



1.3.4 HTML, CSS & JavaScript

Webpages

Webpages are made up of HTML, CSS and JavaScript.

HTML - describes the content of the page and gives the page structure by using tags to define different page elements.

CSS - dictates the style and formatting of the webpage.

JavaScript - allows for interaction with the elements on the page.

```
<html>
  <head>
    <title>My Web Page</title>
  </head>
  <body>
    <h1>Teddy Bear Island</h1>
    <p id="p1">Current inhabitants:</p>
    <ul>
      <li>Bob</li>
      <li>Tom</li>
      <li>Goose</li>
    </ul>
    
    <br>
    <a href="www.puppyisland.com">Check out Puppy Island</a>
  </body>
</html>
```

Teddy Bear Island



Top cutest bears:

1. Fuzzy
2. Snuggiebug
3. Cuddles

[Go to Puppy Island](#)





HTML

A standard web page is split into two sections, a head and a body. These sections are denoted by the **<head>** and **<body>** tags.

Any metadata about the webpage goes in the head tag. This may include the page title and any scripts and styles.

The title of the webpage goes between the **<title>** tags and will be displayed in the browser's tab.

The content of the webpage goes between the body tags **<body>**

```
<html>
  <head>
    <!-- Metadata goes here -->
  </head>
  <body>
    <!-- The content of the webpage goes here -->
  </body>
</html>
```

Headers and Paragraph Tags

There are 6 heading tags **<h1>**, **<h2>**, ..., **<h6>** which define headings in order of importance with **<h1>** being the most important.

<h1> should only be used once for the main heading of the web page.

A paragraph tag **<p>** is used for normal text.

Like with header tags a line space is inserted above and below each paragraph

```
<html>
<head>
  <title>My Webpage</title>
</head>
<body>
  <h1>The Main Heading</h1>
  <h2>Sub Heading 1</h2>
  <h2>Sub Heading 2</h2>
  <h3>Less Important Heading</h3>
  <p>I'm a paragraph</p>
  <p>I'm another paragraph</p>
</body>
</html>
```





Images

The image tag **** allows the insertion of pictures onto the webpage.

The attributes of the image tag are: **src**, **alt**, **width** and **height**.

src is the location of the image file, alt is the alternative text to display if the file can not be found, width and height are the dimensions the image will be displayed with in pixels.

```
<body>
  
</body>
```

Hyperlinks

The anchor tag **<a>** allows for hyperlinks to other pages.

The location of the page to link goes in the tags **href** attribute

It does not automatically start on a new line or add a line break after so can easily be inserted into paragraphs. **
** can be used to force a new line

```
<body>
  <a href="www.puppyisland.com">Check out Puppy Island</a>
</body>
```

Lists

Unordered lists are defined using the tag ****. By default, these display round bullet points for each list item.

Ordered lists are defined using the tag ****. By default, these display numbers for each list item.

Each item in the list will be enclosed by the list tag ****.

```
<body>
  <ul>
    <li>Bob</li>
    <li>Tom</li>
    <li>Goose</li>
  </ul>
</body>
```





Forms

Information can be taken by creating forms on the webpage. A form can be made between the `<form>` `</form>` tags.

The inputs can be defined using an `<input>` tag with a corresponding `<label>` tag defining the text to display.

The type of attribute of `<input>` determines the type of the input. “text” creates a text box while submit creates a submit button.

The id attribute of `<input>` can be used for reference when written JavaScript to allow processing of the data.

```
<body>
  <form action="welcome.php" method="post">
    Name: <input type="text" name="name"><br>
    E-mail: <input type="text" name="email"><br>
    <input type="submit">
  </form>
</body>
```





CSS

Cascading Style Sheets (CSS) is a style sheet language that is used to describe the layout and styles of a webpage.

There are three ways to insert CSS into a HTML document; inline, internal or external

Inline – the CSS is inserted directly into a tag using the style attribute.

Internal – the CSS is inserted inside the <style> tag in the head of the HTML document

External – A link to an external CSS file is given in the <link> tag in the head of the HTML document

```
<html>
<head>
  <title>My Webpage</title>
  <style>
    .red {
      color: red;
    }
    .bold {
      font-weight: bold;
    }
    #p5 {
      font-family: monospace;
    }
    #p6 {
      color: blue;
      border: 2px dotted black;
    }
  </style>
</head>
<body>
  <h1>My Webpage</h1>
  <p class="red">Paragraph 1</p>
  <p class="red">Paragraph 2</p>
  <p class="bold">Paragraph 3</p>
  <p class="bold">Paragraph 4</p>
  <p id="p5">Paragraph 5</p>
  <p id="p6">Paragraph 6</p>
</body>
</html>
```

Classes & IDs

Identifier and class selectors are named 'hooks' onto which you can hang styles. Styles can then be applied to elements by adding the id or class name as a parameter.

Identifiers can only be applied to one HTML element. In the style tag the ID name is prefixed with a hash. E.g. #p5





Classes can be applied to multiple HTML elements. In the style tag the class name is prefixed with a full stop. E.g. `.red`

JavaScript

JavaScript is used to program the behaviour of webpages and add interactivity.

Any JavaScript embedded in an HTML document must go inside the `<script>` tag.

The JavaScript code in the `<script>` tag will only work if JavaScript is enabled by the browser.

```
<script>
    document.getElementById("invalidMessage").innerText="Changed"
    document.getElementById("invalidMessage").style.color="red"
</script>
```

An element can be modified by using its Id. Then the HTML or the CSS of the element can be changed.

