# HTML Basics

## About HTML

HyperText Markup Language, abbreviated as HTML, is the standard language used to build websites across the internet. HTML allows you to see how websites are constructed "under the hood" and to view and edit the code that structures the website. HTML will typically give you more fine control over the layout and appearance of a website than you can achieve when using a visual editor, and being able to edit "raw" HTML for platforms like StoryMap or Timeline often allows you to access advanced editing options.

## Elements in HTML

HTML organizes web documents into segments called **elements**. These elements may instruct the browser to create a paragraph, embed an image, link to another website, or change the appearance of text on a webpage. Here is an example of HTML, with some example elements, such as **<p>** (for paragraphs) and **<h1>** (for top-level headings):

```
<html>
   <head>
       <title>The Boston Hardware Store Website</title>
   </head>
   <body>
       <h1>Boston Hardware Store</h1>
       <h2>The lowest prices in the 617</h2>
       <p>Boston Hardware Store has the <span style="color:red">lowest prices</span> of any hardware store in the area.
          <br/>Come on down to 110 State Street, Boston, MA to see out latest lines of products and speak with our staff.
          <br/>We specialize in <strong>home repair support</strong> and appliances!</p>
   </body>
</html>
```

This might display in a browser as follows:

# Boston Hardware Store

## The lowest prices in the 617

Boston Hardware Store has the lowest prices of any hardware store in the area.
Come on down to 110 State Street, Boston, MA to see out latest lines of products and speak with our staff.
We specialize in **home repair support** and appliances!

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Here are some key details about how elements work:

- The boundaries of HTML **elements** are defined by **tags,** which usually surround some kind of content. A full element includes a **start tag** that begins the element, the **content** of the element, and an **end tag** that closes the element.
- For example, you might have a ** ** element for a paragraph, as in:
  `<p>The contents of the paragraph.</p>`
  - The ** ** is the **start tag**. This tells your browser that a paragraph will begin.
  - The ** ** is the **end tag**. This tells your browser that the paragraph has ended.
  - Between the start and the end tag are the **contents** of the element.
- You might also see **empty elements**, which have a slightly different notation that combines the start and end tags. For example, here is how you would indicate a "break" in HTML: **<br/>**.
- Elements in HTML can be **nested** inside each other. This means that two different elements can apply to the same bit of content.
- You will see the names of elements referenced in different ways. In this handout, we will reference them like so: ** ** or **<h1>** or **<title>**.

**Attributes in HTML**

Elements can possess attributes which add information about the element.

- Attributes typically follow the convention of **name = "value"**. The **name** specifies the type of additional information the attribute will provide, and the **value** is the specific information being provided.
- In this example: `<span style ="color:red">YOUR TEXT HERE</span>`
  - **** is the element being modified with an attribute
  - **style** is the **name** of the attribute, indicating that this attribute will provide more information about how the element should be styled by the browser
  - **color:red** is the **value** of the attribute, specifying that the particular style being applied here is to change the contents of the element red
- Two very commonly-used HTML elements rely on attributes to work: **<a>** for links, and **<img>** for images. In both cases, the attribute is used to give the location for the outside content that is being linked or displayed.
  - **<a>** is an element that specifies a hyperlink, using the **href** attribute to say where the link should go, as in:
    `<a href = https://"www.google.com">YOUR TEXT HERE</a>`
    Clicking on YOUR TEXT HERE will take the website user to www.google.com. Make sure you include the full url for the website!

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- **<img>** is an element that will create an image on a website. When used with the attribute **src**, it will allow you to specify the image you want to embed. For example, in:
  `<img src="https://upload.wikimedia.org/wikipedia/commons/3/39/Marmot-edit1-cool.jpg" alt="A marmot wearing sunglasses" width="500" height="600"/>`.
  - The **src** is the attribute that specifies the url location of the image, here as "https://upload.wikimedia.org/wikipedia/commons/3/39/Marmot-edit1-cool.jpg"
    This image must be stored somewhere on the internet in order to be displayed using this element.
  - **alt** specifies the alt text for the image, which describes the image as "A marmot wearing sunglasses."
  - The **width** and **height** attributes specify how large the image may appear on the website, and further specifications can be added to change the position and appearance of the image.
  - Note that **<img>** is an **empty element**, like **<br>**.

**Tips for Using HTML**

- HTML requires a lot of trial and error. Small changes within elements may cause them to not function properly. It is important to not just write out your code in HTML, but to test it constantly by previewing or opening the HTML in a browser. You need to *see* what your changes do.
- One common error that students of HTML may face is not closing your tags. If you are having problems with your HTML not working properly, go back and check to see if all your elements have an end tag and that it is formatted correctly.
- Watch out for curly quotation marks, also known as smart quotes. If you draft your html in an editor such as Google Docs, it may automatically make smart quotes which will break your HTML.
  - HTML requires straight quotes, which look like this: "
  - Smart/curly quotes look like this: “ ”

**Useful HTML Elements**

There are a number of basic HTML elements that can get you started on creating content for web pages.

- **<p>** or paragraph is the main element utilized to put text on the page of websites

- **<h1>**, **<h2>**, **<h3>**, and so on are headings, which can help to keep your site well-organized.
    - **<h1>** indicates the largest and most important heading for the whole page; **<h2>** is the next level down, indicating a subsection within the larger page; **<h3>** is the next level down; and so on (down to **<h6>**).
    - For accessibility purposes, it is important that you use the right level heading for the actual content on your page—don't just change to a different level to make the text larger or smaller.
- **** is a generic element for marking out a span of text. This can be useful, for example, if you want to change the color of the text with the "style" attribute, as in: `<span style = "color:red">`
- **<br>** creates a line break in your text. It is an empty element, usually written as: **<br/>**
- **** bolds the content between the tags
- **** italicizes the content between the tags

**About CSS**

Cascading Style Sheets, abbreviated as CSS, is a language that adds further description to how a browser displays HTML elements. While HTML sets the structure for a webpage, CSS allows for more ambitious aesthetic changes. For example, HTML can specify a link on a website, but CSS will allow you to change the color of a link or make it upside down. The **style** attribute is actually an example of using CSS, and if you find code online that uses CSS, you can add it to your website through this attribute. For more information about CSS, see the W3School's guide, or the resources listed at the end of this handout.

**HTML Templates**

You can use the templates below to get started adding your own HTML.

Change Text Color:

```
<span style ="color:red">YOUR TEXT HERE</span>
```

Add Link:

```
<a href="URL">text</a>
```

Add Alternate Text to Image/Media:

```
<img src="IMAGE URL" alt="IMAGE DESCRIPTION"/>
```

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**Resources for Learning More**

- W3 Schools, a basic guide to HTML which is easy to follow for beginners and includes a list of important elements and a guide to CSS
- Programming Historian, an overview of HTML for those with little familiarity in coding
- HTML Color Picker, allows users to find color and download the code in HTML or CSS needed to use them in their website
- Khan Academy Videos, basic videos that take you through programming in HTML and CSS

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