

# Complete HTML Notes from Scratch

## 1. Introduction to HTML

HTML (HyperText Markup Language) is the standard markup language for creating web pages. It structures content using elements (tags) that the browser interprets to render text, images, links, forms, and multimedia on a webpage.

## 2. Document Structure

Every HTML document follows this minimal structure:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Your Page Title</title>
</head>
<body>
  <!-- Visible content goes here -->
</body>
</html>
```

- `<!DOCTYPE html>` declares HTML5.
- `<html>` is the root element.
- `<head>` holds metadata, links to stylesheets/scripts, and the `<title>`.
- `<body>` contains all visible content. <sup>[1]</sup>

## 3. Metadata and External Resources

- `<meta charset="UTF-8">` sets character encoding.
- `<meta name="viewport" content="width=device-width, initial-scale=1.0">` enables responsive design.
- `<link rel="stylesheet" href="styles.css">` links external CSS.
- `<script src="script.js" defer></script>` loads external JavaScript. <sup>[1]</sup>

## 4. Text Content and Formatting

Element	Description
<h1>–<h6>	Headings from largest to smallest
<p>	Paragraph
 	Line break
<hr>	Thematic break (horizontal rule)
<strong>	Strong importance (bold)
<em>	Emphasis (italic)
<abbr>	Abbreviation or acronym
<blockquote>	Block quotation
<code>	Inline code snippet
<pre>	Preformatted text
<mark>	Highlighted text
<small>	Smaller text

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## 5. Hyperlinks and Anchors

- `<a href="URL">Link text</a>` creates a hyperlink.
- Common attributes: `target="_blank"`, `rel="noopener"`, `download`.
- Anchor names: `<a id="section1"></a>` for in-page navigation. <sup>[1]</sup>

## 6. Lists

Element	Description
<ul>	Unordered list
<ol>	Ordered list
<li>	List item
<dl>	Description list
<dt>	Term/name in description list
<dd>	Description of term in description list

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## 7. Tables

```
<table>
  <caption>Table Title</caption>
  <thead>
    <tr><th>Header 1</th><th>Header 2</th></tr>
  </thead>
  <tbody>
    <tr><td>Data 1</td><td>Data 2</td></tr>
  </tbody>
  <tfoot>
    <tr><td colspan="2">Footer</td></tr>
  </tfoot>
</table>
```

Element	Description
<code>&lt;table&gt;</code>	Defines a table
<code>&lt;caption&gt;</code>	Table title or caption
<code>&lt;thead&gt;</code>	Groups header rows
<code>&lt;tbody&gt;</code>	Groups body rows
<code>&lt;tfoot&gt;</code>	Groups footer rows
<code>&lt;tr&gt;</code>	Table row
<code>&lt;th&gt;</code>	Header cell
<code>&lt;td&gt;</code>	Data cell
<code>&lt;colgroup&gt;</code>	Groups columns
<code>&lt;col&gt;</code>	Defines column properties

<sup>1</sup>

## 8. Forms and Input Controls

```
<form action="/submit" method="post">
  <label for="name">Name:</label>
  <input type="text" id="name" name="name" required>

  <label for="email">Email:</label>
  <input type="email" id="email" name="email">

  <label>Choose a color:</label>
  <input type="color" name="favcolor" value="#ff0000">

  <label>Select a file:</label>
  <input type="file" name="fileupload">
```

```
<button type="submit">Submit</button>
</form>
```

Control	Type/Tag	Description
Text input	<code>&lt;input type="text"&gt;</code>	Single-line text field
Email input	<code>&lt;input type="email"&gt;</code>	Validated email field
Password input	<code>&lt;input type="password"&gt;</code>	Masks input characters
Radio button	<code>&lt;input type="radio"&gt;</code>	Select one option
Checkbox	<code>&lt;input type="checkbox"&gt;</code>	Select multiple options
Color picker	<code>&lt;input type="color"&gt;</code>	Browser-native color selector
File upload	<code>&lt;input type="file"&gt;</code>	File selection dialog
Textarea	<code>&lt;textarea&gt;</code>	Multi-line text input
Button	<code>&lt;button&gt;</code> or <code>&lt;input type="submit"&gt;</code>	Clickable button
Dropdown list	<code>&lt;select&gt;</code> / <code>&lt;option&gt;</code>	Selectable list
Fieldset	<code>&lt;fieldset&gt;</code> / <code>&lt;legend&gt;</code>	Group related controls
Output	<code>&lt;output&gt;</code>	Displays calculation results
Datalist	<code>&lt;datalist&gt;</code>	Predefined options for inputs

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## 9. Images and Multimedia

Element	Description
<code>&lt;img&gt;</code>	Embeds an image; attributes: <code>src</code> , <code>alt</code> , <code>width</code> , <code>height</code>
<code>&lt;picture&gt;</code>	Container for responsive images ( <code>&lt;source&gt;</code> + <code>&lt;img&gt;</code> )
<code>&lt;figure&gt;</code> / <code>&lt;figcaption&gt;</code>	Self-contained content with caption
<code>&lt;audio&gt;</code> / <code>&lt;video&gt;</code>	Embeds audio/video; attributes: <code>controls</code> , <code>autoplay</code> , <code>loop</code> , <code>muted</code>
<code>&lt;canvas&gt;</code>	Draw graphics via scripting (JS)
<code>&lt;svg&gt;</code>	Inline SVG graphics

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## 10. Semantic HTML5 Elements

Semantic elements convey meaning to browsers and assistive technologies:

Element	Purpose
<code>&lt;header&gt;</code>	Introductory content or navigational links

Element	Purpose
<code>&lt;nav&gt;</code>	Navigation block
<code>&lt;main&gt;</code>	Primary page content (one per document)
<code>&lt;section&gt;</code>	Thematic grouping of content
<code>&lt;article&gt;</code>	Self-contained composition
<code>&lt;aside&gt;</code>	Content aside from main content (sidebar)
<code>&lt;footer&gt;</code>	Footer for section or document
<code>&lt;figure&gt;/&lt;figcaption&gt;</code>	Illustrations with captions
<code>&lt;details&gt;/&lt;summary&gt;</code>	Disclosures the user can expand/collapse
<code>&lt;mark&gt;</code>	Highlighted text
<code>&lt;time&gt;</code>	Date/time value

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## 11. Scripting and Progression

- `<script>` embeds or references JavaScript.
- Use `defer` or `async` attributes to control loading.
- `<noscript>` provides fallback content when scripting is disabled.
- `<progress>` and `<meter>` illustrate task progress and measurements.

[1]

## 12. Best Practices

- Use **semantic** elements for accessibility and SEO.
- Provide `alt` text for images.
- Structure headings in logical order (`<h1>` → `<h2>` ...).
- Validate HTML with W3C tools.
- Separate concerns: HTML for structure, CSS for styling, JS for behavior.
- Optimize assets (images, scripts, styles) for performance.

This guide equips you with foundational HTML knowledge, from basic document setup to advanced semantic practices, enabling you to build well-structured, accessible, and maintainable web pages.

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1. [https://www.w3schools.com/tags/ref\\_byfunc.asp](https://www.w3schools.com/tags/ref_byfunc.asp)