

CSS Fundamentals Documentation

A comprehensive guide to essential CSS properties for styling web pages.

Colors

Colors in CSS can be defined using several formats:

Color Formats

- **Named Colors:** `color: red;`
- **Hexadecimal:** `color: #ff0000;` (6 digits) or `color: #f00;` (shorthand)
- **RGB:** `color: rgb(255, 0, 0);`
- **RGBA:** `color: rgba(255, 0, 0, 0.5);` (includes alpha/transparency)
- **HSL:** `color: hsl(0, 100%, 50%);` (Hue, Saturation, Lightness)
- **HSLA:** `color: hsla(0, 100%, 50%, 0.5);` (includes alpha)

Common Color Properties

```
CSS

color: #333;           /* Text color */
background-color: #fff; /* Background color */
border-color: blue;     /* Border color */
```

Fonts

Font properties control the appearance of text.

Font Family

```
CSS

font-family: Arial, Helvetica, sans-serif;
/* Fallback fonts: if Arial isn't available, use Helvetica, then any sans-serif */
```

Common Font Properties

```
CSS
```

```
font-size: 16px;      /* Size of text */
font-weight: bold;    /* Thickness: normal, bold, 100-900 */
font-style: italic;   /* Style: normal, italic, oblique */
line-height: 1.5;     /* Space between lines */
text-align: center;   /* Alignment: left, right, center, justify */
text-decoration: underline; /* underline, line-through, none */
text-transform: uppercase; /* uppercase, lowercase, capitalize */
letter-spacing: 2px;  /* Space between letters */
```

Font Shorthand

```
CSS

font: italic bold 16px/1.5 Arial, sans-serif;
/* style weight size/line-height family */
```

Borders

Borders create outlines around elements.

Border Properties

```
CSS

border-width: 2px;    /* Thickness of border */
border-style: solid;  /* solid, dashed, dotted, double, none */
border-color: black;  /* Border color */
```

Border Shorthand

```
CSS

border: 2px solid black; /* width style color */
```

Individual Sides

```
CSS
```

```
border-top: 1px solid red;  
border-right: 2px dashed blue;  
border-bottom: 3px dotted green;  
border-left: 4px double orange;
```

Border Radius

CSS

```
border-radius: 10px;    /* Rounded corners */  
border-radius: 50%;    /* Circle (on square elements) */  
border-radius: 10px 20px 30px 40px; /* top-left, top-right, bottom-right, bottom-left */
```

Shadows

Shadows add depth and dimension to elements.

Box Shadow

Adds shadow to the element's box.

CSS

```
box-shadow: 5px 5px 10px rgba(0, 0, 0, 0.3);  
/* horizontal-offset vertical-offset blur-radius color */  
  
box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);  
/* Common subtle shadow */  
  
box-shadow: inset 0 0 10px rgba(0, 0, 0, 0.5);  
/* Inner shadow with 'inset' keyword */  
  
box-shadow: 2px 2px 5px red, -2px -2px 5px blue;  
/* Multiple shadows separated by commas */
```

Text Shadow

Adds shadow to text.

CSS

```
text-shadow: 2px 2px 4px rgba(0, 0, 0, 0.5);  
/* horizontal-offset vertical-offset blur-radius color */
```

Margins

Margins create space **outside** an element's border.

Margin Properties

```
CSS  
  
margin: 20px;           /* All sides */  
margin: 10px 20px;      /* top/bottom left/right */  
margin: 10px 20px 30px; /* top left/right bottom */  
margin: 10px 20px 30px 40px; /* top right bottom left (clockwise) */
```

Individual Sides

```
CSS  
  
margin-top: 10px;  
margin-right: 20px;  
margin-bottom: 30px;  
margin-left: 40px;
```

Auto Margins

```
CSS  
  
margin: 0 auto;           /* Center element horizontally */
```

Padding (Related Concept)

Padding creates space **inside** an element's border. It uses the same syntax as margin.

```
CSS  
  
padding: 20px;           /* Space inside the element */  
padding: 10px 20px;      /* top/bottom left/right */
```

Float

Float removes an element from normal document flow and positions it to the left or right.

Float Properties

CSS

```
float: left;      /* Element floats to the left */
float: right;     /* Element floats to the right */
float: none;      /* Default: no floating */
```

Clearing Floats

CSS

```
clear: left;      /* Element moves below left-floated elements */
clear: right;     /* Element moves below right-floated elements */
clear: both;      /* Element moves below all floated elements */
```

Clearfix Pattern

Used on parent containers to contain floated children:

CSS

```
.clearfix::after {
  content: "";
  display: table;
  clear: both;
}
```

Note: Modern layouts typically use Flexbox or Grid instead of float, but float is still useful for wrapping text around images.

Overflow

Overflow controls what happens when content is too large for its container.

Overflow Properties

CSS

```
overflow: visible;    /* Default: content overflows the box (not clipped) */
overflow: hidden;     /* Content is clipped, no scrollbars */
overflow: scroll;      /* Scrollbars always shown */
overflow: auto;       /* Scrollbars appear only when needed */
```

Directional Overflow

```
CSS

overflow-x: auto;      /* Horizontal overflow only */
overflow-y: hidden;    /* Vertical overflow only */
```

Common Use Cases

```
CSS

/* Create scrollable container */
.scrollable {
  height: 300px;
  overflow-y: auto;
}

/* Hide overflowing content */
.truncate {
  width: 200px;
  overflow: hidden;
  white-space: nowrap;
  text-overflow: ellipsis; /* Adds ... to truncated text */
}
```

Practical Example

Here's how these properties work together:

```
CSS
```

```
.card {  
  /* Colors */  
  color: #333;  
  background-color: #ffffff;  
  
  /* Fonts */  
  font-family: 'Arial', sans-serif;  
  font-size: 16px;  
  line-height: 1.6;  
  
  /* Borders */  
  border: 1px solid #e0e0e0;  
  border-radius: 8px;  
  
  /* Shadows */  
  box-shadow: 0 2px 8px rgba(0, 0, 0, 0.1);  
  
  /* Margins */  
  margin: 20px;  
  padding: 20px;  
  
  /* Overflow */  
  overflow: hidden;  
}  
  
.card-image {  
  /* Float */  
  float: left;  
  margin-right: 15px;  
  border-radius: 4px;  
}
```

Tips and Best Practices

1. **Colors:** Use RGBA for transparent colors, HSL for easier color manipulation
2. **Fonts:** Always provide fallback font families
3. **Borders:** Use `border: none;` to remove borders completely
4. **Shadows:** Use subtle shadows for professional designs
5. **Margins:** Beware of margin collapse between adjacent elements

6. **Float:** Remember to clear floats on parent containers

7. **Overflow:** Use `overflow: auto` for responsive scrolling behavior