Developing a Basic Web Page

Creating a Web Page for Stephen Dubé's Chemistry Classes

Objectives

- Review the history of the Web, the Internet, and HTML
- Describe different HTML standards and specifications
- Learn about the basic syntax of HTML code

Objectives

- Mark elements using two-sided and one-sided tags
- Insert an element attribute
- Create comments
- Describe block-level elements and inline elements
- Specify an element’s appearance with inline styles

Objectives

- Create and format different types of lists
- Create boldfaced and italicized text
- Describe logical and physical elements

Objectives

- Define empty elements
- Insert an inline image into a Web page
- Insert a horizontal line into a Web page
- Store meta information in a Web document
- Display special characters and symbols

Introducing the World Wide Web

- A **network** is a structure linking computers together for the purpose of sharing resources such as printers and files
- Users typically access a network through a computer called a **host** or **node**
- A computer that makes a service available to a network is called a **server**

Introducing the World Wide Web

- A computer or other device that requests services from a server is called a **client**
- One of the most common network structures is the **client-server network**
- If the computers that make up a network are close together (within a single department or building), then the network is referred to as a **local area network (LAN)**

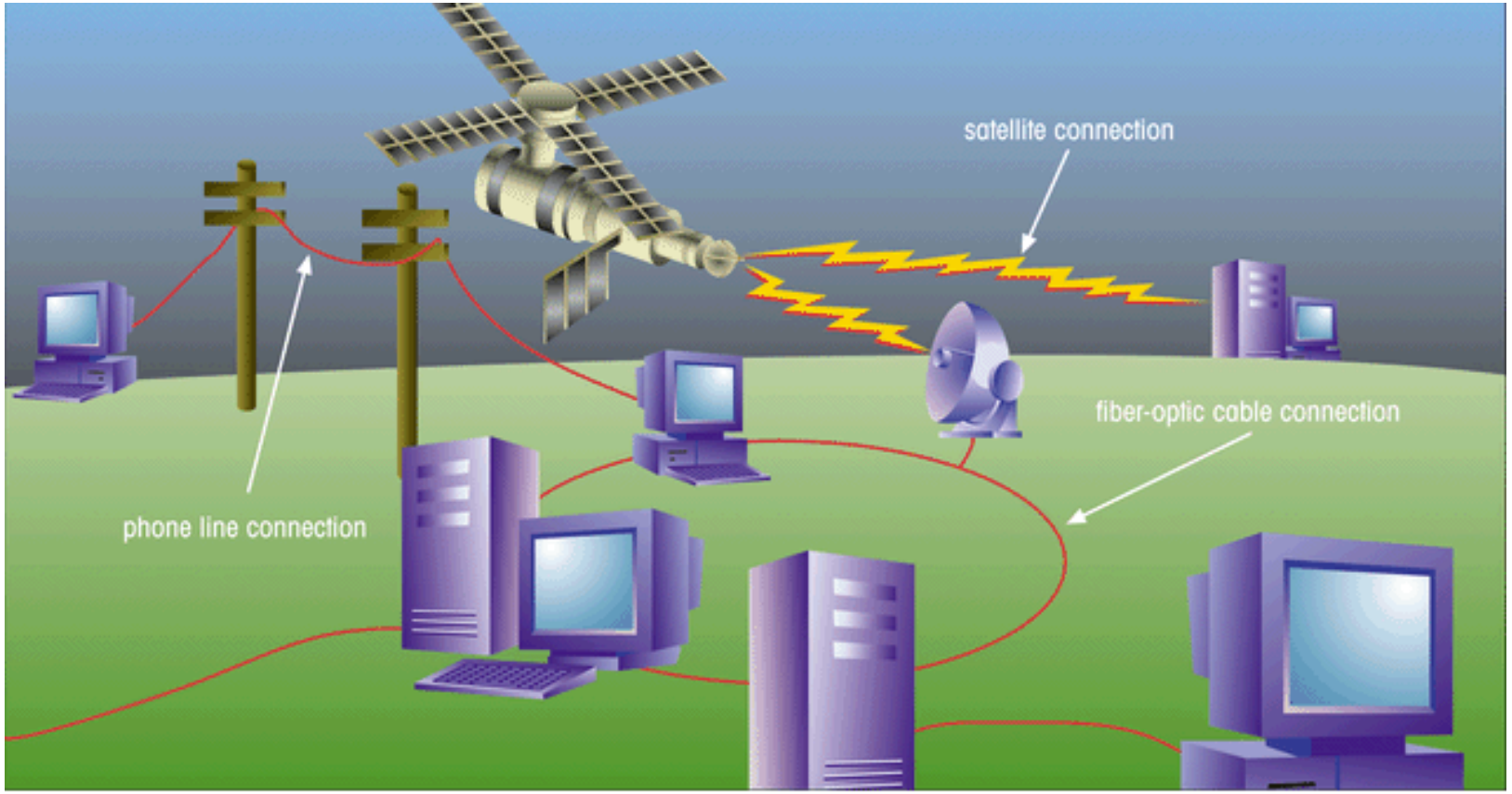
Introducing the World Wide Web

- A network that covers a wide area, such as several buildings or cities, is called a **wide area network (WAN)**
- The largest **WAN** in existence is the **Internet**
- In its early days, the Internet was called **ARPANET** and consisted of two network nodes located at UCLA and Stanford, connected by a phone line

Introducing the World Wide Web

- Today the Internet has grown to include hundreds of millions of interconnected computers, cell phones, PDAs, televisions, and networks
- The physical structure of the Internet uses fiber-optic cables, satellites, phone lines, and other telecommunications media

Structure of the Internet



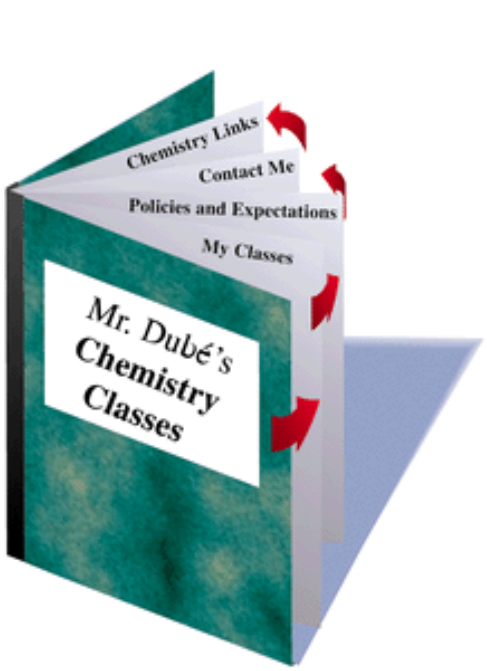
The Development of the Word Wide Web

- Timothy Berners-Lee and other researchers at the CERN nuclear research facility near Geneva, Switzerland laid the foundations for the **World Wide Web**, or the **Web**, in 1989
- They developed a system of interconnected **hypertext** documents that allowed their users to easily navigate from one topic to another
- **Hypertext** is a method of organizing information that gives the reader control over the order in which the information is presented

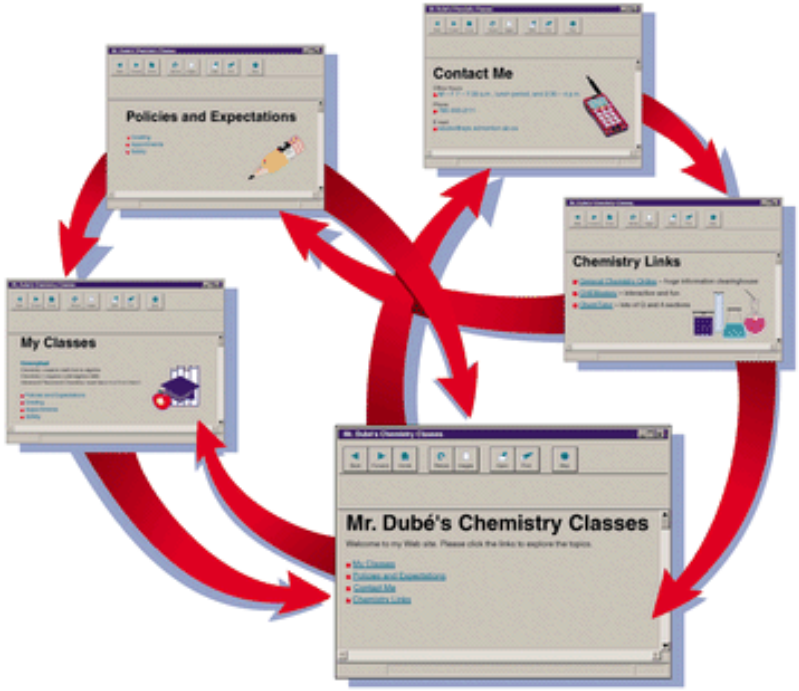
Hypertext Documents

- When you read a book, you follow a linear progression, reading one page after another
- With hypertext, you progress through pages in whatever way is best suited to you and your objectives
- Hypertext lets you skip from one topic to another

Linear versus hypertext documents



Reading a linear document



Reading a hypertext document

Hypertext Documents

- The key to **hypertext** is the use of **hyperlinks (or links)** which are the elements in a hypertext document that allow you to jump from one topic to another
- A **link** may point to another section of the same document, or to another document entirely
- A **link** can open a document on your computer, or through the Internet, a document on a computer anywhere in the world

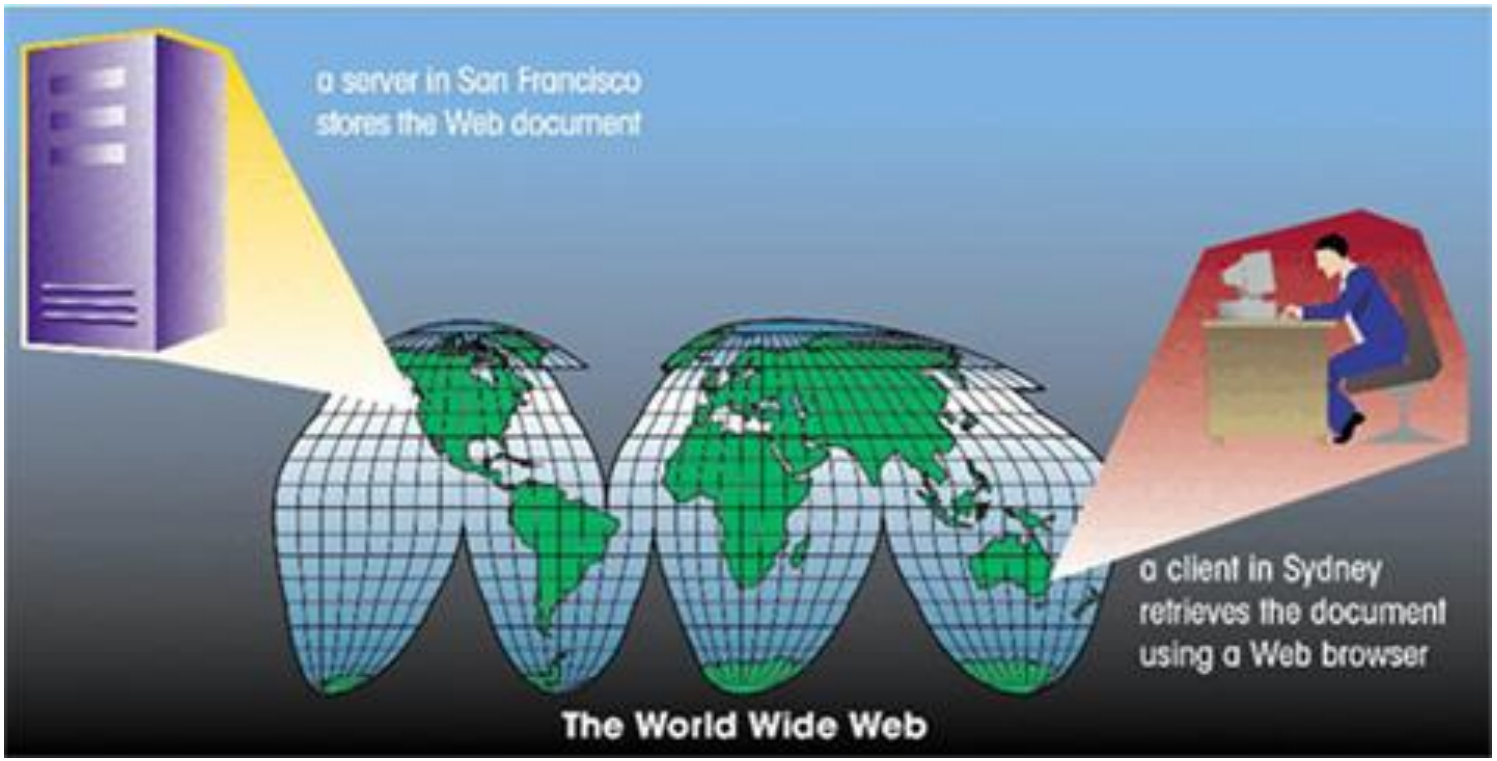
Hypertext Documents

- An entire collection of linked documents is referred to as a **Web site**
- The hypertext documents within a Web site are known as **Web pages**
- Individual pages can contain text, audio, video, and even programs that can be run remotely

Web Servers and Web Browsers

- A **Web page** is stored on a **Web server**, which in turn makes it available to the network
- To view a **Web page**, a client runs a software program called a **Web browser**, which retrieves the page from the server and displays it
- The earliest browsers, known as **text-based browsers**, were incapable of displaying images
- Today most computers support **graphical browsers** which are capable of displaying not only images, but also video, sound, animations, and a variety of graphical features

Using a browser to view a Web document from a Web server



HTML: The Language of the Web

- A Web page is a text file written in a language called **Hypertext Markup Language**
- A **markup language** is a language that describes a document's structure and content
- HTML is not a programming language or a formatting language
- **Styles** are format descriptions written in a separate language from HTML that tell browsers how to render each element. Styles are used to format your document

The History of HTML

- The first version of HTML was created using the **Standard Generalized Markup Language (SGML)**
- In the early years of HTML, Web developers were free to define and modify HTML in whatever ways they thought best
- Competing browsers introduced some differences in the language. The changes were called **extensions**

The History of HTML

- A group of Web developers, programmers, and authors called the **World Wide Web Consortium**, or the **WC3**, created a set of standards or specifications that all browser manufacturers were to follow
- The **WC3** has no enforcement power
- The recommendations of the **WC3** are usually followed since a uniform approach to Web page creation is beneficial to everyone

Versions of HTML and XHTML

Version	Date	Description
HTML 1.0	1989–1994	The first public version of HTML which included browser support for inline images and text controls.
HTML 2.0	1995	The first version supported by all graphical browsers. It introduced interactive form elements such as option buttons and text boxes. A document written to the HTML 2.0 specification is compatible with almost all browsers on the World Wide Web.
HTML 3.0	1996	A proposed replacement for HTML 2.0 that was never widely adopted.
HTML 3.2	1997	This version included additional support for creating and formatting tables and expanded the options for interactive form elements. It also supported limited programming using scripts.
HTML 4.01	1999	This version added support for style sheets to give Web designers greater control over page layout. It added new features to tables and forms and provided support for international features. This version also expanded HTML's scripting capability and added increased support for multimedia elements.
XHTML 1.0	2001	This version is a reformulation of HTML 4.01 in XML and combines the strength of HTML 4.0 with the power of XML. XHTML brings the rigor of XML to Web pages and provides standards for more robust Web content on a wide range of browser platforms.
XHTML 1.1	2002	A minor update to XHTML 1.0 that allows for modularity and simplifies writing extensions to the language.
XHTML 2.0	2004–	The latest version, designed to remove most of the presentational features left in HTML.

The History of HTML

- Older features of HTML are often **deprecated**, or phased out, by the W3C. That does not mean you can't continue to use them—you may need to use them if you are supporting older browsers
- Future Web development is focusing increasingly on two other languages: **XML** and **XHTML**
- **XML (Extensible Markup Language)** is a metalanguage like SGML, but without SGML's complexity and overhead

The History of HTML

- **XHTML (Extensible Hypertext Markup Language)** is a stricter version of HTML and is designed to confront some of the problems associated with the different and competing versions of HTML
- **XHTML** is also designed to better integrate **HTML** with **XML**
- **HTML** will not become obsolete anytime soon

Guidelines

- Become well-versed in the history of HTML
- Know your market
- Test

Tools for Creating HTML Documents

- Basic text editor like Notepad
- **HTML Converter** - converts formatted text into HTML code
  - Can create the source document in a word processor and then convert it
  - HTML code created using a converter is often longer and more complicated than it needs to be, resulting in larger-than-necessary files

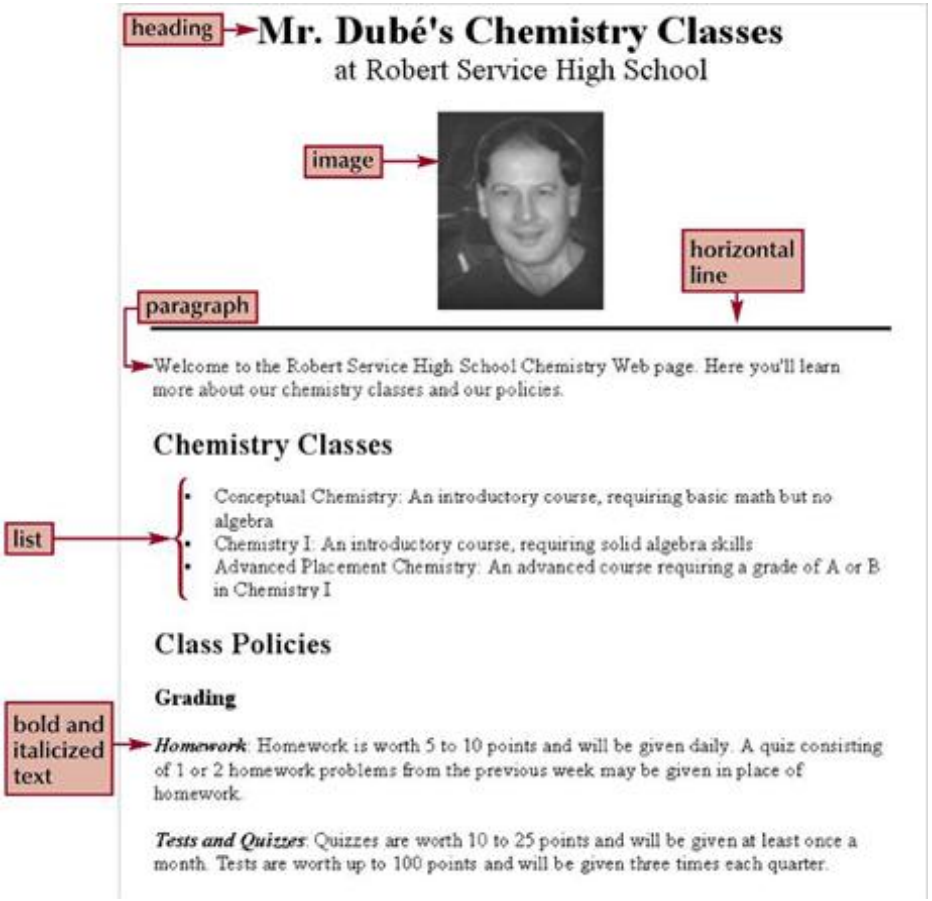
Tools for Creating HTML Documents

- **HTML Editor** – helps you create an HTML file by inserting HTML codes for you as you work
  - They can save you a lot of time and help you work more efficiently
  - Advantages and limitations similar to those of HTML converters
  - Allow you to set up a Web page quickly
  - Will usually still have to work with HTML code to create a finished document

Creating an HTML Document

- It is a good idea to plan out a Web page before you start coding
- Draw a planning sketch or create a sample document using a word processor
- Preparatory work can weed out errors or point to potential problems

Creating an HTML Document



Creating an HTML Document

- In planning, identify a document's different elements. An **element** is a distinct object in the document, like a paragraph, a heading, or a page's title
- Formatting features such as **boldfaced** font, and *italicized* text may be used

Marking Elements with Tags

- The core building block of HTML is the **tag**, which marks each element in a document
- Tags can be two-sided or one-sided
- A **two-sided tag** is a tag that contains some document content. General syntax for a two-sided tag:

<element>content</element>

Marking Elements with Tags

- A two-sided tag's opening tag ( ) and closing tag ( ) should completely enclose its content
- HTML allows you to enter element names in either uppercase or lowercase letters
- A one-sided tag contains no content; general syntax for a one-sided tag:

<element />

Marking Elements with Tags

- Elements that employ one-sided tags are called empty elements since they contain no content. An example is a line break
- A third type of tag is the comment tag, which you can use to add notes to your HTML code

<!– comment -->

- Comments are useful in documenting your HTML code for yourself and others

White Space and HTML

- HTML file documents are composed of text characters and **white space**
- **White space** is the blank space, tabs, and line breaks within the file
- HTML treats each occurrence of **white space** as a single blank space
- You can use **white space** to make your document more readable

Element Attributes

- Many tags contain attributes that control the behavior, and in some cases the appearance, of elements in the page
- Attributes are inserted within the tag brackets

<element attribute1="value1" attribute2="value2" …/>
for one-side tags

<element attribute1="value1" attribute2="value2" …>content</element>
for two-sided tags

The Structure of an HTML File

- The opening **<html>** tag marks the start of an HTML document, and the closing **</html>** tag tells a browser when it has reached the end of that HTML document
- Anything between these two tags makes up the content of the document, including all other elements, text, and comments

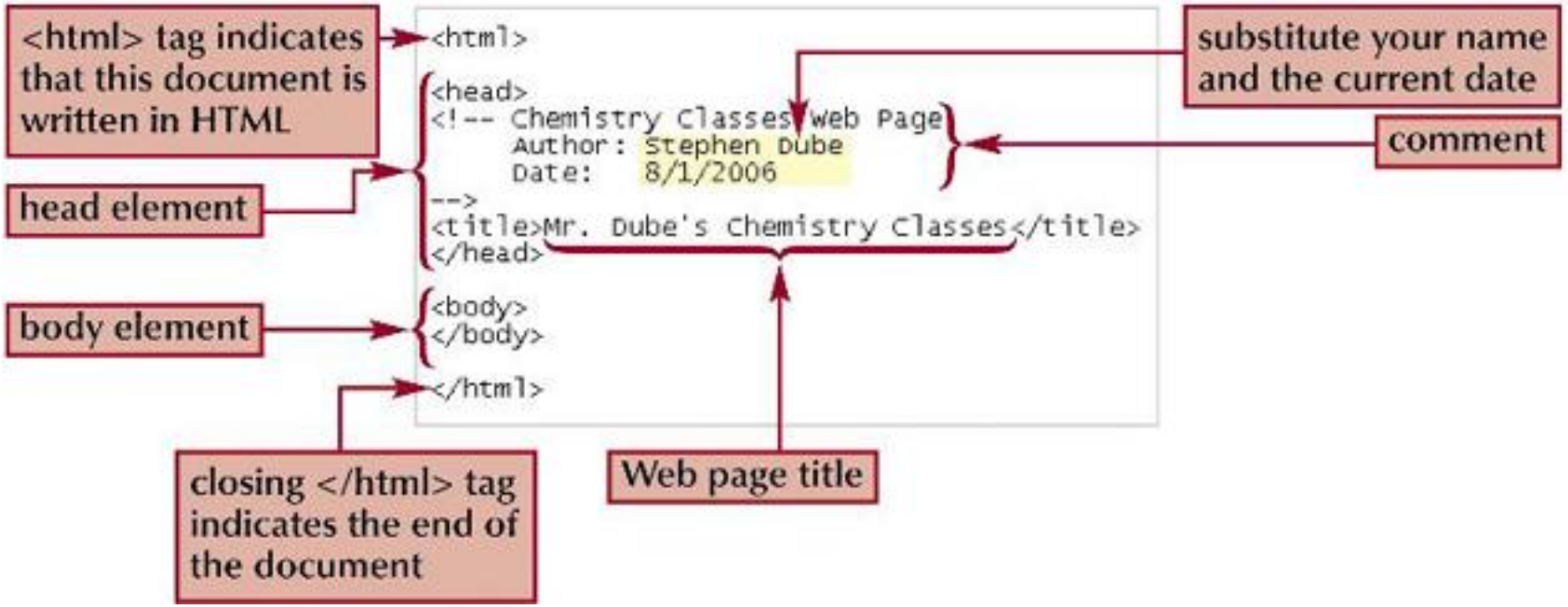
The Structure of an HTML File

- An HTML document is divided into two parts: the **head** and the **body**
- The **head** element contains information about the document, for example the document title or the keywords
- The content of the **head** element is not displayed within the Web page

The Structure of an HTML File

- The **body element** contains all of the content to be displayed in the Web page
- The **body element** can contain code that tells the browser how to render the content
- The **title element** contains the page's title; a document's title is usually displayed in the title bar

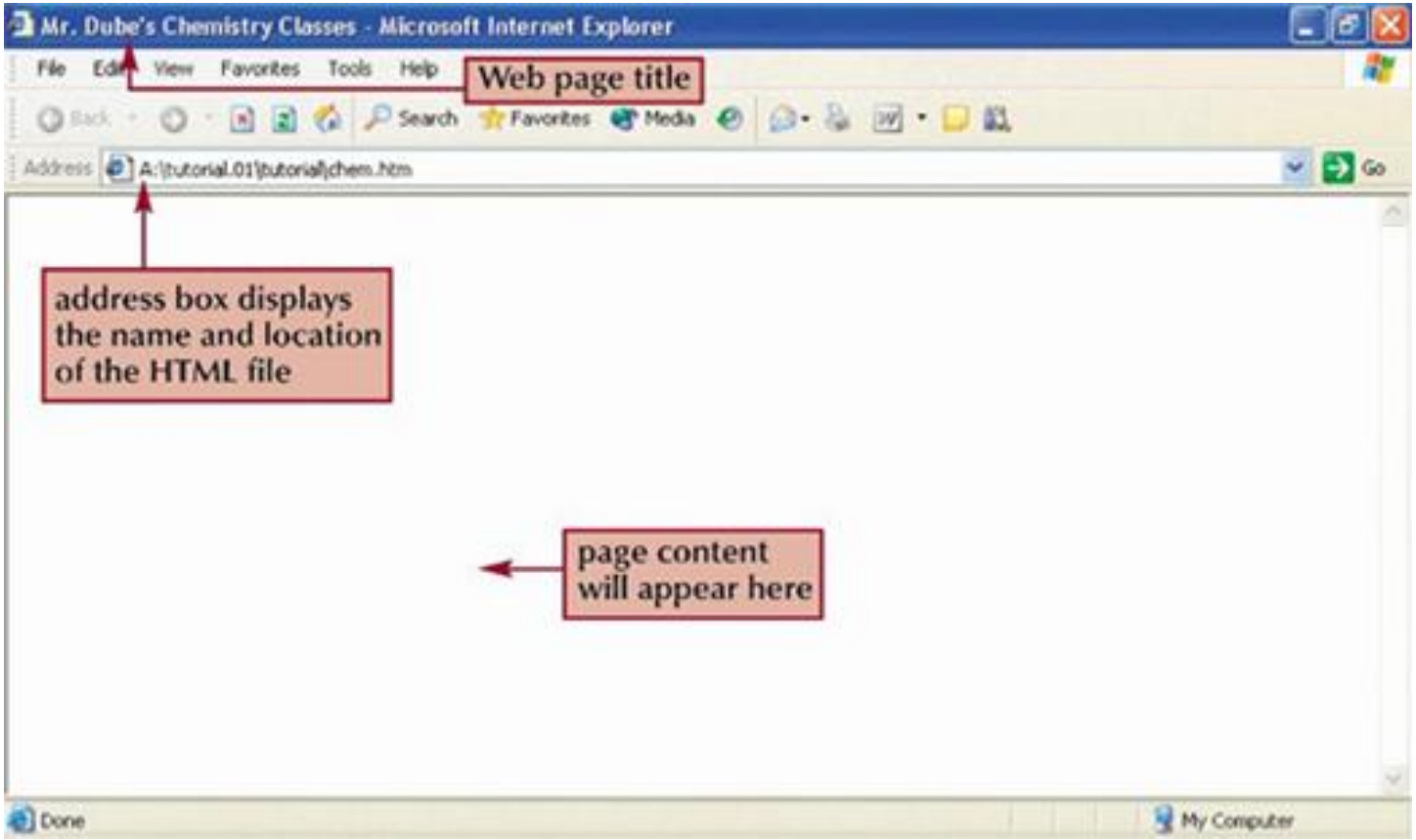
Initial HTML code in chem.htm



Displaying an HTML File

- As you work on a Web page, you should occasionally view it with your Web browser to verify that the file contains no syntax errors or other problems
- You may want to view the results using different browsers to check for compatibility

Initial Web page viewed in Internet Explorer



Working with Block-Level Elements

- In a Web page, most content is marked as either a **block-level** element or an inline element
- A **block-level** element contains content displayed in a separate section within the page, setting it off from other blocks
- An **inline element** is part of the same block as its surrounding content—for example individual words or phrases within a paragraph

Creating Headings

- HTML supports six heading elements

This is an h1 heading

This is an h2 heading

This is an h3 heading

This is an h4 heading

This is an h5 heading

This is an h6 heading

Styles

- Use the **style attribute** to control the appearance of an element, such as text alignment
- Styles specified as attributes in a tag are also referred to as **inline styles**
- The **text-align style** tells the browser how to horizontally align the contents of an element
- **Presentational attributes** specify exactly how the browser should render an element

Creating Lists

- HTML supports three kinds of lists: **ordered, unordered, and definition**
- You use an **ordered list** for items that must appear in a particular sequential order
- You use an **unordered list** for items that do not need to occur in any special order
- One **list** can contain another list; this is called a nested list

Applying a Style to a List

List-Style-Type	Marker (s)
disc	•
circle	o
square	■
decimal	1, 2, 3, 4, ...
decimal-leading-zero	01, 02, 03, 04, ...
lower-roman	i, ii, iii, iv, ...
upper-roman	I, II, III, IV, ...
lower-alpha	a, b, c, d, ...
upper-alpha	A, B, C, D, ...
none	*no marker displayed*

Creating a Definition List

- The **definition list** contains a list of definition terms, each followed by a definition description
- Web browsers typically display the definition description below the definition term and slightly indented

Chemistry I

An introductory course requiring solid algebra skills

Using Other Block-Level Elements

- HTML supports the **address element** to indicate contact information. Most browsers display an address element in an italicized font
- You can indicate long quoted passages by applying the **blockquote element**. The text is typically indented

Working with Inline Elements

- Character formatting elements are one of HTML's set of inline elements. This element allows you to format text character

  Welcome to our **Chemistry Classes**

Understanding Logical and Physical Elements

- A **logical element** describes the nature of the enclosed content, but not necessarily how that content should appear
- A **physical element** describes how content should appear, but doesn't indicate the content's nature
- You should use a **logical element** that accurately describes the enclosed content whenever possible, and use **physical elements** only for general content

Working with Empty Elements

- To display a graphic, you insert an **inline image** into the page. An **inline image** displays a graphic image located in a separate file within the contents of a block-level element
- You can insert a horizontal line by using the one-sided tag **<hr />**
- A **pixel** is a dot on your computer screen that measures about 1/72” square

Working with Empty Elements

- Other **empty elements** you may wish to use in your Web page include **line breaks** and **meta elements**
- **Meta elements** are placed in the document's head and contain information about the document that may be of use to programs that run on Web servers

Working with Special Characters

- Occasionally you will want to include special characters in your Web page that do not appear on your keyboard

£ ®

- HTML supports the use of character symbols that are identified by a code number or name

&code

Working with Special Characters

Symbol	Code	Name	Description
©	©	©	Copyright symbol
®	®	®	Registered trademark
•	·	·	Middle dot (bullet)
°	°	°	Degree symbol
			Nonbreaking space, used to insert consecutive blank spaces
<	<	<	Less than symbol
>	>	>	Greater than symbol
&	&	&	Ampersand

Summary: Tips for Good HTML Code

- Use line breaks and indented text to make your HTML file easier to read
- Insert comments into your HTML file to document your work
- Enter all tag and attribute names in lowercase
- Place all attribute values in quotes
- Close all two-sided tags

Summary: Tips for Good HTML Code

- Make sure that nested elements do not cross
- Use styles in place of presentational elements whenever possible
- Use logical elements to describe an element's content
- Use physical elements to describe the element's appearance

Summary: Tips for Good HTML Code

- Include the alt attribute for any inline image to specify alternative text for non-graphical browsers
- Know your market and the types of browsers that your audience will use to view your Web page
- Test your Web page on all relevant browsers