

# 4.1 Using CSS in HTML

## Introduction to CSS

**CSS** (Cascading Style Sheets) is a textual language for describing how a webpage is styled for visual presentation. Web browsers use CSS to determine how a webpage is rendered on the screen, printed to paper, or presented via other media. The CSS acronym highlights the two main characteristics of presenting a webpage:

### PARTICIPATION ACTIVITY

#### 4.1.1: Understanding the CSS acronym.



If unable to drag and drop, refresh the page.

Style Sheet

Cascading

The process of combining multiple style rules and resolving conflicting styles.

Describes the visual presentation of structured documents.

Reset

A web developer uses CSS to write a list of rules. A **CSS rule** consists of a selector followed by a declaration block between braces (`{ }`).

- A CSS **selector** specifies the HTML elements to which the specific style rule applies.
- A **declaration block** contains one or more declarations separated by semicolons (`;`).
- A CSS styling **declaration** is a CSS property followed by a colon (`:`) and the property value.

## Figure 4.1.1: Parts of a CSS rule.

Semicolons are only required to separate rule declarations. *A common error is to forget the separating semicolon when adding a new declaration to a declaration block. Good practice is to place each declaration on a separate line and to add a semicolon to the end of each declaration block, even when a semicolon is not required, so that adding the semicolon is not forgotten later when adding more declarations.*

### PARTICIPATION ACTIVITY

#### 4.1.2: Valid CSS.

1) 

```
h1 {  
  color: black;  
}
```

- ☐ Valid  
☐ Invalid

2) 

```
p {  
  background-color = blue;  
}
```

- ☐ Valid  
☐ Invalid

3) 

```
span { font-weight: bold;  
font-size: 2em; }
```

- ☐ Valid  
☐ Invalid

4) 

```
div {  
  font-family: serif  
}
```

- ☐ Valid  
☐ Invalid

## Applying CSS

CSS can be applied to HTML in three ways:

1. An **inline style** places CSS declarations inside a tag's **style attribute**.
2. An **embedded stylesheet** places CSS rules in an HTML document's head using `<style>` tags.
3. An **external stylesheet** places CSS rules in a separate file that is imported into an HTML document with a `<link>` tag.

The `style` attribute may be used on any tag. *The `<style>` and `<link>` tags may be placed anywhere in a webpage, but good practice is to place `<style>` and `<link>` tags inside the document head (in `<head>` tags).*

#### PARTICIPATION ACTIVITY

#### 4.1.3: Three ways to apply CSS.



##### Inline style

```
<p style="color:green">
  I'm green.
</p>
```

I'm green.

##### Embedded stylesheet

```
<style>
  p { color: orange; }
</style>

<p>I'm orange.</p>
```

I'm orange.

##### External stylesheet

```
<link href="styles.css"
      rel="stylesheet">

<p>I'm purple.</p>
```

```
/* styles.css */
p { color: purple; }
```

I'm purple.

### Animation content:

An HTML snippet of an inline style is shown: `<p style="color:green"> I'm green </p>`. This inline style turns the sentence, "I'm green." to green.

An HTML snippet of an embedded stylesheet is shown:

```
<style>p { color:orange; }</style>
<p> I'm orange. </p>
```

This embedded stylesheet turns the sentence, "I'm orange." to orange.

An HTML snippet is shown:

```
<link href="styles.css" rel="stylesheet">
<p> I'm purple. </p>
```

An external stylesheet is displayed below the HTML snippet:

```
/* styles.css */
p { color:purple; }
```

This external stylesheet turns the sentence, "I'm purple." to purple.

### Animation captions:

1. An inline style uses an element's style attribute to turn the paragraph text green.
2. An embedded stylesheet defines CSS rules in <style> tags. The p selector makes all paragraphs have orange text.
3. A <link> tag imports an external stylesheet into an HTML document. styles.css makes all paragraphs have purple text.

#### PARTICIPATION ACTIVITY

#### 4.1.4: Applying CSS.

1) An inline style does not use a selector.

- ☐ True  
☐ False

2) An inline style uses braces ({ }).

- ☐ True  
☐ False

3) The embedded stylesheet from the animation above makes *all* paragraphs in the webpage orange.

- ☐ True  
☐ False

4) A website should use an external stylesheet to create styles that apply to all webpages.

- ☐ True
- ☐ False

5) Inline styles cannot be used with embedded stylesheets or external stylesheets.

- ☐ True
- ☐ False

## Inheritance and conflict

Every browser has a default stylesheet that specifies styling for each HTML element. Ex: The default style declarations for `<h1>` elements typically specify a bold-weighted font that is twice the normal font size. CSS style declarations override the default style declarations.

The style declarations from a parent element cascade down and are applied to any child elements, a concept called **inheritance**. Each element inherits the style declarations from the element's parent. The element's parent inherits style declarations from the parent's parent element, and so on up to the top-level `<body>` element.

When two style declarations with identical properties apply to the same element, a **conflict** occurs. Two common conflicts include:

1. A parent's style declaration conflicts with a child's style declaration. Ex: The parent element's text is blue, but a child element's style declaration indicates the color should be green. When a conflict occurs, the child's declaration overrides the parent's declaration.
2. An embedded or external stylesheet's style declaration conflicts with an inline style. Ex: An inline style says the element should be blue, but the embedded stylesheet says the element should be green. When a conflict occurs, an inline style overrides the embedded or external stylesheet's declaration.

## Specificity and !important

The browser uses **specificity**, a scoring system that resolves more complex CSS conflicts, to determine what style declarations apply to an element. See the "Exploring further" section below for more information on CSS specificity.

The **!important** rule may be used on a style declaration to override other declarations and disregard specificity. Ex: `p { color: red !important; }` makes the paragraph red, even if an inline style attempts to make the paragraph green. Stylesheets that use **!important** are hard to understand and difficult to maintain, so good practice is to avoid using **!important**.

### PARTICIPATION ACTIVITY

#### 4.1.5: Overriding CSS properties.



```
<style>
p { color:orange; }
span { color:green; }
</style>

<p>
  Part of this sentence is orange,
  <span>while the rest is green.</span>
</p>
<p>
  Part of this sentence is orange,
  <span style="color:blue">while the rest
  is blue.</span>
</p>
<p style="color:red">
  This sentence is red.
</p>
```

Part of this sentence is orange,  
while the rest is green.

Part of this sentence is orange,  
while the rest is blue.

This sentence is red.

### Animation content:

The following code snippet is displayed:

```
<style>
p { color:orange; }
span { color:green; }
```

```
</style>
<p>
  Part of this sentence is orange,
  <span>while the rest is green.</span>
</p>
<p>
  Part of this sentence is orange,
  <span style="color:blue">while the rest
  is blue.</span>
</p>
<p style="color:red">
  This sentence is red.
</p>
```

To the right of this code snippet, the following sentences are displayed inside a browser:

Part of this sentence is orange, while the rest is green.

Part of this sentence is orange, while the rest is blue.

This sentence is red.

### Animation captions:

1. The browser's default styling colors the text black.
2. The embedded stylesheet uses a p selector to color all paragraph text orange.
3. The embedded stylesheet uses a span selector to color all span text green. The first span's color overrides the parent's color.
4. The second span's inline style overrides the embedded stylesheet, so the text is blue.
5. The third paragraph's inline style overrides the embedded stylesheet, so the text is red.

#### PARTICIPATION ACTIVITY

#### 4.1.6: Inheritance and conflicts.



Use the HTML below to answer the questions. Assume the HTML in each question is inserted into the `<body>`.

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Presidential Facts</title>
    <style>
      body {
        color: blue;
      }

      div {
        color: green;
      }
    </style>
  </head>
  <body>
    <!-- Content goes here -->
  </body>
</html>
```

1) What color is the text?



```
<p>George Washington was the
first president of the United
States.</p>
```

- ☐ Black
- ☐ Blue
- ☐ Green

2) What color is the text?



```
<p style="color:yellow">George
Washington was president from
1789 until 1797.</p>
```

- ☐ Yellow
- ☐ Blue
- ☐ Green



3) What color is the text?



```
<div>George Washington did not  
have a middle name. Middle  
names were not common in the  
colonies until the early 19th  
century.</div>
```

- ☐ Black
- ☐ Blue
- ☐ Green

4) What color is the text?



```
<div  
style="color:orange">George  
Washington never lived in the  
White House because  
construction was completed  
several years after he retired  
from the presidency.</div>
```

- ☐ Orange
- ☐ Blue
- ☐ Green

#### PARTICIPATION ACTIVITY

#### 4.1.7: Applying CSS declarations.



Given the following HTML and CSS files, indicate which color the web browser will use to display the words. The CSS uses the **inherit** keyword, which specifies that a property should inherit the parent element's value.

hello.html:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <link href="hello.css" rel="stylesheet">
    <style>
      p {
        color: black;
      }
    </style>
    <title>A Sample CSS Page</title>
  </head>
  <body>
    <p>Hello, <span style="color: green">World</span>!</p>
    <p style="color: inherit">Good day</p>
  </body>
</html>
```

hello.css:

```
body {
  color: red;
}
```

If unable to drag and drop, refresh the page.

green

black

red

Hello

World

Good day

Reset

## Viewing CSS with Chrome DevTools

The Chrome DevTools shows the CSS declarations being applied to the webpage elements. In the screenshot below, the span's inline style makes the span text green. The span element's **color: green** declaration overrides the p element's **color: black** declaration and the body element's **color: red** declaration.

### CHALLENGE ACTIVITY

#### 4.1.1: Writing CSS rules.



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Start

Using a `<style>` element, set the background-color to silver for all `<p>` elements.

#### SHOW EXPECTED

```
1 <!-- Your solution goes here -->
2
3 <p>Paragraph 1 content</p>
4 <p>Paragraph 2 content</p>
5 <p>Paragraph 3 content</p>
```

1

2

3

4

5

Check

Next

View your last submission ▼

Exploring further:

- [Cascade and inheritance](#) from MDN
- [CSS inherit Keyword](#) from W3Schools
- [CSS Specificity](#) from W3Schools

## 4.2 Basic selectors

### Element, class, and ID selectors

CSS has many ways to specify the selector. Three common selector types are:

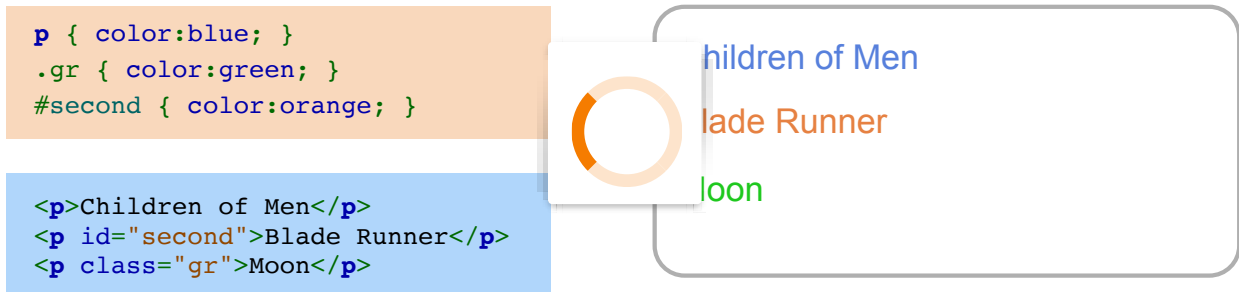
1. The **element selector** matches elements with the specified element names.  
Ex: `p { color: blue; }` selects all `p` elements.
2. The **class selector**, specified with a period character followed by the class name, matches elements that have the specified class name.  
Ex: `.notice { color: blue; }` selects all elements with a `class="notice"` attribute.
3. The **ID selector**, specified with a hash character followed by the ID name, matches the element that has the specified ID.  
Ex: `#byLine { color: blue; }` selects the element with the `id="byLine"` attribute.

HTML class names allow CSS rules and JavaScript code to modify all HTML elements belonging to a class. An HTML tag's **class attribute** specifies the classes to which the tag belongs, with each class name separated by a space. Ex: `<span class="highlight first">` has two classes, `highlight` and `first`. While HTML elements' IDs are unique, many elements may use the same HTML class name.

#### PARTICIPATION ACTIVITY

4.2.1: Applying styles to HTML elements.





## Animation content:

A block of CSS is shown:

A block of HTML is shown:

```
<p>Children of Men</p>
```

```
<p id="second">Blade Runner</p>
```

```
<p class="gr">Moon</p>
```

A browser displays four paragraphs. The first says "Children of Men" in blue text. The second says "Blade Runner" in orange text. The third says "Moon" in green text.

## Animation captions:

1. The default styling colors the text black with a white background.
2. The element selector `p` matches all paragraph elements and colors the text blue.
3. The class selector `.gr` matches all elements with the "gr" class attribute and colors the text green.
4. The ID selector `#second` matches the paragraph with "second" ID attribute and colors the text orange.

### PARTICIPATION ACTIVITY

#### 4.2.2: Element, class, and ID selectors.



Modify or add one CSS rule for each requirement below using the specified selectors.

1. Element selector: Change the text **color** from **green** to **blue** for the list items.
2. Class selector: Set the **text-decoration** to **underline** for all HTML elements

with the class name `footnote`.

3. ID selector: Set the text `color` to `orange` and the `font-style` to `italic` for the HTML element with the ID `footnote-1`.

HTML CSS

```
1 <section>
2   <h2>Facts about CSS</h2>
3   <ul>
4     <li>According to Wikipedia, CSS was first proposed by Håkon Wium
5       <a href="#footnote-1">[1]</a></li>
6     <li>The first W3C CSS Recommendation (CSS1) was released in 1996.
7     <li>CSS was selected over competing stylesheet technologies because
8       style to be influenced by multiple stylesheets by way of "cascading".
9       <a href="#footnote-1">[1]</a></li>
10    <li>Four years passed from when CSS1 was released before any browser
11      <a href="#footnote-2">[2]</a></li>
12  </ul>
13  <p id="footnote-1" class="footnote">
14    [1] <a href="https://en.wikipedia.org/wiki/CSS#History" target="_blank">
15      Cascading Style Sheets history</a>. Retrieved March 31, 2022.
16  </p>
```

Render webpage

Reset code

Your webpage

Expected webpage

## Facts about CSS

- According to Wikipedia, CSS was first proposed by Håkon Wium Lie on October 10, 1994. [1]
- The first W3C CSS Recommendation (CSS1) was released in 1996.
- CSS was selected over competing stylesheet technologies because CSS *allowed a document's style to be influenced by multiple stylesheets by way of "cascading"*. [1]
- Four years passed from when CSS1 was released before any browser fully supported CSS1. [2]

## Facts about CSS

- According to Wikipedia, CSS was first proposed by Håkon Wium Lie on October 10, 1994. [1]
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► View solution

PARTICIPATION  
ACTIVITY

## 4.2.3: Element, class, and ID selectors.

Refer to the following HTML fragment.

```
<ol class="numbers">
  <li id="first">First number</li>
  <li id="second">Second number</li>
  <li id="third">Third <span class="important">number</span></li>
</ol>
<ul>
  <li>A bullet</li>
  <li>Another bullet</li>
  <li>Another <span class="important">important item</span></li>
</ul>
```

- 1) What CSS selector matches all the `<li>` elements?

[Check](#)[Show answer](#)

- 2) What CSS selector matches the last `<li>` element in the ordered list?

[Check](#)[Show answer](#)

- 3) What CSS selector matches the `numbers` class attribute?

[Check](#)[Show answer](#)

## Descendant selector

The **descendant selector**, specified with a selector followed by a space and another selector,



matches elements that are contained in other elements. Ex: `h2 em { color: blue; }` selects `em` elements contained in `h2` elements.

**PARTICIPATION  
ACTIVITY**

## 4.2.4: Descendant selectors.

The given CSS rule makes all `strong` elements have a gold background. Modify the rule so only `strong` elements inside a `ul` element are gold.

HTML

CSS

```
1 <p>
2   Some common <strong>idioms</strong>:
3 </p>
4
5 <ul>
6   <li>The <strong>ball</strong> is in your <strong>court</strong>.</li>
7   <li>Break a <strong>leg</strong>.</li>
8   <li>It's the best thing since <strong>sliced bread</strong>.</li>
9   <li>Jump on the <strong>bandwagon</strong>.</li>
10 </ul>
11
```

Render webpage

Reset code

## Your webpage

Some common **idioms**:

- The **ball** is in your **court**.
- Break a **leg**.
- It's the best thing since **sliced bread**.
- Jump on the **bandwagon**.

## Expected webpage

Some common **idioms**:

- The **ball** is in your **court**.
- Break a **leg**.
- It's the best thing since **sliced bread**.
- Jump on the **bandwagon**.

► View solution

**PARTICIPATION  
ACTIVITY**

## 4.2.5: Descendant matching.

Refer to the CSS below.

```
p span {  
  background-color: yellow;  
}
```

1) Does "text" appear highlighted?

```
<p>The <span>text</span> is  
highlighted.</p>
```

- ☐ Yes
- ☐ No

- 2) Does "text" in the first `<li>` element appear highlighted?



```
<ol>
  <li>The <span>text</span> is
highlighted.</li>
  <li>The text is not
highlighted.</li>
</ol>
```

- ☐ Yes
- ☐ No

- 3) Does "text" appear highlighted?



```
<p><em><span>text</span></em>
</p>
```

- ☐ Yes
- ☐ No

- 4) Does "text" appear highlighted in both `<span>` elements?



```
<p>
  <span>text</span>
  <span><em>text</em></span>
</p>
```

- ☐ Yes
- ☐ No

- 5) Does "text" appear highlighted?



```
<span><p>text</p></span>
```

- ☐ Yes
- ☐ No

## Pseudo-class selector

The **pseudo-class selector**, specified with a colon character followed by a pseudo-class name, matches elements based on user behavior or element metainformation. Example pseudo-class selectors include:

- **:disabled** - Element is disabled.
- **:hover** - Mouse is hovering over the element.
- **:empty** - Element has no child elements.
- **:lang(language)** - Element contains text in a specified language.
- **:nth-child(n)** - Element is the parent element's nth child.

Class selectors and pseudo-class selectors can combine with element names to match more specific elements. Ex: **a:hover** selects only the anchor tag the mouse is hovering over, and **span.highlight** selects only **span** elements that have the **highlight** class attribute.

#### PARTICIPATION ACTIVITY

#### 4.2.6: Using pseudo-class selectors on a table.



The table displays the five countries that earned the most medals in the 2022 Winter Olympics in Beijing. Hovering the mouse over the text on the expected webpage's top row makes the text orange.

1. Add a new rule using the **tr:nth-child(even)** selector that makes every even tr child element have a lavender background color.
2. Add a new rule using the **th:hover** selector that changes the th element's text color to orange when the mouse hovers over the element.

[HTML](#) [CSS](#)

```
1 <table>
2   <caption>2022 Olympic Medal Counts</caption>
3   <tr>
4     <th>Country</th>
5     <th>Gold</th>
6     <th>Silver</th>
7     <th>Bronze</th>
8     <th>Total</th>
9   </tr>
10  <tr>
11    <td>Norway</td>
12    <td>16</td>
13    <td>8</td>
14    <td>13</td>
15    <td>37</td>
16  </tr>
```

[Render webpage](#)[Reset code](#)**Your webpage**

2022 Olympic Medal Counts					
Country	Gold	Silver	Bronze	Total	
Norway	16	8	13	37	
ROC	6	12	14	32	
Germany	12	10	5	27	
Canada	4	8	14	26	
USA	8	10	7	25	

**Expected webpage**

2022 Olympic Medal Counts					
Country	Gold	Silver	Bronze	Total	
Norway	16	8	13	37	
ROC	6	12	14	32	
Germany	12	10	5	27	
Canada	4	8	14	26	
USA	8	10	7	25	

[► View solution](#)

**PARTICIPATION  
ACTIVITY**

## 4.2.7: Pseudo-class selectors.

- 1) Which selector makes a div element's background color change to light blue when the mouse hovers over any part of the div contents?



```
____ {  
    background-color:  
    lightblue;  
}
```

- ☐ :hover
- ☐ div:hover
- ☐ div.hover
- 2) The **:nth-child** pseudo-class can be specified with "even" and "odd" values as well as a number representing the child's position, where 1 is the first child. What is missing to make the first list item purple?



```
li:nth-child(____) {  
    color: purple;  
}
```

- ☐ 0
- ☐ 1
- ☐ first

3) Which selector gives buttons with a **disabled** attribute a gray background?



```
_____ {  
    background-color: gray;  
}
```

- ☐ button
- ☐ button:disabled
- ☐ button:enabled

**CHALLENGE  
ACTIVITY**

4.2.1: Basic selectors.



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[Start](#)

Set color to blue for all elements with class: subtle [SHOW EXPECTED](#)

CSS

HTML

```
1  
2 /* Your solution goes here */  
3
```

1

2

3

4

5

[Check](#)[Next](#)

[View your last submission](#) ▼

Exploring further:

- [CSS Selectors Reference](#) from W3Schools.
- [CSS Pseudo-classes](#) from W3Schools.
- [CSS Attribute Selectors](#) from W3Schools.



# 4.3 Advanced selectors

## Universal selector

The **universal selector**, specified using an asterisk character (\*), matches *all* elements in the webpage. The universal selector is implied when an element name is not specified. Ex: The CSS selectors `.highlight` and `*.highlight` match exactly the same elements, where the universal selector is implied in `.highlight` and explicit in `*.highlight`.

## Multiple selector

The **multiple selector**, specified using a comma (,) to separate selectors, matches all listed elements to apply a style rule. Ex: The figure below shows two CSS examples that apply the same styles to `<ol>` and `<ul>` elements. The CSS on the left unnecessarily duplicates the styling declarations for `<ol>` and `<ul>` elements, whereas the CSS on the right uses a single style declaration using a multiple selector.

Figure 4.3.1: Comparing separate and multiple selectors.

Separate selectors	Multiple selector
<pre>ul {   background-color: gray;   color: white;   font-weight: bold; } ol {   background-color: gray;   color: white;   font-weight: bold; }</pre>	<pre>ul, ol {   background-color: gray;   color: white;   font-weight: bold; }</pre>

## Child selector

The **child selector**, specified using a greater than character (>) between two selectors, matches any

elements where the second element is a direct child of the first element. The child selector is similar to the descendant selector (space between selectors), but the matching child element in the child selector must be a direct child of the matching parent element.

#### PARTICIPATION ACTIVITY

#### 4.3.1: Styling background color with child selector.

```
p em {  
  background-color: yellow;  
}  
  
p > em {  
  background-color: green;  
}
```

```
<p>  
  The name  
  <strong><em>Neo</em></strong>  
  is an anagram for  
  <em>One</em>.  
</p>
```

The name **Neo** is an anagram for **One**

### Animation content:

The stylesheet reads:

```
p em {  
  background-color: yellow;  
}  
  
p > em {  
  background-color: green;  
}
```

The HTML reads:

```
<p>  
  The name  
  <strong><em>Neo</em></strong>  
  is an anagram for  
  <em>One</em>.  
</p>
```

The browser displays "The name Neo is an anagram for One." Neo is bold and italicized with a yellow background. One is italicized with a green background.

### Animation captions:

1. The em elements are descendants of the paragraph element, so the descendant selector matches both elements.
2. The "Neo" em element is a direct child of the strong element, not the p element, so the p > em child selector does not match the "Neo" em.
3. The p > em child selector does match the "One" em element since the em is a direct child of p.

#### PARTICIPATION ACTIVITY

#### 4.3.2: List item selectors.



Match the CSS selectors to the best descriptions.

If unable to drag and drop, refresh the page.

ol > li

li

ol li

Match all list items.

Match all list items that are descendants of ordered lists.

Match all list items that are direct children of ordered lists.

Reset

#### PARTICIPATION ACTIVITY

#### 4.3.3: Matching specific elements.



Refer to the HTML below.

```
<p>James Bond is known to drive the <span class="mfg">Aston Martin</span> DB5.
Below are a few cars James Bond has driven in recent Bond films according to
<a
href="https://en.wikipedia.org/wiki/List_of_James_Bond_vehicles">Wikipedia</a>.
</p>

<ol>
  <li><cite>Casino Royale</cite> (2006)
    <ul>
      <li><span class="mfg">Bentley</span> 4.5 Litre</li>
      <li><span class="mfg">Aston Martin</span> DB5</li>
    </ul>
  </li>
  <li><cite>Quantum of Solace</cite> (2008)
    <ul>
      <li><span class="mfg">Aston Martin</span> DBS V12</li>
    </ul>
  </li>
  <li><cite>Skyfall</cite> (2012)
    <ul>
      <li><span class="mfg">Jaguar</span> XJ (X351)</li>
      <li><span class="mfg">Mercedes</span> S400</li>
      <li><span class="mfg">Aston Martin</span> DB5</li>
    </ul>
  </li>
  <li><cite>Spectre</cite> (2015)
    <ul>
      <li><span class="mfg">Aston Martin</span> DB10</li>
    </ul>
  </li>
</ol>
```

1) What CSS selector matches all list items?



Check

Show answer

- 2) What selector matches list items that are direct children of ordered lists but not unordered lists?

[Check](#)[Show answer](#)

- 3) What selector matches *all* elements with the `mfg` class attribute?

[Check](#)[Show answer](#)

- 4) What selector matches ordered and unordered lists?

[Check](#)[Show answer](#)

- 5) What selector matches `<cite>`, `<span>`, and `<a>` elements?

[Check](#)[Show answer](#)

#### PARTICIPATION ACTIVITY

#### 4.3.4: Child and multiple selectors.



Modify or add a CSS rule for each requirement below to change the `background-color` property as specified.

1. Add a rule to change the background color for `<ul>` elements to be `magenta`.

2. Modify the `ol li` selector so the yellow background color applies only to `<li>` elements that are direct children of `<ol>` elements.
3. Add a rule to change the background color to `cyan` for `<span>` elements that are descendants of `<ol>` elements.
4. Add a rule to change the background color to `cyan` for `<span>` elements that are descendants of `<ul>` elements.
5. Combine the previous two rules into a single rule using a multiple selector.

[HTML](#) [CSS](#)

```
1 <ol>
2 <li>The <em><span>Muppets</span></em> were created in 1955.</li>
3 <li>The first two <span><em>Muppets</em></span> performers were married.
4   <li>Jim <span>Henson</span></li>
5   <li>Jane <span>Henson</span></li>
6 </ul></li>
7 <li>The <span>Muppets</span> were also in comic strips and movies.</li>
8 </ol>
9
10 <ul>
11 <li>The <em><span>Muppets</span></em> were created in 1955.</li>
12 </ul>
13
14 <p>Every <span>"Muppets"</span> and <span>"Henson"</span> word is colored cyan except in this sentence.
```

[Render webpage](#)[Reset code](#)

### Your webpage

1. The *Muppets* were created in 1955.
  2. The first two *Muppets* performers were married.
    - Jim Henson
    - Jane Henson
  3. The Muppets were also in comic strips and movies.
- The *Muppets* were created in 1955.

Every "Muppets" and "Henson" word is colored cyan except in this sentence.

### Expected webpage

1. The *Muppets* were created in 1955.
  2. The first two *Muppets* performers were married.
    - Jim Henson
    - Jane Henson
  3. The Muppets were also in comic strips and movies.
- The *Muppets* were created in 1955.

Every "Muppets" and "Henson" word is colored cyan except in this sentence.

[► View solution](#)

## Sibling selectors

**Sibling elements** are elements that share the same parent element. The **general sibling selector**, specified using a tilde character (~) between two selectors, matches the second element if the second element occurs after the first element and both elements are siblings. Any number of other elements can be placed between two general sibling elements. In the example below, the heading and the paragraphs are children of the section element. Consequently, the two paragraphs are both general siblings of the heading element.

Figure 4.3.2: General sibling selector.

HTML and CSS	Render
<pre>&lt;style&gt; h1 ~ p {   border-top: 1px solid gray; } &lt;/style&gt;  &lt;section&gt;   &lt;h1&gt;Classifieds&lt;/h1&gt;   &lt;p&gt;Dog for adoption. Call 555-1234. &lt;/p&gt;   &lt;p&gt;Guard dog wanted. Call 555-4321. &lt;/p&gt; &lt;/section&gt;</pre>	<h1>Classifieds</h1> <hr/> <p>Dog for adoption. Call 555-1234.</p> <hr/> <p>Guard dog wanted. Call 555-4321.</p>

The **adjacent sibling selector**, specified using a plus character (+) between two selectors, matches an element that immediately follows another element, where both elements have the same parent. Ex: The adjacent selector `h1 + p` in the figure below matches the first paragraph immediately following the `<h1>` header element, where both the paragraph and heading share the same section element parent.



Figure 4.3.3: Adjacent sibling selector.

HTML and CSS	Render
<pre>&lt;style&gt; h1 + p {   border-top: 1px solid orange; } &lt;/style&gt;  &lt;section&gt;   &lt;h1&gt;My Book Report&lt;/h1&gt;   &lt;p&gt;I thoroughly enjoyed this book. The story made me   laugh and cry and jump for joy.&lt;/p&gt;   &lt;p&gt;I recommend this book to anyone who loves to read.&lt;/p&gt; &lt;/section&gt;</pre>	<div>My Book Report</div> <div>I thoroughly enjoyed this book. The story made me laugh and cry and jump for joy.</div> <div>I recommend this book to anyone who loves to read.</div>

Combinators.

**Combinators** are CSS selectors that match specific relationships between other selectors. The descendant, child, adjacent sibling, and general sibling selectors are all combinators.

PARTICIPATION  
ACTIVITY

4.3.5: Identify CSS selector names.



Identify which CSS selector is used in each question.

1) li ~ img



- ☐ Universal selector
- ☐ Multiple selector
- ☐ Child selector
- ☐ General sibling selector
- ☐ Adjacent sibling selector

2) \*.hide



- ☐ Universal selector
- ☐ Multiple selector
- ☐ Child selector
- ☐ General sibling selector
- ☐ Adjacent sibling selector

3) h1 + p



- ☐ Universal selector
- ☐ Multiple selector
- ☐ Child selector
- ☐ General sibling selector
- ☐ Adjacent sibling selector

4) p > img



- ☐ Universal selector
- ☐ Multiple selector
- ☐ Child selector
- ☐ General sibling selector
- ☐ Adjacent sibling selector

## Attribute selector

The **attribute selector**, specified with an attribute name and optional value comparison enclosed in square brackets ( [ and ] ), matches elements with the specified attribute or the specified attribute

and value. Ex: `a[target]` selector matches anchor elements with a `target` attribute specified. The attribute selector can be more specific by matching elements with attributes having a specific value. Ex: `a[target="_blank"]` attribute selector matches anchor elements with a target attribute value of `_blank`.

Table 4.3.1: Common attribute selector comparators.

Comparator	Matches element when	CSS example	Matching examples
=	Attribute has exact value	<code>[target="_blank"]</code>	<code>&lt;a target="_blank"&gt;</code>
~=	Attribute contains whole word	<code>[alt~="sad"]</code>	<code>&lt;img src="sad.png" alt="a sad face"&gt;</code>
^=	Attribute begins with value	<code>[class^="nav"]</code>	<code>&lt;ul class="nav-level0"&gt;</code> <code>&lt;ul class="navigation item"&gt;</code>

**PARTICIPATION  
ACTIVITY**

4.3.6: Attribute selectors.

Complete the CSS attribute selectors to implement the specified behavior.

- 1) Set the text color for input buttons of type submit.

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

```
button[ ] {  
    color: green;  
}
```

Check

Show answer

- 2) Set the input area width for any text input elements to 300 pixels.



```
<input type="text"
name="firstName">
```

```
input[ ] {
  width: 300px;
}
```

**Check**[Show answer](#)

- 3) Set the text color to blue for any links where the `rel` attribute contains `nofollow`.



```
<a rel="abstract nofollow"
href="https://example.com">
```

```
a[ ] {
  color: blue;
}
```

**Check**[Show answer](#)

- 4) Create a border for images where the `alt` attribute starts with `test`.



```

```

```
img[ ] {
  border: red 1px solid;
}
```

**Check**[Show answer](#)

## Pseudo-element selector

The **pseudo-element selector**, specified with two colon characters (`::`) followed by a pseudo-element, matches parts of elements. The pseudo-element selectors allow styles to apply to the first line or first letter of text of an element or to text that is selected by the user, or allow additional content to be inserted before or after an element.

Table 4.3.2: Common pseudo-element selectors.

Pseudo-element	Explanation	CSS example
<b><code>::after</code></b>	Add content after the matched element.	<code>li::after { content: "&lt;" }</code>
<b><code>::before</code></b>	Add content before the matched element.	<code>li::before { content: "***" }</code>
<b><code>::first-line</code></b>	Match the first line of text in a block element.	<code>p::first-line { color: red }</code>
<b><code>::first-letter</code></b>	Match the first letter of text in a block element.	<code>p::first-letter { font-size:200% }</code>
<b><code>::selection</code></b>	Matches the text selected by user.	<code>::selection { background: yellow }</code>

PARTICIPATION  
ACTIVITY

4.3.7: Pseudo-element selectors.



Complete the CSS pseudo-element selectors to implement the specified behavior.

- 1) Change the text color to green for any text that is currently selected using the mouse.



```
 {  
    color: green;  
}
```

[Check](#)[Show answer](#)

- 2) Make the first letter uppercase in all list items.



```
<li>Bread</li>
```

```
 {  
    text-transform:  
uppercase;  
}
```

[Check](#)[Show answer](#)

- 3) Underline the first line in each blockquote.



```
<blockquote>To be or not  
to be...</blockquote>
```

```
 {  
    text-decoration:  
underline;  
}
```

[Check](#)[Show answer](#)

- 4) Add a red asterisk at the end of each paragraph.



```
<p>Turn the switch on.  
</p>
```

```
{  
  content: "*";  
  color: red;  
}
```

Check

Show answer

CHALLENGE  
ACTIVITY

4.3.1: Advanced selectors.



550544.4142762.qx3zqy7

[Start](#)

Use a multiple selector to apply the below rules to all <h1> and <h3> tags.

**SHOW EXPECTED**

CSS

HTML

```
1 /* Your solution goes here */ {  
2   color: coral;  
3 }
```

1

2

3

4

[Check](#)[Next](#)

[View your last submission](#) ▼

Exploring further:

- [CSS selector reference](#) from W3 Consortium.

## 4.4 Common properties



## Color property

The **color** CSS property changes the text color to a specified color value. A color value can be specified in several ways:

- CSS defines 140 color names. Ex: **white**, **blue**, **black**, **gray**, **forestgreen**, **magenta**.
- An **RGB color value** specifies a color using the **rgb(red, green, blue)** function by indicating the red, green, and blue intensities. Each intensity for red, green, and blue is between 0 and 255, where 0 is the lowest intensity and 255 is the highest.  
Ex: **rgb(0, 0, 0)** is black, **rgb(0, 0, 255)** is blue, **rgb(255, 255, 0)** is yellow, and **rgb(255, 255, 255)** is white.
- A **hexadecimal color** specifies a color using the **#RRGGBB** format by indicating the red, green, and blue intensities. Each intensity for red, green, and blue is between 00 and FF hexadecimal numbers, where 00 is the lowest intensity and FF is the highest.  
Ex: **#000000** is black, **#0000FF** is blue, **#FFFF00** is yellow, and **#FFFFFF** is white.
- An **HSL color value** specifies a color using the **hsl(hue, saturation, lightness)** function by indicating the hue, saturation, and lightness values. The hue value ranges between 0 and 360, and the saturation and lightness values range between 0% and 100%. Ex: **hsl(0, 0%, 0%)** is black, **hsl(120, 100%, 50%)** is green, and **hsl(0, 100%, 25%)** is dark red.

The HSL color specification method is harder to understand and is not used as frequently as the RGB and hexadecimal color specification methods.

- The RGB and HSL color values can add an alpha value to allow for transparency. The **RGBA color value** specifies a color using the **rgba(red, green, blue, alpha)** function by indicating the red, green, blue, and alpha intensities. The **HSLA color value** specifies a color using the **hsla(hue, saturation, lightness, alpha)** function by indicating the hue, saturation, lightness, and alpha intensities. The intensities have the same ranges as for RGB or HSL color values, but the alpha intensity is between 0 and 1. An alpha of 0 means fully transparent, 1 means fully opaque, and 0.5 means half transparent.

## Color picker.

rgb( 0 , 0 , 0 )

Each value ranges 0 to 255

#000000

Value ranges 000000 to FFFFFFFF

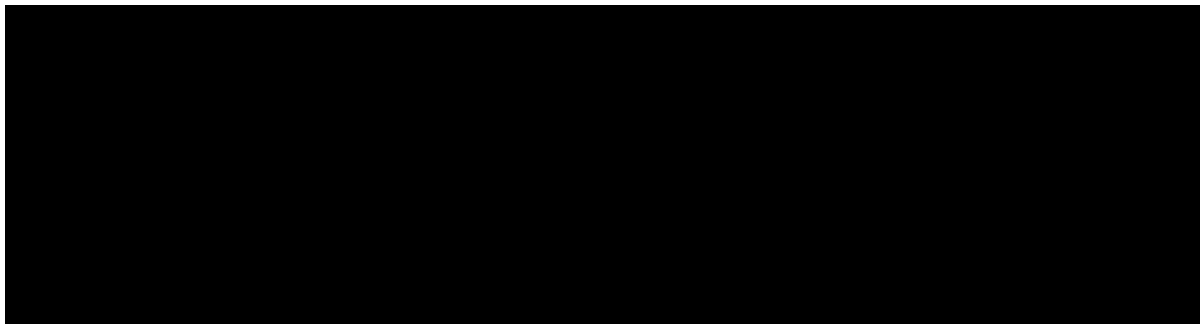
Red



Green



Blue

PARTICIPATION  
ACTIVITY

## 4.4.1: Color values and names.



Use the color picker above to help match each color value to the color name.

If unable to drag and drop, refresh the page.

rgb(0, 0, 0)

#FFFFFF

#FFD700

#006400

rgb(144, 238, 144)

#0000FF

rgb(80, 80, 80)

Blue

Black

White

DarkGreen

LightGreen

Gray

Gold

Reset

PARTICIPATION  
ACTIVITY

## 4.4.2: CSS text color.



Modify or add one CSS rule for each requirement below to change the text **color** property as specified.

1. By color name: change the text color for **byname** class elements from **black** to **blue**.
2. By RGB values: change the text color for **byrgb** class elements from black (**rgb(0, 0, 0)**) to green by modifying the second number to be 255.
3. By HSL values: change the text color for **byhsl** class elements from black (**hsl(0, 0%, 0%)**) to cyan by modifying the first number to be 200, the second number to 100%, and the third number to 50%.

HTML

CSS

```
1 <p class="byname">The text is blue</p>
2
3 <p class="byrgb">The text is green</p>
4
5 <p class="byhsl">The text is cyan</p>
6
```

[Render webpage](#)[Reset code](#)

#### Your webpage

The text is blue

The text is green

The text is cyan

#### Expected webpage

The text is blue

The text is green

The text is cyan

[► View solution](#)

## Background properties

Every element in a webpage has a set of background properties. The web browser first draws the

element's background and then draws the element's content. If the element's background is not fully opaque, the element's parent is visible under the element's content. Common background properties include:

- The **background-color** property specifies the background color.
- The **background-image** property specifies a background image.
- The **background** property is shorthand for setting several of the element's background properties at the same time.

Background colors are specified using color names, a color function (RGB, RGBA, HSL, HSLA), or one of the values such as **transparent**. Background images are specified with the **none** value or the **url('URL')** function, where URL indicates the location of the image. By default, the initial background color is **transparent** and background image is **none**, which means the element's parent's background will display underneath the element's content. When a background color and image are both specified, the background image is rendered on top of the color.

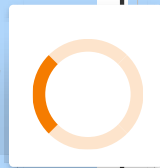
#### PARTICIPATION ACTIVITY

#### 4.4.3: Styling background color and image.



```
<style>
p {
  background-color: LightSkyBlue;
}
.clouds {
  background-image: url('clouds.png')
}
</style>

<p>
  The sky is light blue.
</p>
<p class="clouds">
  Fluffy, soft, and white are the clouds.
</p>
<p>
  Without the sun, black.
</p>
```



The sky is light blue.  
Fluffy, soft, and white are the clouds.  
Without the sun, black.

## Animation content:

A block of HTML is shown with a style block containing CSS:

```
<style>
p {
  background-color: LightSkyBlue;
}
.clouds {
  background-image: url('clouds.png');
}
<p>
  The sky is light blue.
</p>
<p class="clouds">
  Fluffy, soft, and white are
  the clouds.
</p>
<p>
  Without the sun, black.
</p>
```

The browser displays three lines of text:

Line 1: "The sky is light blue." with a light blue background color.

Line 2: "Fluffy, soft, and white are the clouds." with an image of clouds in the background.

Line 3: "Without the sun, black." with a light blue background color.

## Animation captions:

1. The elements display with transparent backgrounds.
2. The p element has a LightSkyBlue background color.
3. The clouds class uses a background image that displays over the p element's background.

### PARTICIPATION ACTIVITY

#### 4.4.4: Determining background properties.



Given the HTML below, indicate the background properties used for the elements.  
Assume that the smiley.gif image has a transparent background.

```
<p>Below is the word "Hello" in different languages.</p>
<ul id="americas" style="background-color: #ffff00">
  <li id="hola" style="background-image: url('smiley.gif')">Hola</li>
  <li id="olá" style="background: green url('smiley.gif')">Olá</li>
</ul>
<ul id="europe" style="background-image: url('clouds.png');">
  <li id="salut" style="background: blue">Salut</li>
  <li id="hej" style="background: red url('smiley.gif')">Hej</li>
  <li id="bog" style="background: transparent
url('smiley.gif')">Bog</li>
</ul>
```

If unable to drag and drop, refresh the page.

smiley face on red

blue

smiley face on green

smiley face on clouds

smiley face on yellow

	Hola
	Olá
	Salut
	Hej
	Bog

Reset

## Float property

CSS properties `float` and `clear` control how text flows around HTML elements, making webpages look like a magazine or newspaper article where the article's text wraps around the images in the page.

The **`float`** property specifies whether the element will float to the right or left of the element's parent container, allowing text to flow around the element. Values for the `float` property include:




- `left` - Element floats to parent container's left side
- `right` - Element floats to parent container's right side
- `none` - Element does not float (default value)

The **`clear`** property can stop elements from floating. Values for the **`clear`** property include:

- `both` - No elements allowed to float
- `left` - No element allowed to float on parent container's left side
- `right` - No element allowed to float on parent container's right side
- `none` - Elements allowed to float (default value)



Table 4.4.1: Float examples.

HTML and CSS	Render
<div>No floating</div> <div><pre>&lt;img src="ducatiSmallv1.jpg"   alt="Yellow and black motorcycle"&gt; &lt;p&gt; The Ducati Streetfighter 848 is the bike you've been looking for! &lt;/p&gt;</pre></div>	<div></div> <div>The Ducati Streetfighter 848 is the bike you've been looking for!</div>
<div>Float left</div> <div><pre>&lt;img src="ducatiSmallv1.jpg"   alt="Yellow and black motorcycle"   style="float:left"&gt; &lt;p&gt; The Ducati Streetfighter 848 is the bike you've been looking for! &lt;/p&gt;</pre></div>	<div></div> <div>The Ducati Streetfighter 848 is the bike you've been looking for!</div>
<div>Float right</div> <div><pre>&lt;img src="ducatiSmallv1.jpg"   alt="Yellow and black motorcycle"   style="float:right"&gt; &lt;p&gt; The Ducati Streetfighter 848 is the bike you've been looking for! &lt;/p&gt;</pre></div>	<div>The Ducati Streetfighter 848 is the bike you've been looking for!</div> <div></div>

**PARTICIPATION  
ACTIVITY**

## 4.4.5: Floating images.



Modify the CSS below to float to the right the first image with **float:right** class, to float to the left the second image with **float:left** class, and to clear floating elements on both sides of the p element with **clear:both** class.

HTML CSS

```
1 <h1>Classifieds</h1>
2
3 <p>
4   
6   Adorable female cat available for adoption. We found Fluffy during
7   She is house-trained and very cuddly. Call 555-1234.
8 </p>
9
10 <p class="nofloats">
11   
13   Looking for new home for puppy. Goes by the name "Bowser".
14 </p>
15
16 </p>
```

Render webpage

Reset code

Your webpage

## Classifieds



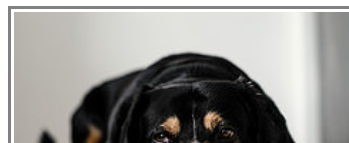
Adorable female cat available for adoption. We found Fluffy during a thunderstorm. She is house-trained and very cuddly. Call 555-1234.



Expected webpage

## Classifieds

Adorable female cat available for adoption. We found Fluffy during a thunderstorm. She is house-trained and very cuddly. Call 555-1234.



Looking for new home for puppy. Goes by the name "Bowser".

► View solution

PARTICIPATION  
ACTIVITY

## 4.4.6: Float property values.

Specify the correct CSS values.

- 1) What CSS value floats an element to the right?

float:

Check

Show answer

- 2) What CSS value stops elements from floating left?

clear:

Check

Show answer

## Display property

The **display** property controls the layout of the element on a webpage. Values for the display property include:

- **inline** - Displays the element as an inline element, like **span** or **a** elements.
- **block** - Displays the element as a block element, like **p**, **h1**, or **div** elements.
- **none** - Hides the element from being displayed, like **style** elements.
- **inline-block** - Displays the contents of the element as a block element, but formats the element as an inline element.
- **list-item** - Displays the contents of the element as a list item element.

PARTICIPATION  
ACTIVITY

## 4.4.7: Using the display property.

```
.display1 {
```

```
<p class="display1">
```

```

background-color: aliceblue;
display: inline;
}

.display2 {
background-color: lemonchiffon;
display: block;
}

.display3 {
background-color: mintcream;
display: none;
}

```

```

Actions speak louder than words.
</p>

<p>
The <span class="display2">pen</span>
is mightier than the sword.
</p>

<p>
All good things come to those who
<span class="display3">wait</span>.
</p>

```

Actions speak louder than words.

The  
pen  
is mightier than the sword.

All good things come to those who .

## Animation content:

Stylesheet:

```

.display1 {
background-color: aliceblue;
}

.display2 {
background-color: lemonchiffon;
}

.display3 {
background-color: mintcream;
}

```

HTML:

```

<p class="display1">
Actions speak louder than words.
</p>
<p>

```

The `<span class="display2">pen</span>` is mightier than the sword.  
`</p>`  
`<p>`  
All good things come to those who `<span class="display2">wait</span>`.  
`</p>`

Step 1: The browser displays "Actions speak louder than words." with a blue background that spans the entire browser width.

Step 2: After changing the CSS, the blue background shrinks to displaying only behind the paragraph's words.

Step 3: The browser displays "The pen is mightier than the sword.", and the word "pen" has a yellow background.

Step 4: After changing the CSS, the word "pen" moves to the next line, and the yellow background expands to fill the browser width.

Step 5: The browser displays "All good things come to those who wait.". After changing the CSS, the word "wait" disappears, and the period slides to the left after "who" and a space.

### Animation captions:

1. The `p` element is a block element, and a block element fills the width of the element's container.
2. Adding `display:inline` to the `display1` class makes the `p` element be treated as an inline element. The blue background now is only as wide as the paragraph contents.
3. The `span` element is an inline element, so the `span`'s content is shown on the same line as the surrounding text.
4. Adding `display:block` to the `display2` class makes the `span` be treated as a block element. The `span`'s content now displays on a separate line.
5. The `span`'s content displays by default, but adding `display:none` to the `display3` class hides the `span`'s contents.



Provide the CSS display value that correctly styles the following HTML as displayed.

```
<style>
.animal {
  background: yellow;
  display: ____;
}
</style>

<p>
  My favorite breed of
  <span class="animal">cat</span>
  is Russian Blue.
</p>
```

1)

My favorite breed of cat is  
Russian Blue.



display:

**Check**[Show answer](#)

2)

My favorite breed of is  
Russian Blue.



display:

**Check**[Show answer](#)

3)

My favorite breed of  
cat  
is Russian Blue.



display:

**Check**[Show answer](#)

4)

My favorite breed of

- cat

is Russian Blue.



display:

Check

Show answer

## CSS variables

Many websites have complex stylesheets with repeated values. Ex: The same background color may be used in numerous places, and changing the background color requires searching and replacing throughout the stylesheet. CSS variables simplify the process of creating CSS values that are used repeatedly in a stylesheet.

A **CSS variable** is a custom CSS property that defines a value. A CSS variable is declared in a CSS selector that defines the variable's scope. A CSS variable can have global scope by declaring the variable in the **:root** selector, which targets the highest DOM element: the `<html>` element.

A CSS variable is defined with two dashes preceding the variable name. Ex:

`--my-variable: red;` A CSS variable is accessed with the **var()** function. Ex:  
`var(--my-variable);`

### PARTICIPATION ACTIVITY

#### 4.4.9: Using CSS variables.



```
<style>

:root {
  --main-color: red;
  --main-bg-color: yellow;
}

p {
  color: var(--main-color);
  background-color: var(--main-bg-color);
}

</style>
```

The sun rises and sets.



```
<p>The sun rises and sets.</p>
```

## Animation content:

A block of HTML is shown with a style block containing CSS:

```
<style>
:root {
  --main-color: red;
  --main-bg-color: yellow;
}
p {
  color: var(--main-color);
  background-color: var(--main-bg-color);
}
</style>
<p>The sun rises and sets.</p>
```

This code block displays a line of text that says "The sun rises and sets." in red colored text with a yellow background.

## Animation captions:

1. A CSS variable defined in the :root selector has global scope.
2. The CSS variables main-color and main-bg-color are initialized with the color values red and yellow, respectively.
3. The p selector uses the CSS variables main-color and main-bg-color to set the paragraph's text and background colors.

### PARTICIPATION ACTIVITY

#### 4.4.10: CSS variables.

1) What selector must a CSS variable be declared in to have global scope?

- ☐ :root
- ☐ p
- ☐ div

2) What is the proper syntax to declare a CSS variable set to black?

- ☐ `section-color: black;`
- ☐ `--section-color: black;`
- ☐ `--section-color black;`

3) What is the proper syntax to use a CSS variable called `--section-color`?

- ☐ `color: --section-color;`
- ☐ `color: var(--Section-color);`
- ☐ `color: var(--section-color);`

4) Suppose `--main-color` from the animation above is used in 200 different CSS rules. Besides the `:root` rule, how many CSS rules would need to be modified if `--main-color` is changed to blue?

- ☐ 0
- ☐ 1
- ☐ 200

**CHALLENGE  
ACTIVITY**

4.4.1: Common properties.

550544.4142762.qx3zqy7

[Start](#)

For the <p> tag, set color to rgb(50, 250, 200). [SHOW EXPECTED](#)

CSS

HTML

```
1 p {  
2  
3 /* Your solution goes here */  
4  
5 }
```

1

2

3

[Check](#)[Next](#)[View your last submission](#) ▼

Exploring further:

- [HTML Color Names](#) from W3Schools.
- [CSS Legal Color Values](#) from W3Schools.
- [Color HSL](#) from W3Schools.
- [CSS Background Property](#) from W3Schools.
- [CSS Display Property](#) from W3Schools.

## 4.5 Font and text properties

### Font properties

Many CSS properties control the font properties for displaying text. CSS font properties include:

- The **font-family** property specifies the font family, such as "Times New Roman" or **serif**.
- The **font-size** property changes the font size, such as 120%, **small**, or 12px.
- The **font-weight** property specifies the font weight, such as **normal** or **bold**.
- The **font-style** property changes the text style, such as **normal**, **italic**, or **oblique**.
- The **font-variant** property specifies the variant of the text, such as **normal** or **small-caps**.
- The **font** property is shorthand for setting several font properties at the same time. Ex:  
`font: italic 12pt Georgia, serif;`

The **font-family** property contains a list of fonts specified as a family name or a generic family separated by commas.

- A **family name** is the name of a specific font, like "Times New Roman", "Arial", or "Georgia". Family names containing spaces must be wrapped in quotations marks, while family names without spaces do not.
- A **generic family** is a general group of fonts, like serif, sans-serif, cursive, fantasy, or monospace. Ex: Times New Roman and Georgia are both serif fonts because the fonts contain serifs, which are small strokes attached to the end of larger strokes on each letter.

The web browser will use the first font listed that is available. *Good practice is to start the list with the intended font and end with a generic family.* Ex:

```
font-family: Arial, Helvetica, sans-serif;
```

Table 4.5.1: Generic family names.

Generic family	Distinguishing features	Example fonts
Serif	"Embellishments" like finishing strokes or flare ends	<b>Garamond</b> <b>Georgia</b> Times New Roman
Sans-Serif	Plain stroke ends	Arial Helvetica Verdana
Cursive	Cursive or calligraphy characteristics like joined strokes	<i>Brush Script MT</i> <b>Comic Sans</b> <b>MS</b> Lucida Handwriting
Fantasy	Decorative	<b>Impact</b> <b>Luminari</b>
Monospace	Constant width for letters, punctuation, and space	<b>Consolas</b> Courier New

## Web fonts

A limited number of fonts are available on all platforms: Arial, Courier New, Georgia, Times New Roman, and Verdana. Web developers can expand the number of fonts available by using web fonts. A **web font** is a CSS feature that allows custom fonts to be downloaded to the web browser. See the links in "Exploring further" for more information.

### PARTICIPATION ACTIVITY

#### 4.5.1: Computing font properties.



Given the HTML below, answer the following questions regarding font properties.

```
<style>
p {
  font-family: "Verdana", "Arial", sans-serif;
}
#band {
  font-style: italic;
}
#music {
  font-variant: small-caps;
}
</style>

<p>
  My favorite band is <span id="band">The Shins</span>, because their
  <span id="music">music</span> is thought-provoking!
</p>
```

- 1) What is the most preferred font for the `<p>` element?



Check

Show answer

2) What is the second most preferred font for the `<p>` element?



Check

Show answer

3) What is the third most preferred font for the `<p>` element?



Check

Show answer

4) What is the text variant for the `<span>` element with the `music` id?



Check

Show answer

## Font sizes

The font size can be specified using a predefined size name, a relative size name, or a number with an absolute or relative size unit. The predefined size names are **xx-small**, **x-small**, **small**, **medium**, **large**, **x-large**, and **xx-large**, where medium is the default size. The relative size names are **smaller** and **larger** which change the font size for an element to be smaller or larger than the font size of the parent element.

An **absolute size** is a size that is fixed and independent of other CSS sizes. Absolute size units include:

- **cm** - centimeters
- **mm** - millimeters
- **in** - inches
- **px** - pixels (1px = 1/96in)
- **pt** - points (1pt = 1/72in)

- **pc** - pica (1pc = 12pt)

A **relative size** is a size that is relative to another size. Some common relative size units include:

- **em** - Relative to the element's font size. Ex: 2em = 2 × current font size.
- **rem** - Relative to the root element's font size. Ex: 1.5rem = 1.5 × `<html>` element's font size.
- **vw** - 1% of the viewport's width. Ex: 10vw = 10% of browser's width.
- **vh** - 1% of the viewport's height. Ex: 5vh = 5% of browser's height.
- **%** - Percentage of the element's font size. Ex: 120% = 20% larger than the current font size.

Most web browsers use a default font size of 16px. However, users who struggle to read 16px fonts may change the browser's default font size to a larger size. *Good practice is to use relative font sizes, which scale with changes to the default browser font size.*

Table 4.5.2: Example font sizes.

Example CSS	Displayed
<code>font-size: x-large;</code>	You must be the change you wish to see in the world.
<code>font-size: smaller;</code>	You must be the change you wish to see in the world.
<code>font-size: 16px;</code>	You must be the change you wish to see in the world.
<code>font-size: 1.5rem;</code>	You must be the change you wish to see in the world.
<code>font-size: 120%</code>	You must be the change you wish to see in the world.

PARTICIPATION  
ACTIVITY

4.5.2: Font sizes.



Assume the browser's default font size is 16px. What size does the given p selector make each paragraph?



1) 

```
p {  
  font-size: 18px;  
}
```

- ☐ 16px
- ☐ 18px
- ☐ 20px

2) 

```
p {  
  font-size: 1.5rem;  
}
```

- ☐ 8px
- ☐ 16px
- ☐ 24px

3) 

```
p {  
  font-size: 50%;  
}
```

- ☐ 8px
- ☐ 16px
- ☐ 24px

## Text properties

Many CSS properties control how text is displayed. Some common CSS text properties include:

- The **text-align** property changes the horizontal alignment of text for an element. Possible values are: **left**, **right**, **center**, and **justify**.
- The **text-decoration** property can add or remove text decorations like underlining or a ~~line-through~~. Possible values are: **overline**, **line-through**, **underline**, and **none**.
- The **text-transform** property converts letters to UPPERCASE, lowercase, or Capitalizes Initial Letters. Possible values are: **uppercase**, **lowercase**, and **capitalize**.
- The **text-indent** property specifies the first line's indentation amount.

Table 4.5.3: Text alignment examples.

Alignment	CSS example	Displayed
left	<code>text-align: left</code>	Example of wrapped text using the horizontal alignment CSS property.
right	<code>text-align: right</code>	Example of wrapped text using the horizontal alignment CSS property.
center	<code>text-align: center</code>	Example of wrapped text using the horizontal alignment CSS property.
justify	<code>text-align: justify</code>	Example of wrapped text using the horizontal alignment CSS property.

## Underlined links

*The CSS **`text-decoration: none`** is commonly used to remove the default underline from links. The underline helps users quickly identify links, so developers should use caution when removing link underlines. Relying solely on color to identify links can be problematic to users that are color blind or insensitive.*

### PARTICIPATION ACTIVITY

#### 4.5.3: Text alignment.



Provide the CSS value that correctly styles the example text as displayed.

1)

*Gears and Pulleys*

The untold story of power transference.



text-align:

**Check**[Show answer](#)

2)

The following sentences are examples of a pangram, a sentence that contains all of the letters of the alphabet. The quick brown fox jumped over a lazy dog. Pack my box with five dozen liquor jugs. Jackdaws love my big sphinx of quartz. The five boxing wizards jump quickly. How vexingly quick daft zebras jump! Bright vixens jump; dozy fowl quack. Forsaking monastic tradition, twelve jovial friars gave up their vocation for a questionable existence on the flying trapeze.



text-align:

**Check**[Show answer](#)

3)

Due: July 4, 1776



text-align:

**Check**[Show answer](#)**PARTICIPATION  
ACTIVITY**

## 4.5.4: Text properties.



Given the HTML below, select the correct text property and value to display the rendered browser text.

```
<style>
p {
  ....
}
</style>

<p>Knowledge comes, but wisdom lingers. - Lord Tennyson</p>
```

1)

Knowledge comes, but wisdom  
lingers. - Lord Tennyson



- ☐ text-decoration:  
overline
- ☐ text-decoration:  
underline
- ☐ text-transform:  
underline

2)

Knowledge Comes, But Wisdom  
Lingers. - Lord Tennyson

- ☐ `text-transform:`  
`uppercase`
- ☐ `text-decoration:`  
`capitalize`
- ☐ `text-transform:`  
`capitalize`

3)

Knowledge comes,  
but wisdom lingers. -  
Lord Tennyson

- ☐ `text-indent: 20px`
- ☐ `text-indent: -20px`
- ☐ `text-indent: true`

**CHALLENGE  
ACTIVITY**

## 4.5.1: Font and text properties.

550544.4142762.qx3zqy7

[Start](#)

For the <p> tag, set font-family to cursive, and set font-weight to bold. [SHOW EXPECTED](#)

CSS

HTML

```
1 p {  
2  
3 /* Your solution goes here */  
4  
5 }
```

1

2

[Check](#)[Next](#)[View your last submission](#) ▼

Exploring further:

- [CSS Fonts](#) from W3Schools
- [CSS Text](#) from W3Schools
- [CSS Web Fonts](#) from W3Schools
- [What's the best font size for the web?](#) by Robert Mohns

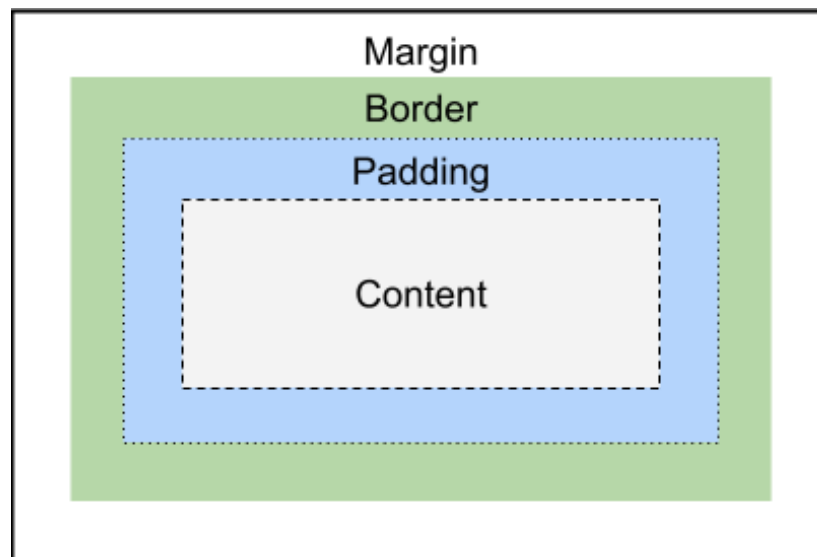
## 4.6 Box model

### Box model components

HTML elements take up space on the webpage. The **box model** describes the size of each element as a series of nested boxes. The box model is important to understand when considering design and layout.

- **Content**: The innermost box contains the content of the element, such as text and images.
- **Padding**: The padding box contains the content box and adds a transparent area around the content.
- **Border**: The border box contains the padded content and adds an optionally colored area around the padding.
- **Margin**: The margin box contains all three boxes and adds a transparent area around the border.

Figure 4.6.1: Box model with labeled boxes.



The CSS properties that control the padding, border, and margin are:

- The **padding** property specifies the padding thickness. Ex: `padding: 5px;` creates a 5 pixel padding around the content.

- The **border** property specifies the border's thickness, style, and color. Ex: `border: 2px solid blue;` creates a solid blue border that is 2 pixels thick.
- The **margin** property specifies the margin thickness. Ex: `margin: 10px;` creates a 10 pixel margin.

The content, padding, margin, and border boxes are rendered according to the following rules:

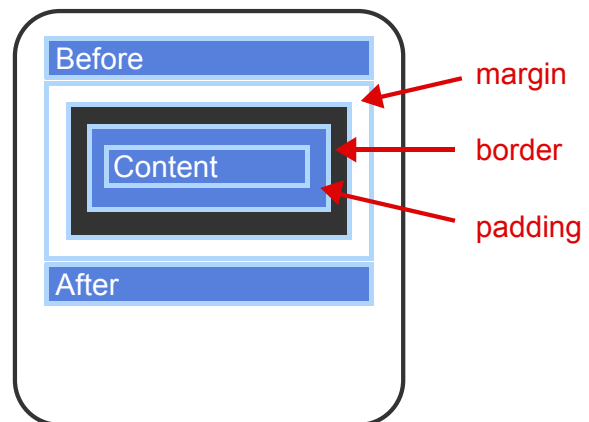
- The content is displayed with a background according to the element's background color.
- The padding is transparent and will be displayed using the same color as the element's background.
- The border can be either colored or transparent. If transparent, the border will be displayed with the same color as the padding.
- The margin is transparent and will be displayed using the background color of the parent element.

#### PARTICIPATION ACTIVITY

#### 4.6.1: Box model displayed.

```
div { background-color: blue; }  
#content {  
  padding: 5px;  
  border: 5px solid black;  
  margin: 5px;  
}
```

```
<div>Before</div>  
<div id="content">Content</div>  
<div>After</div>
```



### Animation content:

A block of CSS is shown:

```
div { background-color: blue; }  
#content {  
  padding: 5px;  
  border: 5px solid black;
```



```
margin: 5px;  
}
```

A block of HTML is also shown:

```
<div>Before</div>  
<div id="content">Content</div>  
<div>After</div>
```

Together the HTML and CSS displays three div elements on a screen. The first element is shown in a blue box across the top of the screen and has the text "Before". The second is shown under the first element with a 5 pixel transparent margin that surrounds the 5 pixel black border. Inside the border there is a 5 pixel padding that surrounds the div content, which has the text "Content". Both the padding and the div element have the background color blue. The third div element is displayed under the second div element. The third div is shown as a blue box spanning across the screen with the text "After".

### Animation captions:

1. The box model describes the space each HTML element takes as a box. Each div element is displayed with a blue background, and each box is highlighted with a light blue outline.
2. Padding surrounds the content element with transparent space, which is displayed using the element's background color.
3. The border surrounds the content and padding and is colored black.
4. The margin surrounds the border with transparent space and separates the element from other elements.

#### PARTICIPATION ACTIVITY

#### 4.6.2: Choose the correct display color.



Given the HTML and CSS below, choose which color each box will be displayed.

```
<style>
div {
  background: white;
  border: 2px solid blue;
}
span {
  background: yellow;
  border: 1px solid black;
  padding: 2px;
  margin: 2px;
}
</style>

<div>This is a <span>test</span> of the emergency broadcast system.</div>
```

If unable to drag and drop, refresh the page.

blue

yellow

black

white

span element's padding

span element's border

span's margin

div's border

Reset

## Box sizing

The `padding` and `margin` properties may have from 1 to 4 values:

- One value - Specifies uniform thickness around the box. Ex: `margin: 20px;` specifies 20px margin thickness around the box.
- Two values - Specifies top and bottom, right and left thickness. Ex: `margin: 10px 20px;` specifies 10px top and bottom margins and 20px right and left margins.
- Three values - Specifies top, right and left, and bottom thickness. Ex: `margin: 10px 30px 20px;` specifies 10px top margin, 30px right and left margins, and

20px bottom margin.

- Four values - Specifies top, right, bottom, and left thickness. Ex:  
**margin: 10px 30px 20px 40px;** specifies 10px top margin, 30px right margin, 20px bottom margin, and 40px left margin.

Example 4.6.1: Example with non-uniform margin and padding thickness.

```
<style>
h1 {
  margin: 40px 30px;
  padding: 20px 50px 40px;
  background-color: khaki;
}
</style>

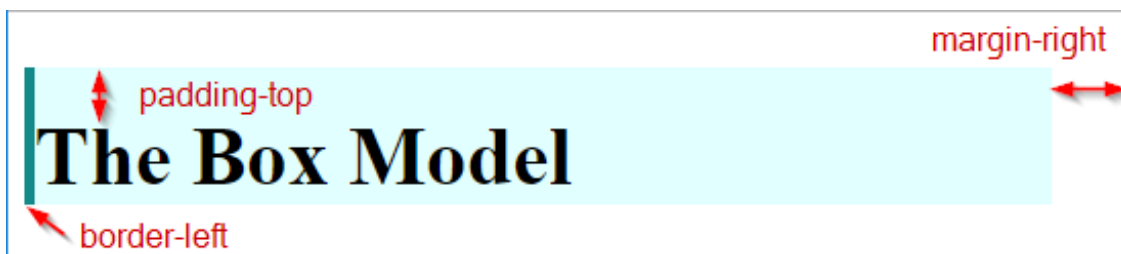
<h1>The Box Model</h1>
```

The **padding**, **border**, and **margin** CSS properties can apply only to one side by adding a **-top**, **-left**, **-bottom**, or **-right** suffix to the CSS property. Ex: **padding-top: 5px;** specifies 5 pixels of padding above the content.

Example 4.6.2: Example specifying one side of the box.

```
<style>
h1 {
  border-left: 5px solid darkcyan;
  margin-right: 30px;
  padding-top: 20px;
  background-color: lightcyan;
}
</style>

<h1>The Box Model</h1>
```



**PARTICIPATION  
ACTIVITY**

## 4.6.3: Box model properties.

- 1) What CSS declaration sets the margin to have a uniform space of 20 pixels?

**Check**[Show answer](#)

- 2) What CSS declaration changes the top and bottom padding to be 20 pixels and right and left to be 30 pixels?

**Check**[Show answer](#)

- 3) What CSS declaration changes the right padding to be 10 pixels wide?

**Check**[Show answer](#)

## Content width and height

A block element's content spans the width of the enclosing parent element by default, but the content size can be changed with the **width** and **height** CSS properties:

- The **width** property specifies the content's width. Ex: **width: 20px;** makes the content 20px wide.
- The **height** property specifies the content's height. Ex: **height: 30px;** makes the content 30px high.

### Example 4.6.3: Example using width and height properties.

Two `<div>` elements have the same **width** and **height** property values. However, the second `<div>` appears larger because of the additional padding.

```
<style>
#nopadding {
    width: 200px;
    height: 100px;
    background-color: lightgreen;
    font-size: 30px;
}

#padding {
    padding: 50px;
    width: 200px;
    height: 100px;
    background-color: khaki;
    font-size: 30px;
}
</style>

<div id="nopadding">Controlling the content size</div>
<div id="padding">Controlling the content size</div>
```

A common error is to use **width** or **height** on inline elements. An inline element like `<span>` has a width and height that is equal to the size of the element's content. The width and height cannot be changed unless the inline element's **display** property is changed to **inline-block**.

Example 4.6.4: Example using width and height properties on an inline element.

```
<style>
#span1 {
  width: 80px;    /* Ignored */
  height: 40px;   /* Ignored */
  background-color: lightgreen;
}

#span2 {
  display: inline-block;
  width: 80px;
  height: 40px;
  background-color: khaki;
}
</style>

<p>
  <span id="span1">Span 1</span> and <span id="span2">Span
  2</span>
</p>
```

Span 1 and Span 2

**PARTICIPATION  
ACTIVITY**

4.6.4: Compute the size.



1) What is the total `<div>` width?



```
<style>
div {
  width: 200px;
  padding: 10px;
  border: 2px solid
green;
  margin: 5px;
}
</style>

<div>How wide am I?</div>
```

pixels

**Check**

[Show answer](#)

2) What is the total `<div>` height?



```
<style>
div {
  height: 100px;
  margin: 10px 5px;
}
</style>

<div>How tall am I?</div>
```

pixels

**Check**

[Show answer](#)

3) What is the total `<div>` width?



```
<style>
div {
  width: 100px;
  margin-left: 10px;
  margin-right: 15px;
  padding: 2px 5px 10px
20px;
}
</style>

<div>How wide am I?</div>
```

pixels

Check

Show answer

4) The default `<strong>` content width is 115px. What is the total `<strong>` width?



```
<style>
strong {
  width: 200px;
  margin: 5px;
}
</style>

<strong>How wide am I?
</strong>
```

pixels

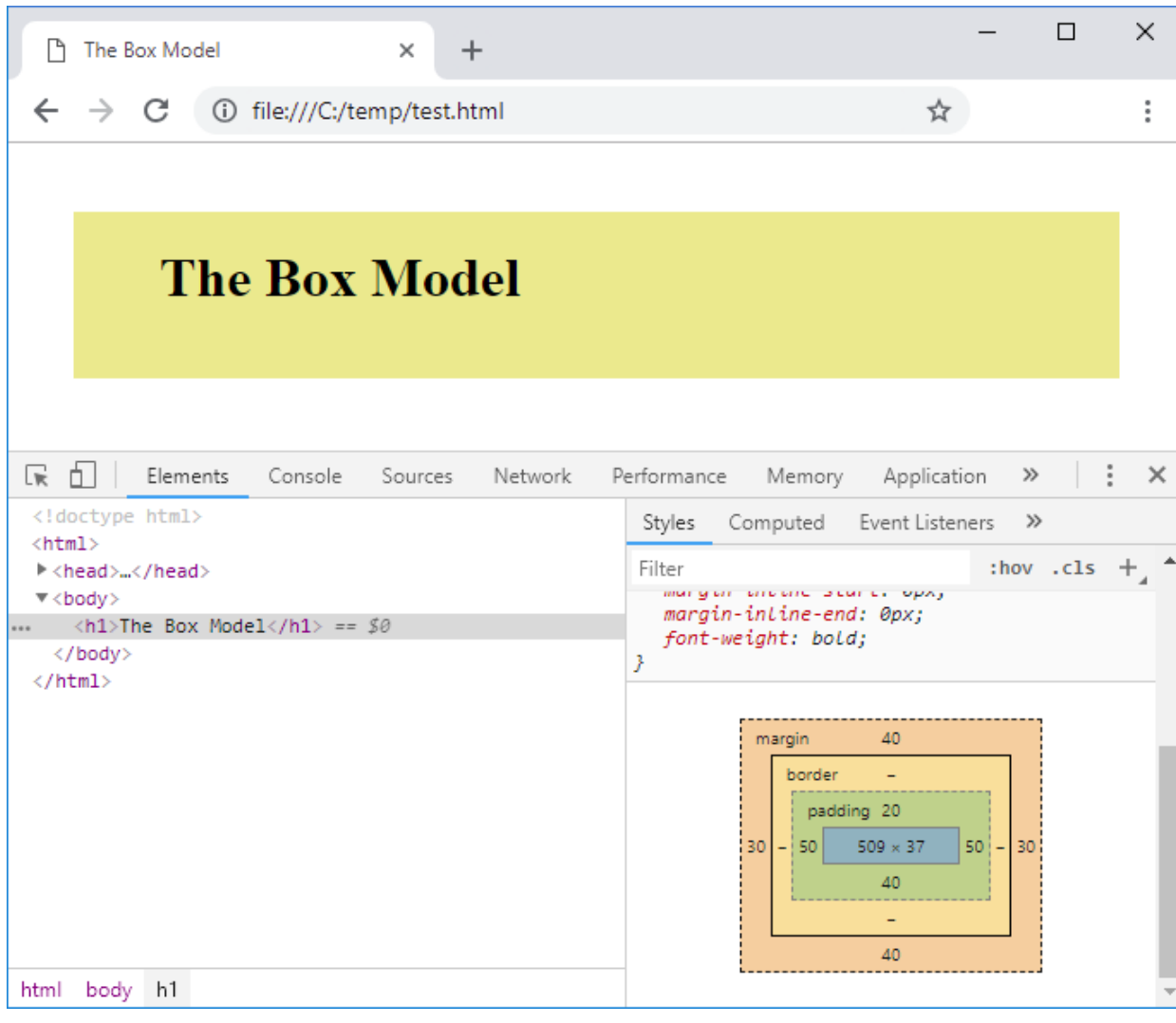
Check

Show answer



## Chrome DevTools

The Chrome DevTools display the margin, border, padding, and content sizes for all elements. The screenshot below shows the size of the `<h1>` element with the content (509 × 37 pixels) at the center.



## Border styles

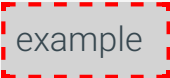
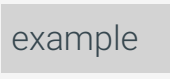
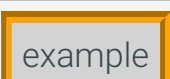
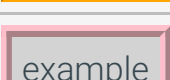

The `border` property combines the border width, style, and color. Each CSS property may also be specified separately:

- The **`border-width`** property specifies the border's width. Ex: `border-width: 5px;` specifies

a border that is 5px thick.

- The ***border-style*** property specifies the border's style. Ex: `border-style: dashed;` specifies a border that is dashed.
- The ***border-color*** property specifies the border's color. Ex: `border-color: green;` specifies a border that is green.

Table 4.6.1: Common border styles.

Style	CSS example	Displayed
solid	<code>border: 2px solid black;</code>	
dashed	<code>border: 2px dashed red;</code>	
dotted	<code>border: 2px dotted blue;</code>	
none	<code>border: 2px none green;</code>	
double	<code>border: 5px double gray;</code>	
groove	<code>border: 5px groove orange;</code>	
ridge	<code>border: 5px ridge pink;</code>	
inset	<code>border: 5px inset brown;</code>	
outset	<code>border: 5px outset yellow;</code>	

#### PARTICIPATION ACTIVITY

#### 4.6.5: Modify the padding, border, and margin.

Modify the CSS declarations for the `<span>` and `<p>` tags to meet each requirement below:

1. Padding on the span: 5 pixels left, and 5 pixels right.

2. Border on the span: 2 pixels solid black above (use `-top` suffix), and 4 pixels solid gray below (use `-bottom`).
3. Border on the paragraph: 10 pixels, light green, ridge style (use `border-style`, `border-color`, and `border-width`).
4. Margin on the paragraph: uniform 5 pixels around.

HTML

CSS

```
1 <p>
2   The typical filler text is the <span>Lorem Ipsum</span>.
3   According to ipsum.com, this text has been standard dummy text since
4 </p>
```

Render webpage

[Reset code](#)

**Your webpage**

The typical filler text is the Lorem Ipsum. According to ipsum.com, this text has been standard dummy text since the 1500s.

**Expected webpage**

The typical filler text is the  Lorem  
 Ipsum . According to ipsum.com,  
this text has been standard dummy  
text since the 1500s.

► View solution

## Margin collapsing and horizontal centering

Vertical margins of two elements can sometimes combine or collapse into a single vertical space. Horizontal margins never collapse. Ex: Adjoining margins of two vertically stacked block elements collapse. The resulting margin size equals the top element's bottom margin or the bottom element's top margin, whichever is larger.

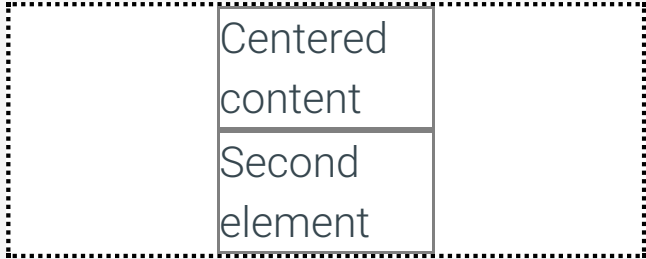
### Example 4.6.5: Collapsed margins.

The following HTML demonstrates a collapsed margin. The vertical space between the inner div elements is collapsed to 10 pixels, while the horizontal space between the span elements is 20 pixels.

HTML and CSS	Rendered webpage
<pre>&lt;style&gt; .outer {   border: 2px dotted black; } .inner {   margin: 10px;   border: 1px solid gray; } span {   margin: 10px;   background: lightgray; } &lt;/style&gt; &lt;div class="outer"&gt;   &lt;div class="inner"&gt;     &lt;span&gt;First&lt;/span&gt;   &lt;/div&gt;   &lt;div class="inner"&gt;     Second element   &lt;/div&gt; &lt;/div&gt;</pre>	

When an element has the `margin` property set to `auto`, the browser will compute the left and right margins to use up the remaining width of the parent element. The `auto` margin value is useful for horizontally centering an element in the parent element. *A common error is to use `margin:auto` on elements that do not have the width specified or have `display:inline`, such as `span` elements.*

## Example 4.6.6: Horizontal centering.

HTML and CSS	Rendered webpage
<pre>&lt;style&gt; .outer {   border: 2px dotted black; } .inner {   margin: auto;   width: 100px;   border: 1px solid gray; } &lt;/style&gt; &lt;div class="outer"&gt;   &lt;div class="inner"&gt;     Centered content   &lt;/div&gt;   &lt;div class="inner"&gt;     Second element   &lt;/div&gt; &lt;/div&gt;</pre>	

PARTICIPATION  
ACTIVITY

## 4.6.6: Margins.

- 1) If two elements are stacked on top of each other and both have **margin: 20px**, the total margin between the two elements is 40px.

- ☐ True
- ☐ False

2) If two elements are horizontally adjacent to each other and both have **margin:20px**, the total margin between the two elements is 40px.

- ☐ True
- ☐ False

3) The text is horizontally centered in the web browser.

```
<body>
  <div style="width:300px;
margin:auto;">Some text</div>
</body>
```

- ☐ True
- ☐ False

**CHALLENGE  
ACTIVITY**

4.6.1: Box model.

550544.4142762.qx3zqy7

[Start](#)

For the `<span>` tag, set the border all around to be 6 pixels, dashed, and red.

**SHOW EXPECTED**

CSS

HTML

1

1

2

3

4

5

Check

Next

Exploring further:

- [Box model](#) from W3 Consortium.

## 4.7 Example: Styled band webpage



## Page colors

This section adds CSS to the example band webpage from an earlier section. The band webpage displays information about the fictional band *Reach Out*. Several global CSS variables define the page's primary colors that are used in various CSS rules to set the page's background color and font colors.

### Colors applied to the band webpage.

band.html is the band's webpage, and styles.css is an external stylesheet that applies CSS to the webpage.

Images from [Wikimedia.org](https://commons.wikimedia.org/)

#### PARTICIPATION ACTIVITY

#### 4.7.1: Page colors.

- 1) The CSS variable `--bg-color` defines the page's background color.

☐ True

☐ False
- 2) The font color is white throughout the entire webpage.

☐ True

☐ False
- 3) The links are white but change to purple when the mouse hovers over a link.

☐ True

☐ False

## Styling the text

Various font and text styles are added to the CSS in the figure below to give the text a more

distinctive look. The page font is modified, the page header and navigation links are horizontally centered, and some styling is applied to the navigation links.

Figure 4.7.1: CSS text and font properties.

```
body {  
  color: var(--font-color);  
  background-color: var(--bg-color);  
  font-family: Arial, sans-serif;  
}  
  
h1 {  
  color: var(--header-color);  
  font-size: 3rem;  
  font-style: italic;  
  font-variant: small-caps;  
  text-align: center;  
}  
  
h2 {  
  color: var(--header-color);  
  font-size: 2.5rem;  
  font-variant: small-caps;  
}  
  
nav {  
  text-align: center;  
  margin-top: 14px;  
}  
  
nav a {  
  text-decoration: none;  
  text-transform: lowercase;  
  font-weight: bold;  
  font-size: larger;  
}
```

## Font and text styles.

Images from [Wikimedia.org](https://commons.wikimedia.org/)

**PARTICIPATION  
ACTIVITY**

## 4.7.2: Font and text styles.

1) What is the font used throughout the page?

- ☐ Times New Roman
- ☐ Arial
- ☐ Serif

2) What CSS declaration causes the `<h1>` header to align horizontally centered?

- ☐ `text-align: center;`
- ☐ `align: center;`
- ☐ `text-align: middle;`

3) What CSS selector was added to make the navigation links lowercase, bold, and not underlined?

- ☐ `nav`
- ☐ `a`
- ☐ `nav a`

## Relocating the band member list

The unordered list under each band member looks better if positioned to the right of each member's photo. The CSS in the figure below floats the images and lists left, causing each list to float next to the member's photo.

Figure 4.7.2: CSS to float unordered lists next to member images.

```
.band-member {  
    float: left;  
    clear: both;  
}  
  
#members ul {  
    float: left;  
}  
  
#members {  
    display: inline-block;  
}
```

## Float alternatives

*Developers frequently use the CSS flexbox or grid layout instead of floats for putting HTML elements next to each other. Flexbox and grid layout are covered elsewhere in this material.*

## Updated Members section.

Images from [Wikimedia.org](https://www.wikimedia.org/)

### PARTICIPATION ACTIVITY

#### 4.7.3: Rules that handle floating.



If unable to drag and drop, refresh the page.

```
#members {  
    display: inline-block;  
}
```

```
.band-member {  
    float: left;  
    clear: both;  
}
```

```
#members ul {  
    float: left;  
}
```



Rule that floats the images left.

Makes each unordered list float left.

Places all floating elements inside the Members section.

Reset

## Spacing

The margin and padding properties are used in the figure below to provide more space between the navigation links, below the band members' photos, and around the table items. The class selector **.center** can horizontally center any element within the element's container and may be applied to the large image at the top of the page to horizontally center the image.

Figure 4.7.3: CSS to add spacing.

```
section {  
    margin-top: 50px;  
    margin-left: 20px;  
}  
  
#members img {  
    margin-bottom: 20px;  
}  
  
.center {  
    display: block;  
    margin-left: auto;  
    margin-right: auto;  
}  
  
nav a {  
    text-decoration: none;  
    text-transform:  
lowercase;  
    font-weight: bold;  
    font-size: larger;  
    margin-left: 10px;  
    margin-right: 10px;  
}  
  
td {  
    padding: 10px;  
}
```

## Spacing in various places.

Images from [Wikimedia.org](https://commons.wikimedia.org/)



- 1) How much spacing does the CSS apply between each image?
- ☐ 20px
  - ☐ 10px
  - ☐ 0px
- 2) Which CSS declaration in `.center` makes the `<img>` element fill the browser's width?
- ☐ `display: block`
  - ☐ `margin-left: auto`
  - ☐ `margin: center`
- 3) Does changing the `td` rule's `padding: 10px` to `margin: 10px` change the rendering of the table?
- ☐ Yes
  - ☐ No

## 4.8 LAB: News article (CSS)

Download the ZIP file below containing an HTML and CSS file. Add the necessary CSS rules to `styles.css` so the provided HTML produces the following webpage:



### 5 Things to Know About Rattlesnakes and Their Babies

UA College of Pharmacy | Aug. 6, 2014

Arguably, snake season is year-round in Arizona, a state known for its rattlers. But baby rattlesnakes are born in July and August, making these two months especially dangerous for hikers, gardeners, children and others at high risk of exposure to rattlesnake bites.





So far this year, 74 rattlesnake bites to humans have been reported to the Arizona Poison and Drug Information Center. Based at the University of Arizona College of Pharmacy, the center serves the entire state of Arizona with the exception of Maricopa County, providing free and confidential poison and medication information to callers around the clock.

Specialists answering the phones at the center regularly receive calls from Arizonans of all ages who don't realize they were bitten by a rattler. The poison center urges anyone who feels a mysterious sting, pinch or bite while outdoors to immediately call the center at 800-222-1222.

"We will ask a few questions that will help you either identify possible snakebite or eliminate it," said Keith Boesen, director of the Arizona Poison and Drug Information Center. "With snakebite, the sooner the medical treatment, the better the outcome, so calling us right away can make a very big difference for the victims and the medical teams treating them."

The center advises anyone who might come cross paths with rattlesnakes to be aware of these five things:

1. Baby rattlesnakes range in length from 6 to 12 inches and are easily camouflaged by brush and grass.
2. Baby rattlesnakes are rattleless until they first shed their skins, so there will be no infamous "chica-chica" sound before they strike.
3. Despite their impish size, baby snakes have enough venom to be very dangerous if they bite a human.
4. Adult rattlesnakes do not always rattle an audible warning before or while they are biting.
5. It's a good idea to call the poison center if you notice an unidentified small cut or wound, even if you feel no pain. With the lack of telltale rattle warning, people can be bitten without knowing what has happened until they notice their symptoms and attribute them to a snakebite.

Share: [Twitter](#) [Facebook](#) [LinkedIn](#)

Add CSS rules to styles.css that matches the following styling:

- Both article's images styled with a width of 300px
- Article's `<h1>` tag styled with:
  - 5px padding all around
  - Font family of Arial
  - Font size of 24px
  - Font color of white



- Background color of red
- Selecting the id of author-name-and-date, style the author name and date with:
  - Font family of Arial
  - Font size of 12px
  - Font color of lightgray
- Article's text (<p> and <ol> tags) styled with:
  - Font family of Times New Roman
  - Font size of 16px
  - Font color of gray
- Article's share links (<a> tags) styled with:
  - Font family of Arial
  - Font size of 12px
  - Font color of blue

Note: Colors, font sizes, padding, etc. must be exact.

550544.4142762.qx3zqy7

**LAB  
ACTIVITY**

4.8.1: LAB: News article (CSS)

8 / 10



## Submission Instructions

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©zyBooks 04/15/24 16:38 2071381  
Marco Aguilar  
CIS192\_193\_Spring\_2024

index.html

and

styles.css

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4/10 W8,8,8,8 min:5

Latest submission - 6:11 PM PDT on 04/10/24

Total score: 8 / 10

☐ Only show failing tests[Download this submission](#)

1:Unit test ^

2 / 2

Image styles

✓ Width of image 1

✓ Width of image 2

2:Unit test ^

2 / 2

Header styles

✓ padding of &lt;h1&gt; tag

✓ font-family of &lt;h1&gt; tag

✓ font-size of &lt;h1&gt; tag

✓ color of &lt;h1&gt; tag

✓ background-color of &lt;h1&gt; tag

3:Unit test ^

2 / 2

Author name and date styles

✓ font-family of &lt;p&gt; tag with id of author-name-and-date

✓ font-size of &lt;p&gt; tag with id of author-name-and-date

✓ color of &lt;p&gt; tag with id of author-name-and-date

4:Unit test ^

0 / 2

Article text styles

✓ font-family of <p> tag 3

✓ font-size of <p> tag 3

✗ color of <p> tag 3

Your value

rgb(0, 0, 0)

Expected value

rgb(128, 128, 128)

✗ Test aborted.

5:Unit test ^

2 / 2

Link styles

✓ font-family of <a> tag 1

✓ font-size of <a> tag 1

✓ color of <a> tag 1

✓ font-family of <a> tag 2

✓ font-size of <a> tag 2

✓ color of <a> tag 2

✓ font-family of <a> tag 3

✓ font-size of <a> tag 3

✓ color of <a> tag 3

## Previous submissions

6:10 PM on 4/10/24

8 / 10

[View](#) ▾

6:09 PM on 4/10/24

8 / 10

[View](#) ▾

6:07 PM on 4/10/24

8 / 10

View ▾

## 4.9 LAB: Auto loan (CSS)

Download the ZIP file below containing an HTML and CSS file. Add the necessary CSS rules to styles.css so the provided HTML produces the following webpage:

### Comparison of Dealer Incentives and Loan Offers

Purchase Offer 1		Purchase Offer 2	
Item	Cost	Item	Cost
Purchase price:	\$33,500	Purchase price:	\$33,500
Cash incentive/rebate:	\$0	Cash incentive/rebate:	\$500
Loan term (months):	48	Loan term (months):	48
Annual percentage rate (APR):	3.2	Annual percentage rate (APR):	4.1
Monthly payment:	\$725.33	Monthly payment:	\$746.59
Total cost:	<b>\$34,815.62</b>	Total cost:	<b>\$35,836.15</b>

The following style rules should be added to styles.css:

- The default fonts (in order of priority) should be Roboto, Helvetica, and sans-serif.
- The heading "Comparison of Dealer Incentives and Loan Offers" should be 16px font using color #444444.
- Define a **container** class with centered text, a 5 pixel margin, and a font size of 13px.
- Each offer is defined in a **<section>** tag with the class **offer**. Define the **offer** class so

that:

- Each offer is displayed inline-block, with a fixed width of 400 pixels, a 4 pixel margin, and centered text
- Each offer has a 1 pixel solid border using color #cccccc
- The offer title is defined in an `<h2>` tag with `offer-title` class. Define the `offer-title` class so that:
  - The title uses 14px bold font with color #ffffff
  - The title's background is colored #00b3b3
  - The title has no margin and 15 pixels of padding
- The offer contents are defined in a `<div>` tag with class `offer-contents`. Define the `offer-contents` class so that:
  - Each offer contents div has 20 pixels of padding and background colored #fafafa
- Define CSS rules such that all tables have the following styling:
  - The table should have a width of 100%, background colored #ffffff, and no border spacing
  - Header cells should use a 12px bold font with color #777777
  - Data cells should use a font lighter than normal weight with color #444444
  - Header cells should have 10 pixels of padding and no margin
  - Data cells should have 10 pixels of padding on the left and right, 20 pixels of padding on top and bottom, and no margin
  - Both header cells and data cells should left align text
  - Both header cells and data cells should have a solid bottom border of 1 pixel using color #f1f1f1
- Define a `final-value` class that defines a bold font weight with color #2222ff.

550544.4142762.qx3zqy7

## LAB ACTIVITY

### 4.9.1: LAB: Auto loan (CSS)

10 / 10



## Submission Instructions

Downloadable files

index.html

and

style.css

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**style.css**

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Coding trail of your work [What is this?](#)

4/10 **W**6,7 **R**7,8,9,10 min:10

Latest submission - 3:01 PM PDT on 04/11/24 **Submission passed all tests**



**Total score: 10 / 10**



Only show failing tests

[Download this submission](#)

1:Unit test ^

1 / 1

h1 styling

- ✓ font-family of <h1> tag
- ✓ font-size of <h1> tag
- ✓ color of <h1> tag

2:Unit test ^

1 / 1

Background colors

- ✓ Offer title background color of rgb(0, 179, 179)
- ✓ Offer contents background color of rgb(250, 250, 250)

- ✓ Table background of rgb(255, 255, 255)

---

### 3:Unit test ^

1 / 1

Display style for offer divs

- ✓ First offer div style of inline-block
- ✓ Second offer div style of inline-block

---

### 4:Unit test ^

1 / 1

Margins

- ✓ Margin for container class
- ✓ Margin for offer class
- ✓ Margin for <th>
- ✓ Margin for <td>

---

### 5:Unit test ^

1 / 1

Padding

- ✓ Padding for offer-title class
- ✓ Padding for offer-contents class
- ✓ Padding for <th>
- ✓ Padding for <td>

---

### 6:Unit test ^

1 / 1

<th> font colors, sizes, and weights

- ✓ font-size of <th> tag
- ✓ color of <th> tag

✓ Bold font weight for <th>.

7:Unit test ^

1 / 1

<td> font colors, sizes, and weights

- ✓ font-size of <td> tag
- ✓ color of <td> tag
- ✓ Lighter font weight for <td>.

8:Unit test ^

2 / 2

Text alignment

- ✓ <h1> text align is center
- ✓ Offer <table> text align is center
- ✓ <th> text align is left
- ✓ <td> text align is left

9:Unit test ^

1 / 1

final-value class styling

- ✓ Bold font weight for final-value class.
- ✓ Text color of rgb(34, 34, 255) for finalValue class

5 previous submissions

2:59 PM on 4/11/24	9 / 10	View ▾
2:58 PM on 4/11/24	8 / 10	View ▾
2:50 PM on 4/11/24	7 / 10	View ▾



6:35 PM on 4/10/24

7 / 10

[View](#) ▾

6:34 PM on 4/10/24

6 / 10

[View](#) ▾

## 4.10 LAB: Sleep recommendation list (CSS)

Download the ZIP file below containing an HTML file. Modify the HTML file's embedded stylesheet to produce the webpage below.

### Sleep Duration Recommendations

- School-aged children (6-13 years) — 9-11 hours
- Teenagers (14-17 years) — 8-10 hours
- Young adults (18-25 years) — 7-9 hours
- Adults (26-64 years) — 7-9 hours
- Older adults (65+ years) — 7-8 hours

Source: [National Sleep Foundation's Sleep Duration Recommendations](#)

Add CSS rules to the embedded stylesheet so each element uses the following styles:

- `<body>` uses Arial, Helvetica, sans-serif font family, 18px font size, and #EDF4FB background color
- `<h1>` uses RGB (26, 69, 107) font color
- `<li>` uses #296CA8 font color
- `<span>` with "age" class uses an italic font style
- `<span>` with "recommended" class has a yellow background color and underlined text

550544.4142762.qx3zqy7

LAB  
ACTIVITY

4.10.1: LAB: Sleep recommendation list (CSS)

10 / 10



Submission Instructions

Downloadable files

`recommend.html`[Download](#)

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**recommend.html**

Drag file here  
or

[Choose on hard drive.](#)[Submit for grading](#)Coding trail of your work [What is this?](#)3/21 **R8,10** **R8,10** min:4

Latest submission - 8:34 PM PDT on 04/11/24

Submission passed  
all tests



Total score: 10  
/ 10

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1:Unit test ^

2 / 2

Test body styles

- ✓ font-family of <body> tag
- ✓ font-size of <body> tag
- ✓ background-color of <body> tag

2:Unit test ^

2 / 2

Test h1 style

- ✓ color of <h1> tag

### 3:Unit test ^

2 / 2

#### Test li style

- ✓ color of <li> tag 1 is #296CA8
- ✓ color of <li> tag 2 is #296CA8
- ✓ color of <li> tag 3 is #296CA8
- ✓ color of <li> tag 4 is #296CA8
- ✓ color of <li> tag 5 is #296CA8

---

### 4:Unit test ^

2 / 2

#### Test span with "age" class

- ✓ font-style of <span> tag 1 with class "age" is italic
- ✓ font-style of <span> tag 2 with class "age" is italic
- ✓ font-style of <span> tag 3 with class "age" is italic
- ✓ font-style of <span> tag 4 with class "age" is italic
- ✓ font-style of <span> tag 5 with class "age" is italic

---

### 5:Unit test ^

2 / 2

#### Test span with "recommended" class

- ✓ background-color of <span> tag 1 with class "recommended" is yellow
- ✓ text-decoration of <span> tag 1 with class "recommended" is underline
- ✓ background-color of <span> tag 2 with class "recommended" is yellow
- ✓ text-decoration of <span> tag 2 with class "recommended" is underline
- ✓ background-color of <span> tag 3 with class "recommended" is yellow
- ✓ text-decoration of <span> tag 3 with class "recommended" is underline

- ✓ background-color of <span> tag 4 with class "recommended" is yellow
- ✓ text-decoration of <span> tag 4 with class "recommended" is underline
- ✓ background-color of <span> tag 5 with class "recommended" is yellow
- ✓ text-decoration of <span> tag 5 with class "recommended" is underline

### Previous submissions

8:33 PM on 4/11/24	8 / 10	<a href="#">View</a> ▾
1:42 PM on 3/21/24	10 / 10	<a href="#">View</a> ▾
1:41 PM on 3/21/24	8 / 10	<a href="#">View</a> ▾

## 4.11 LAB: Best-selling video games table (CSS)

Download the ZIP file below containing an HTML and CSS file. Modify styles.css so the provided HTML produces the webpage below.

BEST-SELLING VIDEO GAMES		
Title	Sales	Release Date
Minecraft	176,000,000	November 18, 2011
Tetris	170,000,000	June 6, 1984
Grand Theft Auto V	110,000,000	September 17, 2013
Wii Sports	82,870,000	November 19, 2006

Source: [Wikipedia](#)

Add the following CSS rules to styles.css:

- An ID selector for the ID `game-table` should:
  - Use the `border` property to add a 2px solid border using the color from the CSS variable `--table-color`
  - Use the `text-align` property to center all text
  - Use a height of 200px and width of 400px
- A descendant selector that targets the `<caption>` inside the `<table>` should:
  - Use the `text-transform` property to make the caption UPPERCASE
  - Set the background color using the CSS variable `--table-color`
  - Set the font color to white
  - Add 10px padding
- A pseudo-class selector `:nth-child(even)` for `<tr>` should:
  - Set the background color using the CSS variable `--row-bg-color`.

550544.4142762.qx3zqy7

LAB  
ACTIVITY

4.11.1: LAB: Best-selling video games table (CSS)

10 / 10



## Submission Instructions

Downloadable files

bestgames.html

and

styles.css

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styles.css

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3/21 R5,8,10 R6,10 min:4

Latest submission - 9:04 PM PDT on 04/11/24 **Submission passed all tests** ✓ **Total score: 10 / 10**

☐ Only show failing tests

[Download this submission](#)

1:Unit test ^ 1 / 1

Test for game-table ID selector

✓ #game-table selector exists

2:Unit test ^ 3 / 3

Test game-table ID selector styles

✓ #game-table selector exists

✓ border property of rule

✓ text-align property of rule

✓ height property of rule

✓ width property of rule

3:Unit test ^ 1 / 1

Test for "table caption" descendant selector

✓ "table caption" descendant selector exists

4:Unit test ^ 3 / 3

Test caption descendant selector styles

✓ "table caption" descendant selector exists

✓ color property of rule

- ✓ text-transform property of rule
- ✓ background-color property of rule
- ✓ padding property of rule

5:Unit test ^

2 / 2

Test :nth-child pseudo-selector styles

- ✓ tr:nth-child(even) selector exists
- ✓ background-color property of rule

Previous submissions

9:03 PM on 4/11/24	6 / 10	View ▾
2:02 PM on 3/21/24	10 / 10	View ▾
2:00 PM on 3/21/24	8 / 10	View ▾
1:59 PM on 3/21/24	5 / 10	View ▾

# 4.12 LAB: Style the form with advanced selectors

Download the ZIP file below containing an HTML file. Modify the HTML file's embedded stylesheet to produce the webpage below.

# Rate a Product

\* indicates required field.

Product\*

Purchase Date\*

Rating\*

Comments

Submit Rating

Add the following CSS rules to the embedded stylesheet:

- An element selector to make `<label>` an inline-block element with 120px width.
- A multiple selector to make all `<input>` and `<textarea>` elements have a 300px width with 10px padding.
- An attribute selector to make an `<input>` with attribute `type="submit"` have an auto width.
- A pseudo-element selector `::after` for the `.required` class to place a red asterisk (\*) immediately after any element that uses the `.required` class.
- An adjacent sibling selector to make any `<input>` that is a sibling of `<label>` use background color `rgb(219, 241, 248)`.

550544.4142762.qx3zqy7

LAB  
ACTIVITY

4.12.1: LAB: Style the form with advanced selectors

10 / 10



## Submission Instructions

Downloadable files

rate.html

Download



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rate.html

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4/11 R10 min:4

Latest submission - 9:18 PM PDT on 04/11/24 Submission passed all tests



Total score: 10 / 10



Only show failing tests

[Download this submission](#)

1:Unit test ^

2 / 2

Test label element selector

- ✓ label element selector exists
- ✓ display property of rule
- ✓ width property of rule

2:Unit test ^

2 / 2

Test multiple selector for input and textarea

- ✓ Multiple selector exists
- ✓ padding property of rule
- ✓ width property of rule