HTML5 Basics: Elements & Tags

HTML: Hypertext Markup Language

Developed by the W3C: World Wide Consortium, 1997

Used in any web page you visit online.

Instructs browsers on how to display text, images, hyperlinks, etc

HTML documents are plain text files

You can view plain text files on any browser or type of computer

If you were to try typing up html instructions in Word, the software would add formatting which would inhibit proper display in a web browser

Newest version of HTML is HTML5 which is regularly updated with new features

Audio and video are integral to HTML5, not so with HTML. HTML5 and other programming languages such as CSS3, and JavaScript eliminate the need for Adobe Flash which will be no longer supported as of 2020.

Basic HTML Structure

Elements – Special or key words recognized by browsers and used to structure and style a website

3 Conditions must be met for the browser to apply the code correctly:

Element: Recognizable key word, letter, or phrase

Tag: The word/element is enclosed in brackets < and > (ex: <h1>)

An opening tag is followed by a closing tag (ex: <h1>, </h1>)

Closing tags contain a forward slash after the bracket but before the element

Mostly only content and content structure is contained in tags, not style rules

HTML Element Reference – Tags Ordered Alphabetically:
https://www.w3schools.com/tags/
Common Elements:

Headlines are represented by the heading element h# with the # indicating importance from 1 to 6
ex: <h1>This is the most important headline</h1>

Paragraphs are represented by the p element
ex: <p>The p element inserts a line break after the closing tag</p>
This includes line spacing (white space) between paragraphs

Line breaks (new line but not extra space added) can be added with the tag <br>
Useful for addresses or poems
This tag is self-closing so no </br> needed

Practice using tags with headings:
<h1>Hello</h1>
<h2>Hello</h2>
<h3>Hello</h3>
<h6>Hello</h6>

Practice entering line breaks using br
1) Nature’s first green is gold,<br>Her hardest hue to hold.<br>Her early leaf’s a flower;<br>But only so an hour.
2) To break lines<br>in a text,<br>use the br element.

Practice with the p element https://www.w3schools.com/html/tryit.asp?filename=tryhtml_default
Type <p>This is a second paragraph.</p> after the given line <p>This is a paragraph.</p>

Notice all the other elements besides the h1 and p elements. These are necessary for correct coding across various browsers.*Although sometimes they are optional. Even when omitted they are implied and still there.
At the top is the tag <!DOCTYPE html> which indicates this is written in HTML5.
The <html> tag tells the browser this is an HTML document and contains all the other HTML elements.
The <head> tag contains information about the document that does not display on the web page.
The <title> tag is situated inside the head tag. This gives a title to your document which shows in the browser tab, is the title in search-engine results, and provides the title for bookmarks.
The <body> tag contains the entire content of the web page.
What Can Coding Do for You?

Programming is based in logic, but also requires creativity. Just like brain teasers and puzzles, programming makes your mind sharper and encourages flexibility.

“Of all creative pursuits, programming is unique in that it forces you into a simultaneous process of creative synthesis and analytical diagnostics. It forces you to dream up innovative solutions and then express those solutions in a logical, step-by-step fashion. It helps structure the way you think, and this way of thinking will bleed into every area of your life....Even if you never actually create a program worth using, the very act of learning how to program will strengthen your mental faculties. And really, that's as good a reason as any to pick up the skill.” ~ Joel Lee
https://www.makeuseof.com/tag/3-myth-busting-reasons-start-coding-even-older-age/

What is Coding?

Coding or programming is simply writing instruction for a computer to execute. Computers use machine language (binary or hexadecimal code) which is hard for humans to read or interact with. Programmers write in high-level languages which use English generally. Machine code is a low-level language. A compiler or interpreter translates this into low-level code computers can use.

What is Scratch?

Scratch is a visual programming language created at the MIT Media Lab. Using blocks of code, users can program animations, games, and interactive stories.

Why Scratch?

Easy to understand visual introduction to the logic behind all code.

Scratch encourages us to think creatively, reason systematically, and work collaboratively.
Today’s Scratch Project: Animate a Name

Getting Started

> Go to: scratch.mit.edu
> Click on “Join Scratch” in upper right corner
> Create an account
> Click on “Tutorials” near upper left corner
> Select “Animate a Name”
Near the upper left you will see 3 tabs; the “Code” tab is currently selected and below that is a list of the code we will use to create our animations
You will also see a smiling yellow cartoon cat; this is a sprite and Scratch’s mascot

Sprites – any graphic element other than the stage (background), such as characters or objects

> Click the x to remove Sprite1 in the bottom right quadrant of your screen
> Add a new sprite by clicking on 🐱 -> Letters -> select letter
> Continue to add letters
> Add a backdrop by clicking on 🌍
> Left click on a letter to select that letter, select the letter you want to work with
> Use the code blocks to animate and make change to each letter
> Always add an Event block to specify when a code block applies
Today we will learn a little about programming for the web.

1) Open Chrome and proceed to your preferred news source.
2) Right click on any static news headline.
3) Left click on “Inspect”.
   This will open up a view to the code used to create this webpage. This view is called the Developer Tools panel. The line(s) highlighted in blue are the code creating the headline
4) Click on the grey triangle to expand the lines of code. Now the arrow points down.
5) Double click on the headline text
6) Use your keyboard to change the headline text. Press Enter on your keyboard. You should see this change on your screen.
7) Refresh the website.
A little about how the World Wide Web works:

The World Wide Web is the term for the collection of web pages using http that can be accessed through the internet.

When you type in an address for a website in your address bar, this request is sent by your router to your ISP (Internet Service Provider) which uses a DNS (Domain Name Server) to determine the IP address (such as 192.168.1.1) you are trying to access. The website server receives the request and sends a copy of the website code which loads in your browser. When we changed the code we only did so to the code that had loaded on our own browser. So when we refresh the page, we are resending the request out through the router and receiving back the code which loads the page again. Therefore, none of the changes we made would be seen by anyone else.

Types of programming languages commonly used to create web pages:

Appearance: HTML, CSS, JavaScript – content, layout, style; anything visible

Infrastructure: Apache, Nginx – connects the website from the server to you

Logic: Ruby on Rails, Python, PHP – can modify content code, determines what happens when

Storage: MySQL, MongoDB – saves data generated by the site or users

A little test with html:

1) Open Notepad
2) Type: `<h1 title="United States of America" lang="en">USA</h1>`
3) Save this file as a .html to your desktop
   Open the file on your desktop