them. Cybersquatters sometimes will sell you the domain name, but some take advantage of people trying to reach a more popular website to promote their own business or needs. Cybersquatters look for out-of-date registrations and buy them so that the original website owner

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must buy them back. Cybersquatters often purchase domain names with common words, alternate spellings of trademarked terms, or celebrity names.

12. When you enter a domain name in a browser, a DNS server translates the domain name to its associated IP address so that the request can be routed to the correct computer.

13. Visitors to a static webpage all see the same content each time they view the webpage. With a dynamic webpage, by contrast, the content of the webpage is regenerated each time a user displays it.

14. The web consists of a worldwide collection of electronic documents. Each electronic document on the web is called a webpage, which can contain text, graphics, animation, audio, and video. A website is a collection of related webpages and associated items, such as documents and photos, stored on a web server. A web server is a computer that delivers requested webpages to your computer or mobile device.

15. Webpage developers use HTML, CSS, and JavaScript to design the webpages and help users share content online. HTML is a set of symbols used to specify the headings, paragraphs, images, links, and other content elements. HTML is used along with CSS to specify the content's design and appearance. JavaScript adds interactivity.

16. A browser is an application that enables users with an Internet connection to access and view webpages on a computer or mobile device. Current browsers typically support tabbed browsing, where the top of the browser shows a tab (similar to a file folder tab) for each webpage you display.

17. Follow these guidelines when browsing: verify the website is safe; turn off location sharing; clear your browsing history; never store passwords; use a phishing filter; enable a pop-up or pop-under blocker; use private browsing; and use a proxy server.

18. Popular browsers for personal computers include Chrome, Edge, Firefox, Opera, and Safari. Popular browsers for mobile devices include Chrome, Firefox, Edge, Safari, and Opera Mini.

19. A webpage has a unique address, called a web address or URL (Uniform Resource Locator).

20. A web address consists of a protocol (http://), domain name (nps.gov), and sometimes the host name (www.), path to a specific webpage (/history), or file name of the webpage (/preserve-places.htm).

21. A web feed contains links to or information about updated or changed content on a website.

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22. A web app is an application stored on a web server that you access through a browser. A mobile app is an application you download from a mobile device's app store or other location on the Internet to a smartphone or other mobile device. Web apps and mobile apps often work together. Because the data and information for each app is stored on cloud storage, all data are synchronized and accessible from anywhere you have an Internet connection, regardless of the computer or device used. The functionality of the app across computers and devices generally is the same, although the mobile app sometimes has fewer features.
23. A GPS receiver is a handheld, mountable, or embedded device that contains an antenna, a radio receiver, and a processor. Most smartphones include embedded GPS receivers so that users can determine their location, obtain directions, and locate points of interest.
24. A web search engine is software that finds websites, webpages, images, videos, news, maps, and other information related to a specific topic. You also can use a search engine to solve mathematical equations, define words, and more. Search engines require that you enter a word or phrase, called search text, to describe the item you want to find. To improve your searches: use specific nouns; put the most important terms first in the search text; list all possible spellings; before using a search engine, read its Help information; and if the search is unsuccessful with one search engine, try another.
25. Besides webpages, a search engine can find audio, blogs, business address and phone numbers, images, maps, publications, shipments, transportation details, videos, and weather.
26. A search engine lists a sequence of search results. The content of the search results varies depending on the type of information you are seeking and your search text. A subject directory classifies webpages in an organized set of categories, such as sports or shopping, and related subcategories.
27. Personal uses of online social networks include sharing photos and videos, greetings, or status updates. You can like, or show appreciation for, online content such as photos or videos on online social networks. Businesses use online social networks to connect with their customers, provide promotional offers, and offer targeted advertising. Businesses also use data from online social networks to better connect with and understand customers.
28. To use online social networks securely: during the registration process, provide only necessary information; manage your profile and check for privacy settings; choose friends

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carefully; limit friends; divulge only relevant information; be leery of urgent requests for help; and read the privacy policy.

29. An informational and research website contains factual information, such as libraries, encyclopedias, dictionaries, directories, and guides. A media sharing site is a website that enables members to manage and share media such as photos, videos, and music. A bookmarking site is a website that enables members to organize, tag, and share links to media and other online content. News, weather, sports, and other mass media websites contain newsworthy material, including stories and articles relating to current events, life, money, and politics. An educational website offers exciting, challenging avenues for formal and informal teaching and learning. Business, governmental, and organizational websites contain content that increases brand awareness; provides company background or other information for consumers or citizens; promotes or sells products or services; or presents views and opinions, possibly for nonprofit groups. A blog is an informal website consisting of time-stamped articles, or posts, in a diary or journal format, usually listed in reverse chronological order. A wiki is a type of collaborative website that allows users to create, add, modify, or delete the website content. Many websites provide up-to-date medical, fitness, nutrition, or exercise information for public access; some offer users the capability of listening to health-related seminars and discussions. Several websites contain information about space exploration, astronomy, physics, earth sciences, microgravity, robotics, and other branches of science; scientists use online social networks to collaborate on the web. An entertainment website offers music, videos, shows, performances, events, sports, games, and more in an interactive and engaging environment. Online banking and online trading websites enable users to access their financial records from anywhere in the world, as long as they have an Internet connection. Travel and tourism websites enable users to research travel options and make travel arrangements. Several mapping website and web apps exist that enable users to display up-to-date maps by searching for an address, postal code, phone number, or point of interest (such as an airport, lodging, or historical site). Users can purchase just about any product or service on the web, a process that sometimes is called e-retail; with an online auction, users bid on an item being sold by someone else. Job search websites list thousands of openings in hundreds of fields, companies, and locations. E-commerce is a business transaction that occurs over an electronic network, such as the Internet. A portal is a website that offers a variety of Internet services from a single, convenient location. A content aggregation website or web app,

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sometimes called a curation website, allows users to collect and compile content from a variety of websites about a particular topic or theme. Web creation and management sites provide tools that support the steps in creating and publishing websites.

30. Many argue that it is harmless to protect your anonymity by using a fake name but believe that it is not right to create a fake profile to mislead others or leave malicious comments on a website. Although some argue that creating a fake account constitutes identity theft, unless the intent is to harm or embarrass the real person, it is not unethical or illegal. To protect yourself from identity theft: do not click links in or reply to spam; install a personal firewall; clear or disable web cookies; turn off file and printer sharing on your Internet connection; set up a free email account to use for merchant forms; sign up for email filtering; shred financial documents before you discard them; provide only the required information on website forms; avoid checking your email or performing banking activities on public computers; request a free copy of your medical records; obtain your credit report once a year; request to be removed from mailing lists; place your phone number on the National Do Not Call Registry; avoid shopping club and buyer cards; do not write your phone number on charge or credit receipts; do not preprint your phone number or Social Security number on personal checks; fill in only the required information on rebate, warranty, and registration forms; and block your phone number from displaying on the receiver's system.

31. A tag is a short descriptive label that you assign to webpages, photos, videos, blog posts, email messages, and other digital content so that it is easier to locate at a later time. Many websites and web apps support tagging, which enables users to organize their online content. To tag digital content: apply tags to all digital media, such as photos, music, and videos; separate tags with a separator; choose tags that are descriptive of the content you are posting; and after you have tagged the digital content, perform a search on the media sharing site for your content, using the tags as your search criteria, to verify your content is displayed as intended.

32. E-commerce is a business transaction that occurs over an electronic network, such as the Internet. Business-to-consumer (B2C) e-commerce consists of the sale of goods and services to the general public, such as at a shopping website. Consumer-to-consumer (C2C) e-commerce occurs when one consumer sells directly to another, such as in an online auction. Business-to-business (B2B) e-commerce occurs when businesses provide goods and services to other

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businesses, such as online advertising, recruiting, credit, sales, market research, technical support, and training.

33. A content aggregation website or web app, sometimes called a curation website, allows users to collect and compile content from a variety of websites about a particular topic or theme. Types of content that may be compiled includes news, reviews, images, videos, podcasts, and blogs. Content aggregation websites save users time because they need to visit only the content aggregation website instead of visiting multiple websites to obtain information.

34. (1) Plan the website: Identify the purpose, visitors, distinguishing factors, navigation, and domain name. (2) Design the website: Determine appearance, layout, colors, formats, and content. (3) Create the website: Use a word processing program, a content management system, website authoring software, a text editor, or specialized website management software. (4) Host the website: Use a web hosting service, an ISP, or an online content management system. (5) Maintain the website: Ensure its contents are current and all links work properly, test user satisfaction and solicit feedback, and run analytics.

35. The responsive web design approach adapts the layout of the website to fit the screen on which it is displayed.

36. When evaluating a website's content, consider its affiliation, audience, authority, content, currency, design, and objectivity.

37. Multimedia refers to any application that combines text with media.

38. Many webpages use colorful graphics to convey messages. Many webpages use animation, which is the appearance of motion created by displaying a series of still images in sequence. Audio includes music, speech, or any other sound. Video consists of images displayed in motion. Most video also has accompanying audio. You also can upload, share, or view video clips at a video sharing site. Virtual reality (VR) is the use of computers to simulate a real or imagined environment that appears as a three-dimensional (3-D) space. A plug-in, or add-on, is a program that extends the capability of a browser.

39. A thumbnail is a small version of a larger image. An infographic (short for information graphic) is a visual representation of data or information, designed to communicate quickly, simplify complex concepts, or present patterns or trends.

40. BMP, GIF, JPEG, PNG, and TIFF are common web graphic formats. With JPEG files, the more compressed the file, the smaller the image and the lower the quality. PNG is a patent-free

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compressed graphics format that restores all image details when the file is viewed; the PNG format does not lose image quality during compression.

41. If you know the name or keyword(s) for the digital media: run the program or app from which the digital media is available; enter the name or keyword(s) in the Search box; click the Search button to perform the search; navigate through the search results and then click the search result for the item you want to download; and locate and then click the Download button or link to download the digital media to your computer or mobile device. If you do not know the name or keyword(s): run the program or app from which the digital media is available; click the category corresponding to the digital media type; browse the items; when you find the item you wish to download, click the item to display additional information; and locate and then click the Download button or link to download the digital media to your computer or mobile device.

42. Email is the transmission of messages and files via a computer network. An email list is a group of email addresses used for mass distribution of a message. Internet messaging services, which often occur in real time, are communications services that notify you when one or more of your established contacts are online and then allows you to exchange messages or files or join a private chat room with them. A chat is a real-time typed conversation that takes place on a computer or mobile device with many other online users. A chat room is a website or application that permits users to chat with others who are online at the same time. An online discussion, or discussion forum, is an online area in which users have written discussions about a particular subject. VoIP uses the Internet (instead of the public switched telephone network) to connect a calling party to one or more local or long-distance called parties. FTP (File Transfer Protocol) is an Internet standard that permits file uploading and downloading to and from other computers on the Internet.

43. An email address is a combination of a user name and a domain name that identifies a user so that he or she can receive Internet email. A user name is a unique combination of characters, such as letters of the alphabet and/or numbers that identifies a specific user. In an Internet email address, an @ (pronounced at) symbol separates the user name from the domain name. Your service provider supplies the domain name.

44. Real time refers to Internet communications in which both parties communicate at the same time.

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45. To set up a personal VoIP service and make a call: search for a VoIP program or app; if necessary, download the program or app for the VoIP service you will use; create a new account; sign in to the VoIP service with your user name and password; make sure the person you are calling also has an account with the same VoIP service; on the list of contacts, select the person you want to call and then click the appropriate button to place the call; when the other person answers, you can start your voice or video call; when you are ready to end the call, click the button to end the call; and when you are finished using the VoIP service, sign out of and exit the VoIP program or app.

46. A home user uses digital communications in many ways, including using apps to find services and read reviews; use an electronic calendar web app; blog; use a wiki; send and receive text messages; use a Bluetooth headset and a smartphone's voice-to-text feature to respond to texts; schedule a recurring payment; and use a bookmarking site.

47. Netiquette is the code of acceptable behaviors that users should follow while on the Internet; that is, it is the conduct expected of individuals while online.

48. Cyberbullying is harassment using technology, often involving teens and preteens. Unlike verbal bullying, the perpetrators can hide behind the anonymity of the Internet and can reach a wide audience quickly. Victims cannot just walk away or ignore bullying that comes in the form of text messages, email, or online social network posts. Cyberbullying often takes place outside of school hours on personal devices or computers not owned or monitored by the school. Anti-bullying laws vary from state to state and often do not include specific language about cyberbullying.

## CHECKPOINT

| TRUE/FALSE (REWRITTEN AS TRUE SHOW ONE POSSIBLE SOLUTION) | MATCHING |
|---|---|
| 1. T | C |
| 2. F<br>Rewritten as true: Each organization on the Internet is responsible only for maintaining its own network. The W3C oversees research and sets standards and guidelines for many areas of the Internet. | A |
| 3. T | F |
| 4. F<br>Rewritten as true: A byte is the basic storage unit on a computer or mobile device and represents a single character. | E |
| 5. T | H |

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| | | |
|---|---|---|
| 6. | T | B |
| 7. | T | D |
| 8. | F<br>Rewritten as true: A web search engine is software that finds websites, webpages, images, videos, maps, and other information related to a specific topic. | G |
| 9. | T | J |
| 10. | T | I |
| 11. | F<br>Rewritten as true: Streaming is the process of transferring data in a continuous and even flow, which allows users to access and use a file while it is transmitting. | |
| 12. | F<br>Rewritten as true: One way to protect yourself from identity theft online is to clear or disable web cookies in your browser. | |

## PROBLEM SOLVING

These exercises ask students to solve practical computer problems by using outside resources available to them, including but not limited to a computer or mobile device, articles on the web or in print, blogs, podcasts, videos, television, user guides, other individuals, and electronics or computer stores. Tip Sheets, which are suggested starting points for the Problem Solving exercises, are included with your Instructor Resources. Answers may vary.

## HOW TO: YOUR TURN

These hands-on activities solidify the concepts presented in the module with practical application. Answers may vary.

## INTERNET RESEARCH

In these exercises, students use various web resources to discover additional information related to this module. Encourage students to use their browsers and the link in each exercise or a search engine to complete selected exercises. Answers will vary for the Making Use of the Web, Social Media, Search Skills, Security, and Cloud Services exercises.

## CRITICAL THINKING

Thought-provoking situations exercise students' minds and challenge them to construct creative solutions. The Critical Thinking exercises are intended to be discussed or presented in class, assigned for student research, or completed as a team. The Case Study will provide students with a common framework within to explore and find answers as they complete the modules in the book. Answers will vary.

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# 2

# Connecting and Communicating Online:
## The Internet, Websites, and Media

DISCOVERING COMPUTERS
Digital Technology, Data, and Devices
2018

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# Objectives Overview (slide 1 of 2)

Discuss the evolution of the Internet

Briefly describe various broadband Internet connections

Describe the purpose of an IP address and its relationship to a domain name

Describe features of browsers and identify the components of a web address

Describe ways to compose effective search text

See Page 2-1
for Detailed Objectives

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# Objectives Overview (slide 2 of 2)

Explain benefits and risks of using online social networks

Describe uses of various types of websites

Explain how the web uses graphics, animation, audio, video, and virtual reality

Explain how email, email lists, Internet messaging, chat rooms, online discussions, VoIP, and FTP work

Identify the rules of netiquette

See Page 2-1
for Detailed Objectives

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# The Internet (slide 1 of 3)

- The Internet is a worldwide collection of networks that connects millions of businesses, government agencies, educational institutions, and individuals

**Figure 2-1** People around the world use the Internet in daily activities, such as accessing information, exchanging messages, and conversing with others from their computers and mobile devices.

Page 2-2
Figure 2-1

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# The Internet (slide 2 of 3)

- The Internet originated as ARPANET in September 1969 and had two main goals:

| | |
|---|---|
| Allow scientists at different physical locations to share information and work together | Function even if part of the network were disabled or destroyed by a disaster |



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# The Internet (slide 3 of 3)

**1969** ARPANET becomes functional

**1984** ARPANET has more than 1,000 individual computers linked as hosts

**Today** Millions of hosts connect to the Internet



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# Connecting to the Internet (slide 1 of 9)

- With wired connections, a computer or device physically attaches via a cable or wire to a communications device
- Computers without a communications device can use a wireless modem or other communications device that enables wireless connectivity



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# Connecting to the Internet (slide 2 of 9)

**Figure 2-2** Using a modem is one way to connect computers and mobile devices to the Internet.
Courtesy of Zoom Telephonics Inc; Oleksiy Mark / Shutterstock.com; Source: Microsoft; Kristina Postnikova / Shutterstock.com; Kristina Postnikova / Shutterstock.com; DR / Fotolia LLC

Page 2-4
Figure 2-2

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# Connecting to the Internet (slide 3 of 9)

| Wired | Wireless |
| --- | --- |
| • Cable Internet service<br>• DSL (digital subscriber line)<br>• Fiber to the Premises (FTTP) | • **Wi-Fi** (wireless fidelity)<br>• Mobile broadband<br>• Fixed wireless<br>• Satellite Internet Service |



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# Connecting to the Internet (slide 4 of 9)

- A hot spot is a wireless network that provides Internet connections to mobile computers and devices

**Figure 2-3** You can create a mobile hot spot using a communications device or by tethering a smartphone.
Courtesy of Verizon Wireless; figarro / Can Stock Photo; iStockphoto.com / Mlenny; amfoto / Shutterstock.com; Alex Staroseltsev / Shutterstock.com; Source: Microsoft

Pages 2-5 and 2-6
Figure 2-3

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# Connecting to the Internet (slide 5 of 9)

- An **Internet service provider** (**ISP**) is a business that provides individuals and organizations access to the Internet free or for a fee
- Bandwidth is a measure of the capability of a network to send and receive data
  - Megabyte (**MB**)
  - Gigabyte (**GB**)



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# Connecting to the Internet (slide 6 of 9)

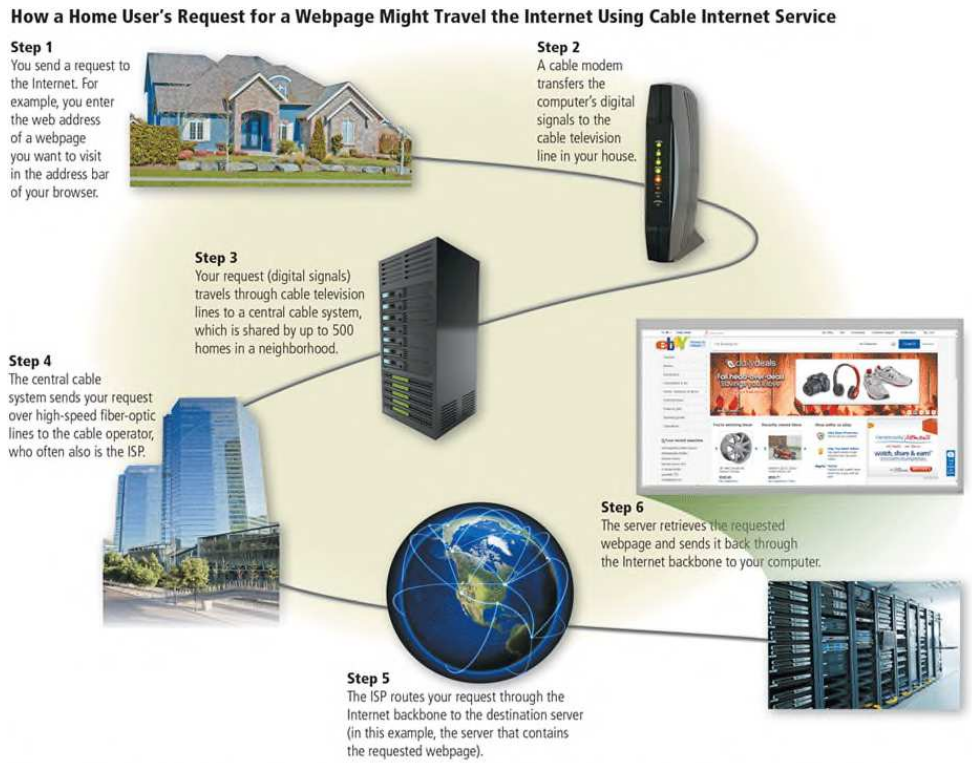


**Figure 2-4** This figure shows how a home user's request for eBay's webpage might travel the Internet using cable Internet service.
romakoma / Shutterstock.com; Pablo Eder / Shutterstock.com; dotshock / Shutterstock.com; TonyV3112 / Shutterstock.com; iStockphoto.com / loops7; iStockphoto.com / luismmolina; Source: eBay

Page 2-8
Figure 2-4

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# Connecting to the Internet (slide 7 of 9)

- An **IP address** is a sequence of numbers that uniquely identifies the location of each computer or device connected to the Internet or any other network
- A **domain name** is a text-based name that corresponds to the IP address of a server
- A DNS server translates the domain name into its associated IP address

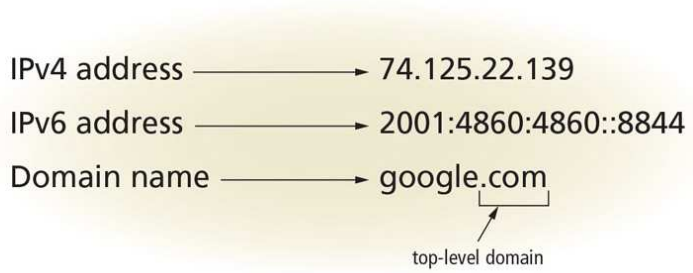


**Figure 2-5** The IPv4 and IPv6 addresses, along with the domain name for Google's website.

Pages 2-8 through 2-10
Figure 2-5

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# Connecting to the Internet (slide 8 of 9)

**Table 2-3 Popular TLDs**

| TLD | Intended Purpose |
|---|---|
| .biz | Businesses |
| .com | Commercial organizations, businesses, and companies |
| .edu | Educational institutions |
| .gov | Government agencies |
| .mil | Military organizations |
| .museum | Museums and individual museum professionals |
| .name | Individuals |
| .net | Network providers or commercial companies |
| .org | Nonprofit organizations |
| .pro | Licensed professionals |
| .technology | Technology information |
| .travel | Entities whose primary area of activity is in the travel industry |

Page 2-9
Table 2-3

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# Connecting to the Internet (slide 9 of 9)

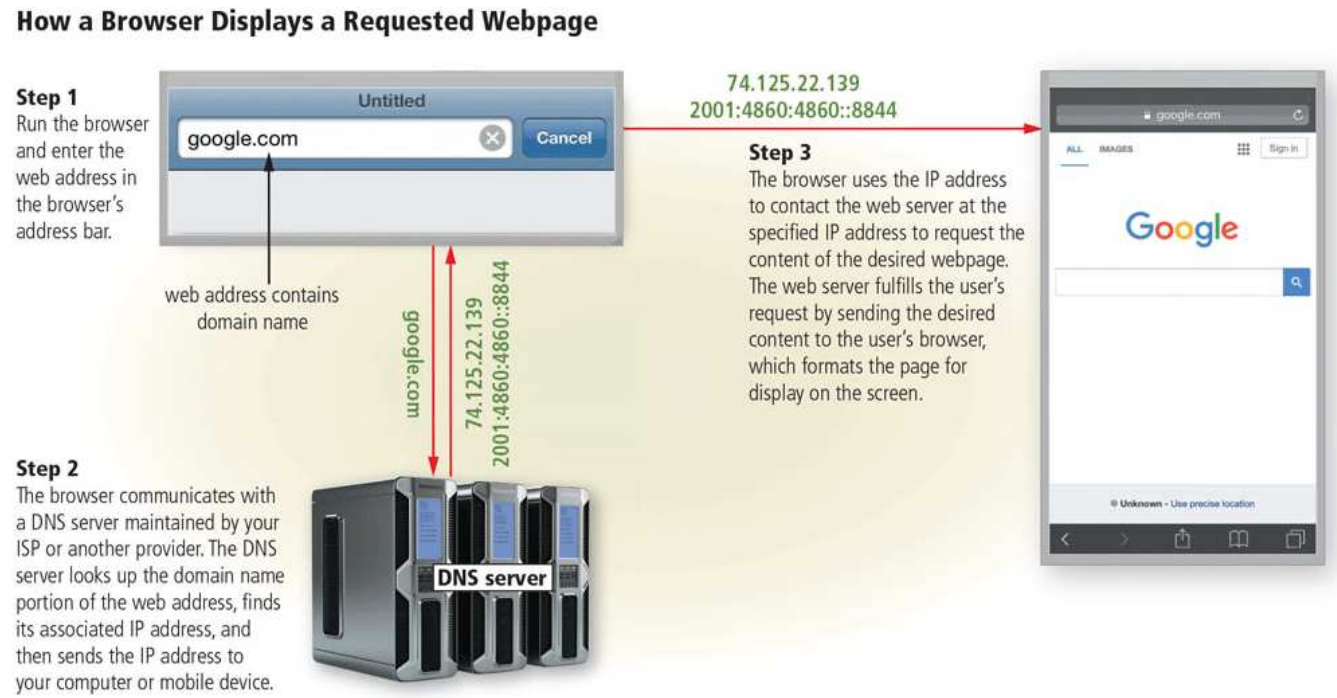


**Figure 2-6** This figure shows how a user's entered domain name (google.com) uses a DNS server to display a webpage (Google, in this case).

Apple Inc.; Sashkin / Shutterstock.com; Source: Google Inc.

Page 2-10
Figure 2-6

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# The World Wide Web (slide 1 of 4)

- The **World Wide Web** (**WWW**), or web, consists of a worldwide collection of electronic documents (**webpages**)
- A website is a collection of related webpages and associated items
- A web server is a computer that delivers requested webpages to your computer or mobile device
- **HTML** (Hypertext Markup Language) is a set of symbols that developers use to specify the headings, paragraphs, images, links, and other content elements that a webpage contains



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# The World Wide Web (slide 2 of 4)

- A browser is an application that enables users with an Internet connection to access and view webpages on a computer or mobile device
  - Internet-capable mobile devices such as smartphones use a special type of browser, called a mobile browser
- A **home page** is the first page that a website displays
- Current browsers typically support **tabbed browsing**

**Figure 2-7** Many websites, such as the Centers for Disease Control and Prevention shown here, provide a mobile version that is designed specifically for display on a mobile browser.
Source: Centers for Disease Control and Prevention

Pages 2-11 and 2-12
Figure 2-7

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# The World Wide Web (slide 3 of 4)

- A webpage has a unique address, called a **web address** or URL

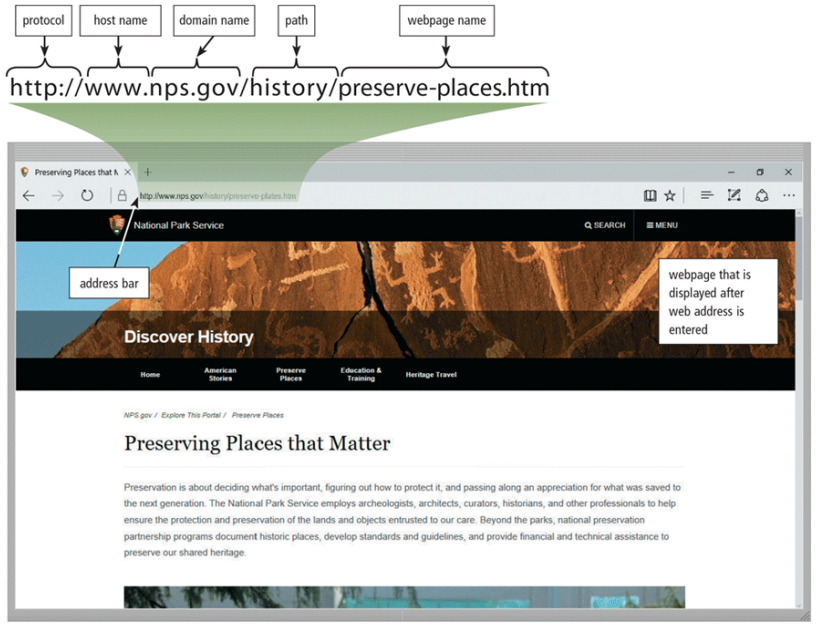


**Figure 2-8** After entering http://www.nps.gov/history/preserve-places.htm in the address bar and then pressing the ENTER key or clicking the Search, Go, or similar button in a browser, the U.S. Department of the Interior National Park Service home page shown here is displayed.
Source: National Park Service U.S. Department of the Interior

Page 2-14
Figure 2-8

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# The World Wide Web (slide 4 of 4)

- A web app is an application stored on a web server that you access through a browser
  - Web apps usually store users' data and information on their hosts' servers

**Figure 2-9** Web and mobile apps often work together, enabling you to access your content from a variety of computers and devices.
Courtesy of Microsoft Corporation

Pages 2-15 and 2-16
Figure 2-9

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# Types of Websites (slide 1 of 7)

- A web **search engine** is software that finds websites, webpages, images, videos, news, maps, and other information related to a specific topic
- A subject directory classifies webpages in an organized set of categories, such as sports or shopping, and related subcategories



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# Types of Websites (slide 2 of 7)

- Search operators can help to refine your search

**Table 2-4 Search Engine Operators**

| Operator | Description | Examples | Explanation |
|---|---|---|---|
| Space or + | Display search results that include specific words. | art + music<br>art music | Results have both words, art and music, in any order, |
| OR | Display search results that include only one word from a list. | dog OR puppy<br><br>dog OR puppy OR canine | Results have either the word, dog, or the word, puppy.<br>Results have the word, dog, or the word, puppy, or the word, canine. |
| ( ) | Combine search results that include specific words with those that include only one word from a list. | Kalamazoo Michigan (pizza OR subs) | Results include both words, Kalamazoo Michigan, and either the word, pizza, or the word, subs. |
| – | Exclude a word from search results. | automobile-convertible | Results include the word, automobile, but do not include the word, convertible. |
| " " | Search for an exact phrase in a certain order. | "19th century literature" | Results include the exact phrase, 19th century literature. |
| * | Substitute characters in place of the asterisk. | writer* | Results include any word that begins with the text, writer<br>(e.g., writer, writers, writer's) |

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Table 2-4

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# Types of Websites (slide 3 of 7)

- There are several types of websites

| | | |
|---|---|---|
| **Search engine** | Online social network | Informational and research |
| Media sharing | Bookmarking | News, weather, sports, and other mass media |

Pages 2-16 through 2-22

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# Types of Websites (slide 4 of 7)

| | | |
|---|---|---|
| Educational | Business, governmental, and organizational | **Blogs** |
| **Wiki** and collaboration | Health and fitness | Science |

Pages 2-23 through 2-25

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# Types of Websites (slide 5 of 7)

- Entertainment
- Banking and finance
- Travel and tourism
- Mapping
- Retail and auctions

Pages 2-25 through 2-27

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# Types of Websites (slide 6 of 7)

Careers and employment

**E-commerce**

**Portals**

**Content aggregation**

Website creation and management

Pages 2-27 through 2-29

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# Types of Websites (slide 7 of 7)

- **Web publishing** is the creation and maintenance of websites

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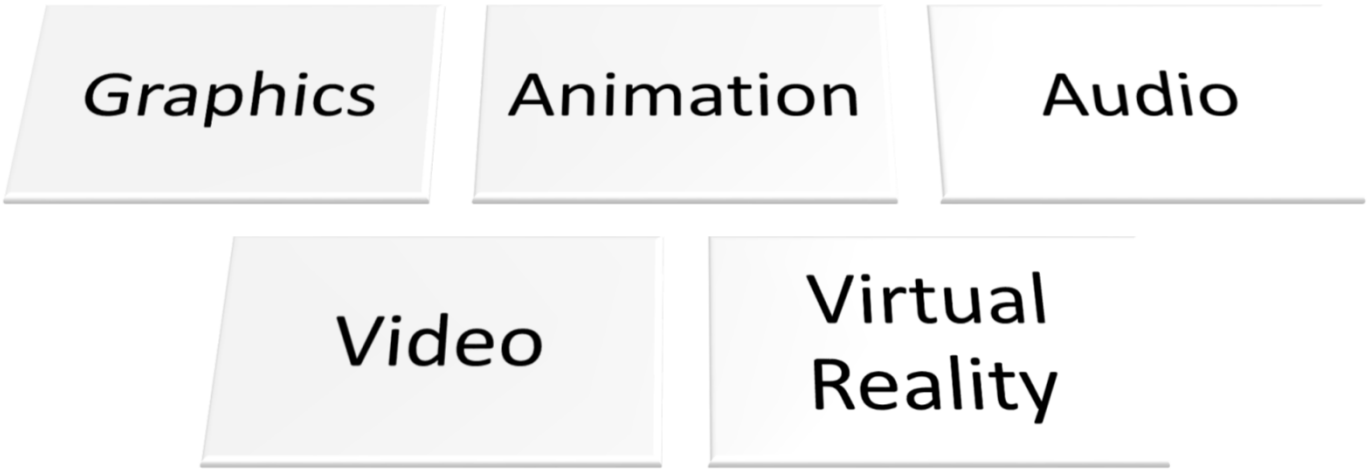
# Digital Media on the Web (slide 1 of 7)

- Multimedia refers to any application that combines text with media



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# Digital Media on the Web (slide 2 of 7)

- A **graphic** is a visual representation of nontext information
- Graphic formats include BMP, GIF, JPEG, PNG, and TIFF

**Figure 2-22** Many webpages use colorful graphics to convey messages. For example, the variety of colors, images, shapes, and thumbnails on the San Diego Zoo webpage visually separate and draw attention to areas of the webpage, making the webpage more dynamic and enticing.
Source: Zoological Society of San Diego

Pages 2-30 and 2-31
Figure 2-22

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# Digital Media on the Web (slide 3 of 7)

- An infographic is a visual representation of data and information, designed to communicate quickly, simplify complex concepts, or present patterns or trends

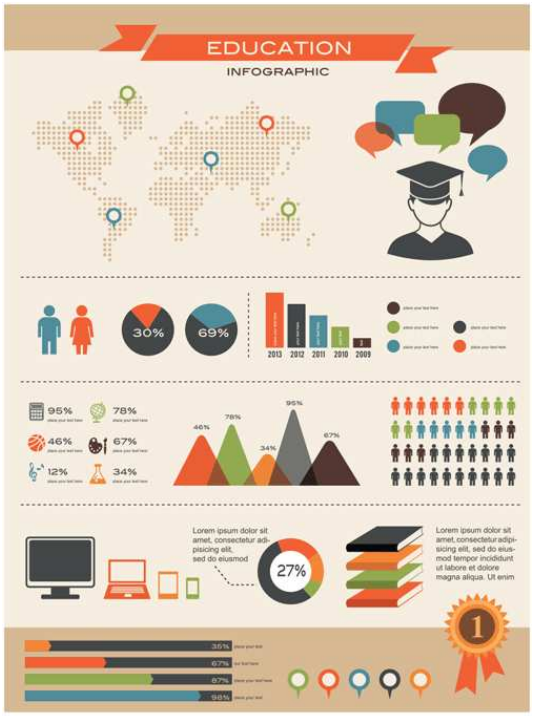


**Figure 2-23** An infographic presents complex concepts at a glance.
Marish / Shutterstock.com

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Figure 2-23

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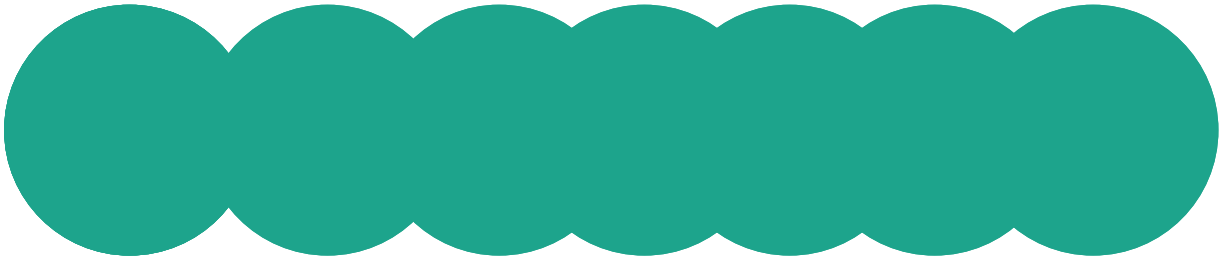
# Digital Media on the Web (slide 4 of 7)

- Animation is the appearance of motion created by displaying a series of still images in sequence





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# Digital Media on the Web (slide 5 of 7)

- Audio includes music, speech, or any other sound
  - Compressed to reduce file size
- You listen to audio on your computer using a media player

**Figure 2-24** Windows Media Player is a popular media player, through which you can listen to music and watch video.
Source: Microsoft Corporation

Pages 2-31 and 2-32
Figure 2-24

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# Digital Media on the Web (slide 6 of 7)

- Video consists of images displayed in motion
- **Virtual reality** (VR) is the use of computers to simulate a real or imagined environment that appears as a three-dimensional (3-D) space

**Figure 2-25** Users can explore a VR world using a touch screen or their input device. For example, users can explore the inside of the Gemini 7 space capsule, located at the Smithsonian Air and Space Museum in Washington, D.C., from their computer or mobile device.
Source: World VR

Pages 2-32 and 2-33
Figure 2-25

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# Digital Media on the Web (slide 7 of 7)

A plug-in, or add-on, is a program that extends the capability of a browser



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# Other Internet Services (slide 1 of 8)

- **Email** is the transmission of messages and files via a computer network
- An **email program** allows you to create, send, receive, forward, store, print, and delete email messages



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# Other Internet Services (slide 2 of 8)

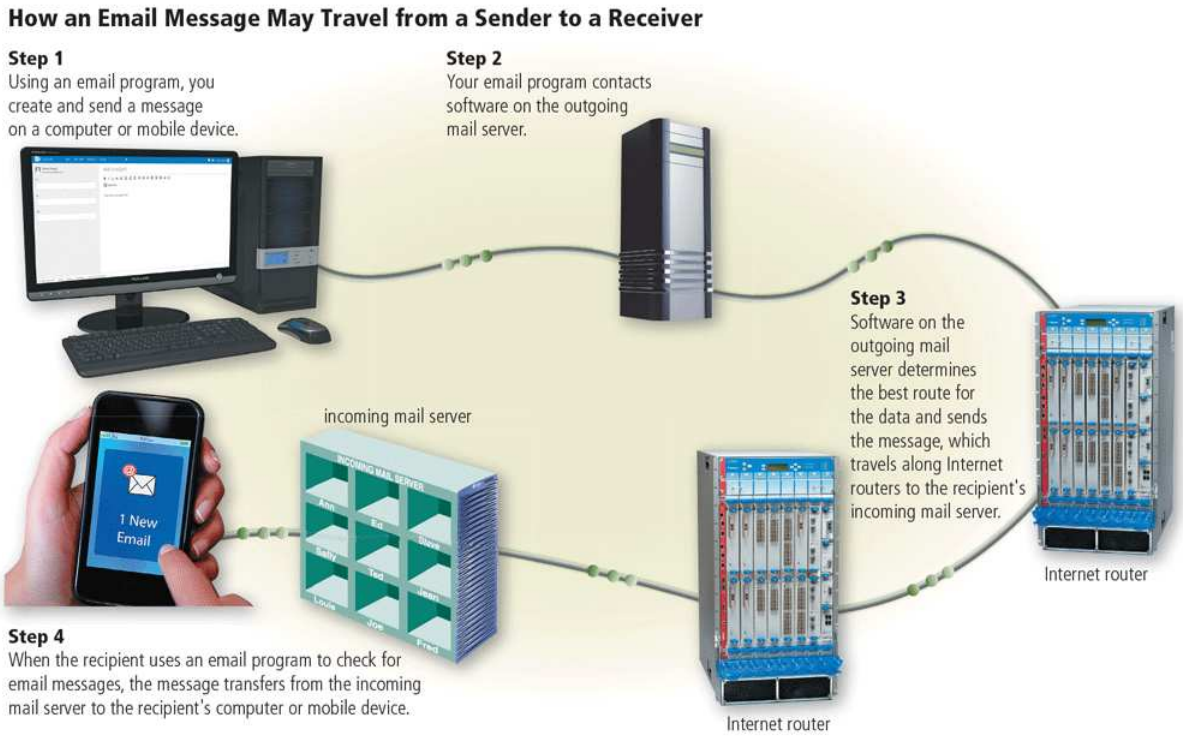


**Figure 2-26** This figure shows how an email message may travel from a sender to a receiver.

Oleksiy Mark / Shutterstock.com; iStockphoto.com / luismmolina; Courtesy of Juniper Networks; iStockphoto.com / hocus-focus

Page 2-34
Figure 2-26

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# Other Internet Services (slide 3 of 8)

- An **email list** is a group of email addresses used for mass distribution of a message

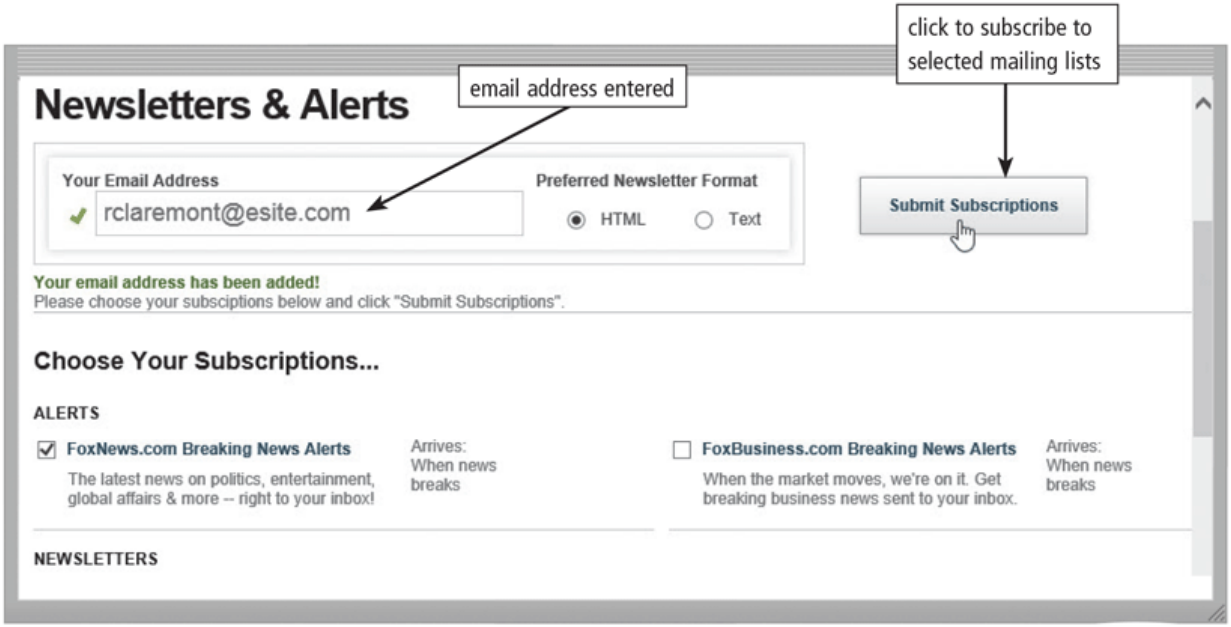


**Figure 2-27** When you subscribe to a mailing list, you and all others in the list receive messages from the website. Shown here is a user who receives newsletters and alerts from FoxNews .com.

Source: FOX News Network, LLC

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Figure 2-27

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# Other Internet Services (slide 4 of 8)

- **Internet messaging** services, which often occur in real-time, are communications services that notify you when one or more of your established contacts are online and then allows you to exchange messages or files or join a private chat room with them

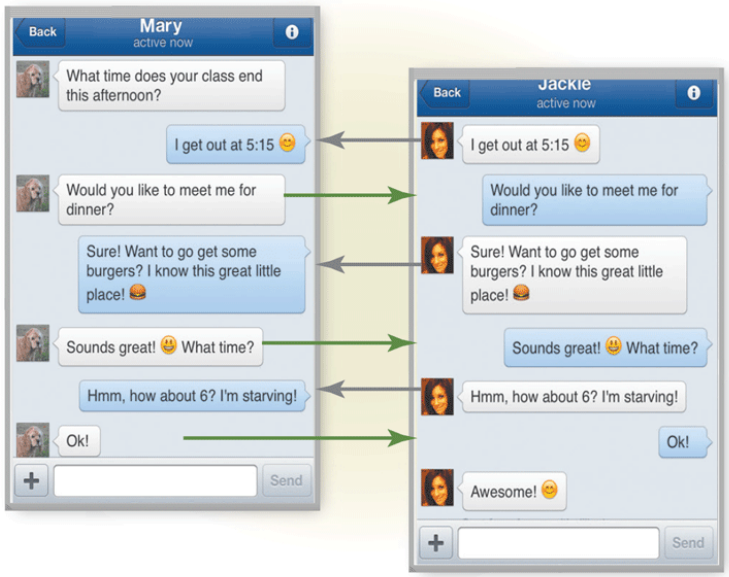


**Figure 2-28** With Internet messaging services, you and the person(s) with whom you are conversing are online at the same time. The conversation appears on all parties' screens at the same time. Shown here is Facebook messenger.
iStockphoto.com / Petar Chernaev; iStockphoto.com / Oleksiy Mark

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Figure 2-28

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# Other Internet Services (slide 5 of 8)

- A **chat** is a real-time typed conversation that takes place on a computer or mobile device with many other online users
- A **chat room** is a website or application that permits users to chat with others who are online at the same time

**Figure 2-29** As you type, others in the same chat room see what you have typed.

ARENA Creative / Shutterstock.com; topseller / Shutterstock.com; Alex Staroseltsev / Shutterstock.com; Oleksiy Mark / Shutterstock.com; Oleksiy Mark / Shutterstock.com; Tom Wang / Shutterstock.com; vlad_star / Shutterstock.com; artjazz / Shutterstock.com

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Figure 2-29

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# Other Internet Services (slide 6 of 8)

- An **online discussion** is an online area in which users have written discussions about a particular subject

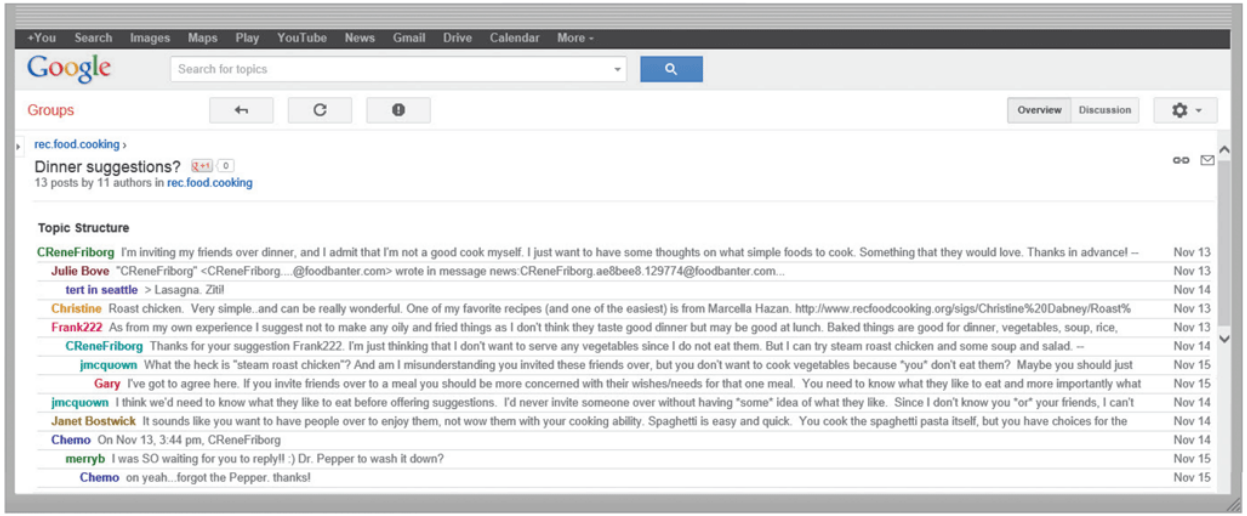


**Figure 2-30** Users in an online discussion read and reply to other users' messages.
Source: Google Inc.

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Figure 2-30

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# Other Internet Services (slide 7 of 8)

- **VoIP** (Voice over IP) enables users to speak to other users via their Internet connection

Source: Microsoft



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# Other Internet Services (slide 8 of 8)

- **FTP** (File Transfer Protocol) is an Internet standard that permits file uploading and downloading to and from other computers on the Internet
- Many operating systems include FTP capabilities
- An FTP server is a computer that allows users to upload and/or download files using FTP



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# Netiquette

- **Netiquette** is the code of acceptable Internet behavior users should follow while on the Internet

**Netiquette Guidelines for Online Communications**
**Golden Rule: Treat others as you would like them to treat you.**

Be polite. Avoid offensive language.

Avoid sending or posting *flames*, which are abusive or insulting messages. Do not participate in *flame wars*, which are exchanges of flames.

Be careful when using sarcasm and humor, as it might be misinterpreted.

Do not use all capital letters, which is the equivalent of SHOUTING!

Use **emoticons** and **emojis** to express emotion. Popular emoticons include:

:) Smile :| Indifference :o Surprised :( Frown :\ Undecided ;) Wink

Popular emojis include:

Lack of knowledge, Approval, Tears of joy, Love, Happiness, Boredom

Use abbreviations and acronyms for phrases:

| | | | | | |
|---|---|---|---|---|---|
| BTW | by the way | IMHO | in my humble opinion | FWIW | for what it's worth |
| FYI | for your information | TTFN | ta ta for now | TYVM | thank you very much |

Clearly identify a *spoiler*, which is a message that reveals an outcome to a game or ending to a movie or program.

Be forgiving of other's mistakes.

Read the *FAQ* (frequently asked questions), if one exists.

**Figure 2-31** Some of the rules of netiquette, with respect to online communications.
Source: Microsoft

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Figure 2-31

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# Summary

- Evolution of the Internet
- The web
- Various types of websites and media
- Other services available on the Internet
- Netiquette



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# 2

# Connecting and Communicating Online:
## The Internet, Websites, and Media

Module 2
Complete

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