

Resource Packet

8th grade

Computer Science Discoveries

Mrs. Best

Hope Middle School

Students,

Please review all HTML and CSS content in this packet. At the end of the packet is a project guide and rubric for your final website. If you have Internet access, please review the project guide and rubric to work on your website.

Mrs. Best

HTML Tags

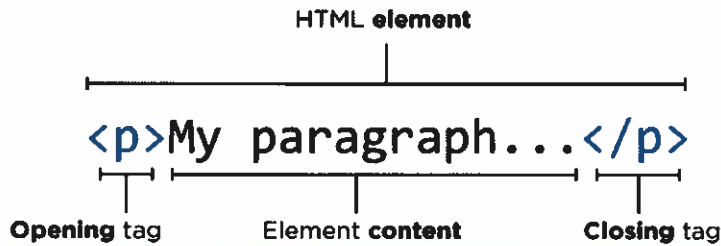
What is HTML?

In order to display a web page a computer needs to know a lot more than just what words or images should be on the screen. It needs to know where to place the content, what size to make it, what fonts and colors to use, and lots of other information that turns ordinary text and images into a full web page.

To solve this problem computer scientists have created languages that communicate this extra information. HTML, short for Hypertext Markup Language, is one language that helps solve this problem. Using a system of tags HTML lets a programmer indicate the purpose of different parts of a web page. This lets the computer know how it should display these different elements.

HTML Tags

HTML indicates the purpose of different parts of a web page by surrounding them with pairs of opening and closing tags, like in the example below.



HTML Tag	Tag Name	What it does
<p>	Opening Paragraph Tag	Start of a paragraph. Paragraphs are just blocks of text in your web page.
</p>	Closing Paragraph Tag	Marks the end of a paragraph. An end tag is always just the opening tag with a / at the beginning.

Default Tags

All HTML pages include a common set of tags. They're so common, in fact, that all Web Lab projects will start with them added already.

HTML Tag	What it does
<pre><!DOCTYPE html> <html> <head> </head> <body> </body> </html></pre>	This starter code is included in each Web Lab project. The different tags are explained below.
<!DOCTYPE html>	Tells the computer that this is a document written in HTML.
<html>	Indicates the beginning of your code written in HTML.
<head>	Contains information (sometimes called "metadata") about your web page.
<body>	Contains all the main contents of your web page.

W3 Schools

There are lots of great resources to learn about HTML tags online, but one of the most commonly used is [w3schools.com](http://www.w3schools.com). This website includes lots of useful information about how tags work as well as links to new tags you might want to read about. In Map Levels in this unit you'll always find a link to the tags on W3 Schools and you should explore other tags if you're interested in learning more.

W3 Schools Links

- <p>
- <!DOCTYPE>
- <html>
- <head>
- <body>

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Headings and Paragraphs

Almost all pages that you create will have headings and paragraphs.

Headings

Headings are the different sized section titles throughout a web page. Headings add structure to your web page by breaking it up so its easier for a user to read.

Making Headings

There are six different heading tags: `<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>` and `<h6>`. The most common type of heading is `<h1>`. To use it, you put the text you want to display inside between the opening tag (`<h1>`) and closing tag (`</h1>`).

The code for a heading will look like `<h1>My Heading Text</h1>`.

Size of Headings

There are different sized headings which are marked by the number next to the h in the heading tag. They go from `<h1>` to `<h6>`.

Example	Result
<pre><h1>Shoulders</h1> <h2>Knees</h2> <h3>Toes</h3></pre>	<p>Shoulders</p> <p>Knees</p> <p>Toes</p>

Paragraphs

Paragraphs group together sets of sentences and put some space between that group of text and the next group of text.

Making Paragraphs

Paragraphs are marked by opening (`<p>`) and closing (`</p>`) tags. To create more than one paragraph you will want multiple sets of opening and closing `<p>` tags. For example

```
<p>
  2 This is a paragraph.
</p>
<p>
  5 This is another paragraph.
</p>
```

W3 Schools Links

- `<h1>` - `<h6>`
- `<p>`

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Updating the Tags List

This map level recaps the tags that students learned throughout this lesson. Encourage students to use this resource to update their HTML tags list or poster.

Lists

HTML has two types of lists, ordered and unordered.

Ordered Lists

An ordered list is a set of numbered items.

An ordered list element has the tag ``. This is an abbreviation for Ordered List. Each item in the list is marked by a list item element ``. This is an abbreviation for List Item. The list item element is a child element, which means that it goes inside of its parent element, the ordered list (``).

Making an ordered list has two steps: making the list and adding the list items. To make the ordered list, write the ordered list tags `` ``. Next, add your list items inside the ordered list tags. To make each list item, use the list item tags `` `` and write the list item inside the tags.

It can be helpful to indent your `` tags so it's clear they are contained in the `` tag.

Example	Result
<pre> 2 Step 1 3 Step 2 4 Step 3 </pre>	<ol style="list-style-type: none"> 1. Step 1 2. Step 2 3. Step 3

Unordered Lists

An unordered list is a set of bulleted items.

An unordered list element has the tag ``. This is an abbreviation for Unordered List. Each item in the list is marked by a list item element ``. This is an abbreviation for List Item. The list item element is a child element, which means that it goes inside of its parent element, the unordered list (``).

Making an unordered list has two steps: making the list and adding the list items. To make the unordered list, write the unordered list tags `` ``. Next, add your list items inside the unordered list tags. To make each list item, use the list item tags `` `` and write the list item inside the tags.

It can be helpful to indent your `` tags so it's clear they are contained in the `` tag.

Example	Result
<pre> 2 Red 3 Green 4 Blue </pre>	<ul style="list-style-type: none"> • Red • Green • Blue

W3 Schools Links

- [](#)
- [](#)
- [](#)

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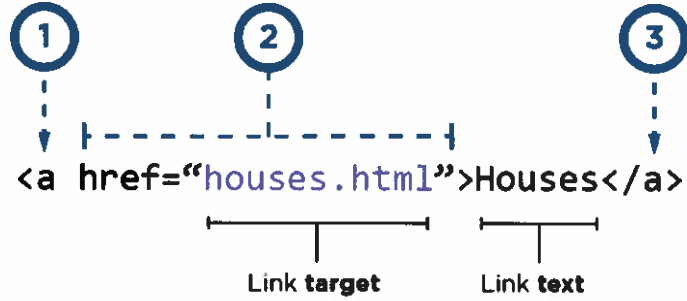


Hyperlinks

Hyperlinks can connect to local web pages or external web pages. To add navigation to your website you will need to add hyperlinks which connect your individual web pages. You can add hyperlinks to your web page using the `<a>` element. The text you want to display as the hyperlink goes between the opening and closing hyperlink tags. The `<a>` element has an attribute `href` which is the location to link to. The location of a local page is just the file path for that page.

Using Hyperlinks

Assuming you have a website that includes a second page with the filename `houses.html`, you could create a link to that page like this:



1. The `<a>` tag wraps the text that you want to turn into a clickable link. `A` is short for *anchor*.
2. The `href` attribute, short for *hypertext reference*, determines where your link should go to. In this case, `houses.html`.
3. The closing tag ends your link.

WS Schools Link

• `<a>`

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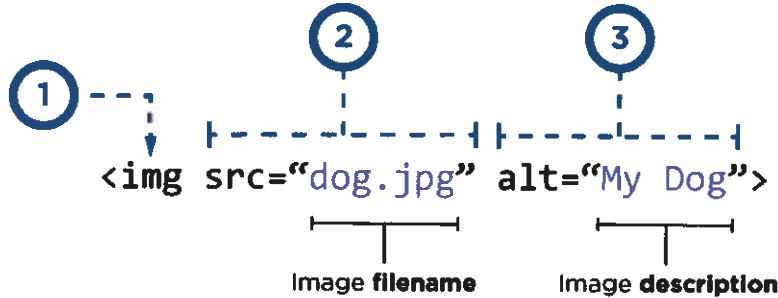
Continue


Images in HTML

The `img` tag allows you to add images to your page. You might notice that this tag looks a little different than those you've seen before. Unlike paragraph, header, or list tags, the image tag *doesn't require a closing tag*. All of the information needed to display your image is contained within the tag itself.

Image Source and Alternate Text

In order to tell the browser which file to use, extra information, called an attribute, is added to the image tag inside the brackets. The attribute `src` stands for source and tells the name of the image, and the attribute `alt` describes the image.



1. Create an image tag using the abbreviation `img`. This is considered a *self closing* tag, since it doesn't need to wrap text as many other tags do.
2. The `src` attribute is short for source. This tells the tag which image to load. In this case, the page will look for an image with the filename `dog.jpg` in the same directory as the page. Image file names include extensions that tell the computer which type of image they are working with. Common extensions are `.jpg`, `.jpeg`, and `.png`. Make sure to put quotation marks around your image filename.
3. The `alt` attribute is short for alternative text. While you won't see this text on your web page, it provides a backup in case your image doesn't download properly or for visually impaired users. In this example, if your browser failed to load the image you would see 

W3 Schools Links

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Text Properties

There are many CSS properties available that allow you to style the text on your page. Here's a review of some of the more common ones

Property	What It Changes	Example
color	The color of your text	color: maroon;
text-align	The alignment of your text	text-align: center;
text-decoration	Additional style	text-decoration: underline;
font-family	Which font to use	font-family: fantasy;
font-size	The size of your text	font-size: 28px;

Styled Text Example

If we put this all together, you might get some text like this:

```
p {
  color: maroon;
  text-align: center;
  text-decoration: underline;
  font-family: fantasy;
  font-size: 28px;
}
```

This is my styled text! It's so cool!!!

Specifying Fonts

You might notice when using CSS like `font-family: fantasy;` that your text looks different on different computers. This is because we're only telling the browser what *kind* of font to use, not which *specific* font.

W3 Schools Links

- [CSS Text Properties](#)

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Differences in Browsers and Operating Systems

As mentioned in this map, you may find that different combinations of computers and browsers render fonts differently. While there is a common specification for how HTML and CSS should be read and displayed on the screen, each browser does so in a slightly different way, which can lead to the same page looking different on different computers. If your students encounter this, you can reassure them that it's a common challenge that web developers face.

In the case of `font-family: fantasy;`, you can actually specify a list of fonts, from most to least specific. That way, if a user's computer has the exact font you specified, that's what they'll see, but if not the browser will try the next font on your list. To try and ensure that users see the font in the example image, you could write the CSS as `font-family: Papyrus, fantasy;`. That way, even if a user's browser has a different default font for "fantasy", it will try to load the specific font "Papyrus" first.

If students want the page to show an exact font, they'll need to use a font from the web, so the browser can download that specific font to use when rendering the page. More information on these fonts can be found at Google Fonts (<https://fonts.google.com/>) and W3Schools (https://www.w3schools.com/Css/css3_fonts.asp).

Layout Properties

There are many properties that help set the styles of your web pages.

Property	Description	W3 Schools Link
background-color	Sets the background color of the element	W3 Schools
border-color	Sets the color of the border	W3 Schools
border-width	Changes the border width of an element	W3 Schools
border-style	Changes the style of border	W3 Schools
width	Sets the width of an element	W3 Schools
height	Sets the height of an element	W3 Schools
float	Floats an element to one side of the page	W3 Schools
margin	Generates space around an element	W3 Schools

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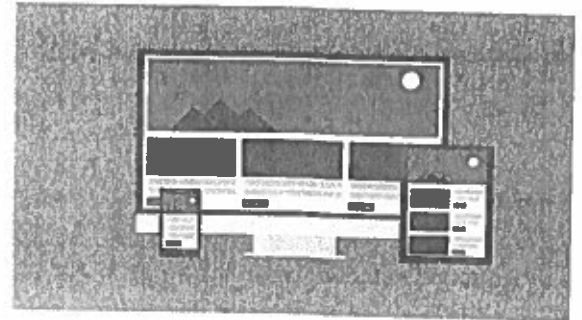
Name(s) _____ Period _____ Date _____

Project Guide - Final Personal Website



Overview

Web design is a powerful tool for self expression, sharing information, and building a business. During this project you will get to finalize the website that expresses your personal style and shares some of the work you have done in this class. You have already done most of the work in creating this site, so this is your chance to add your finishing touches and celebrate everything that you have done in this unit.



You will...

- Learn HTML and CSS
- Create a multi-page website

You will submit...

- Screenshots of the progress of your home page
- Your final website
- Your personal reflection

Project Process

- Finalize the content of all website pages
- Style your entire website pages using a single stylesheet
- Put finishing touches on your site
- Check your website against the rubric
- Reflect on what you have accomplished

Step 1: Finalize Content

Identify any that content is left to create on your website. Your site should have the following files:

- **Home Page** - This is the first page that people will see when coming to your site. It's the page you started off with at the beginning of the unit.
- **Lists Page** - This page has at least one ordered or unordered list. It could be a recipe, a top ten list, or something else of your choice.
- **Third Page** with content of your choice.
- **Style Sheet** - This is the css file that you used to create the styles on your website.
- **Images** - These are the images that you will show on your website. You should have at least three of them.

Spend time reading back through pages that you made earlier in the unit to make sure you're still happy with them. Consider revising pages to make them more compelling to your reader.

Step 2: Style Your Site

Using a single stylesheet that is linked to from all of your pages to give your entire website a consistent style. Use the space below to plan out which styles you will apply to each element.

Element or Class	Style
Body	
Paragraph	
Headers 1-6	
Ordered List	
Unordered List	
Image	

Name(s) _____ Period _____ Date _____

Final Personal Website Rubric

C O
D E

Personal Website	Yes/No	Comments
Structure		
Code is clearly organized and easy to read		
Every page contains DOCTYPE, <html> element, <head> element, and <body> element.		
Headings, paragraphs, and lists are used to organize content.		
All text in the page is contained inside elements.		
Content		
A user can get to any web page on your site from any other page on your site.		
The website does not give away any personally identifiable information (Full name, address, etc.)		
All content from outside sources have attribution underneath with available information about the author, title, and source.		
Style		
RGB colors are in at least 2 places on the website (e.g. color, background-color)		
All style rules are in external stylesheets with descriptive names		
The stylesheet(s) are linked to the appropriate pages file is on the website		
Text is styled with CSS (e.g. font-size, font-family, text-decoration, text-align)		
Layout is styled with CSS (e.g. height, width, border, float, margin)		