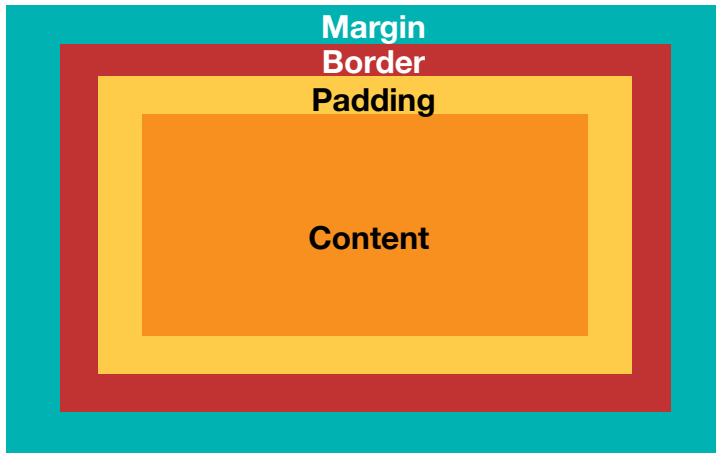


The CSS Box Model

All HTML elements can be considered as boxes. In CSS, the term "box model" is used when talking about design and layout.

The CSS box model is essentially a box that wraps around HTML elements, and it consists of: **margins, borders, padding, and the actual content.**

The box model allows us to place a border around elements and space elements in relation to other elements.



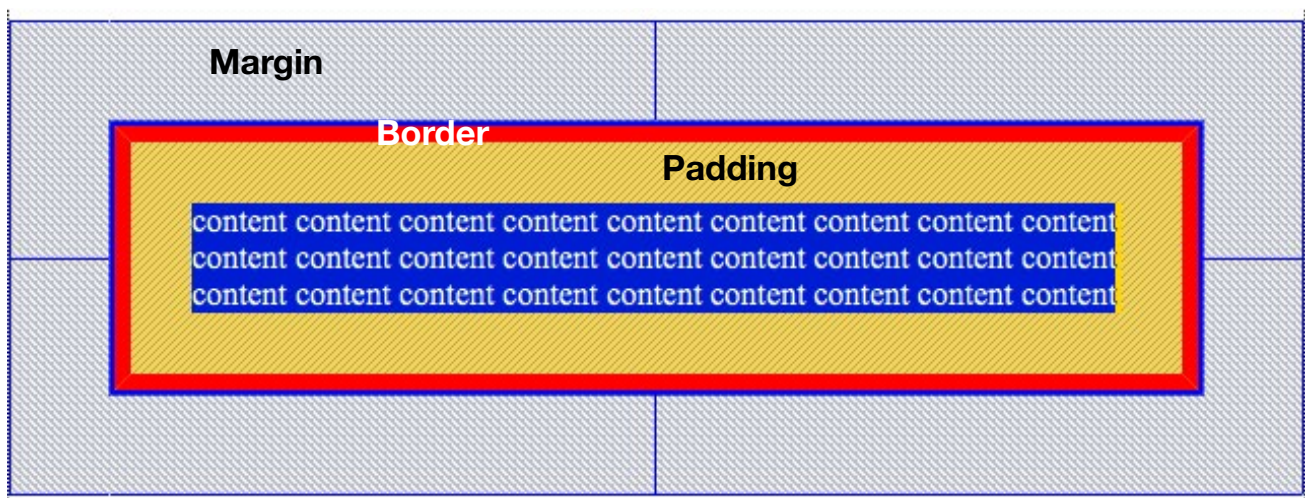
Margin - Clears an area around the border. The margin does not have a background color, it is completely transparent

Border - A border that goes around the padding and content. The border is affected by the background color of the box

Padding - Clears an area around the content. The padding is affected by the background color of the box

Content - The content of the box, where text and images appear

As seen in Dreamweaver (Design View):



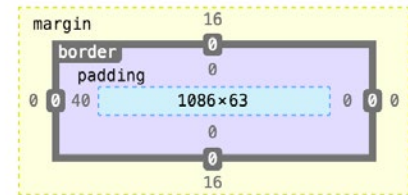
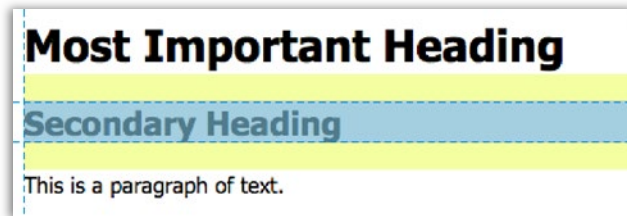
Margin

Margin creates space **OUTSIDE** of an element to separate it from other elements

Many elements have **default** margins assigned to them.

Margin can be set to pixels, points, ems, percentages, or auto

By using an element inspector, we can see the space comes from a margin on the top and bottom



To set the margin on ALL sides:

```
h1 {  
  margin: 5px;  
}
```

To set the margin on individual sides:

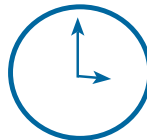
```
h1 {  
  margin-top: 5px;  
  margin-right: 10px;  
  margin-bottom: 7px;  
  margin-left: 0px;  
}
```

OR USE THE SHORTHAND:

```
h1 {  
  margin: 5px 10px 7px 0;  
}
```

Top Right Bottom Left

That's clockwise!



Other uses of shorthand...

margin:25px 50px;

- top and bottom margins are 25px
- right and left margins are 50px

margin:25px 50px 75px;

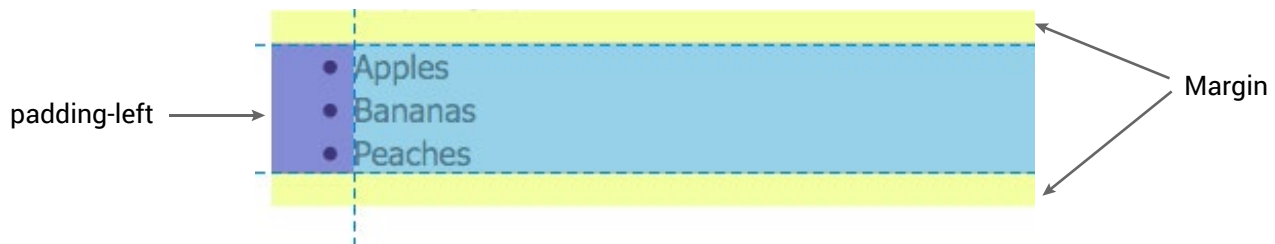
- top margin is 25px
- right and left margins are 50px
- bottom margin is 75px

Padding

Padding creates space **INSIDE** of an element to give its contents more room

Padding can be set to pixels, points, ems, or percentages

Some elements (like ul) have default padding assigned to them.



We can manually remove or override padding as well

```
h2 {  
  padding: 0px;  
}
```

To set the padding on ALL sides:

```
h1 {  
  padding: 5px;  
}
```

To set the padding on individual sides:

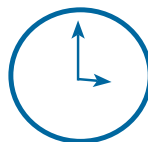
```
h1 {  
  padding-top: 5px;  
  padding-right: 10px;  
  padding-bottom: 7px;  
  padding-left: 0px;  
}
```

OR USE THE SHORTHAND:

```
h1 {  
  padding: 5px 10px 7px 0;  
}
```

Top Right Bottom Left

That's clockwise!



Other uses of shorthand...

padding:25px 50px;

- top and bottom paddings are 25px
- right and left paddings are 50px

padding:25px 50px 75px;

- top padding is 25px
- right and left paddings are 50px
- bottom padding is 75px

Border

Border creates a line on one or more sides around an object. It shows up outside of the padding, but inside of the margin.

Available properties: [border-width](#), [border-style](#), and [border-color](#)

Example:

```
p {  
  border-width: 5px;  
  border-style: solid;  
  border-color: red;  
}
```

Important: You MUST include border-style, or it will not work.

The shorthand:

```
p {  
  border: 5px solid red;  
}
```

The standard order of the values is:

- border-width
- border-style
- border-color

You can also create a border for just one side:

```
p {  
  border-bottom: 2px dotted #8877AA;  
}
```

One more thing about margin

Margin Collapse

Top and bottom margins of elements are sometimes collapsed into a single margin that is equal to the largest of the two margins.

This does not happen on left and right margins! Only top and bottom margins!

Look at the following example:

Example

```
h1 {  
  margin: 0 0 50px 0;  
}  
  
h2 {  
  margin: 20px 0 0 0;  
}
```

In the example above, the `<h1>` element has a bottom margin of 50px and the `<h2>` element has a top margin set to 20px.

Common sense would seem to suggest that the vertical margin between the `<h1>` and the `<h2>` would be a total of 70px (50px + 20px). But due to margin collapse, the actual margin ends up being 50px.

Math!

Width and Height of an Element

💡 **Important:** When you set the width and height properties of an element with CSS, you just set the width and height of the **content area**. To calculate the full size of an element, you must also add the padding, borders and margins.

The total width of the element in the example below is 300px:

```
width:250px;  
padding:10px;  
border:5px solid gray;  
margin:10px;
```

Let's do the math:

250px (width)
+ 20px (left and right padding)
+ 10px (left and right border)
+ 20px (left and right margin)
= 300px

Assume that you had only 250px of space. Let's make an element with a total width of 250px:

```
width:220px;  
padding:10px;  
border:5px  
margin:0px;
```



For real, do this, it will help!

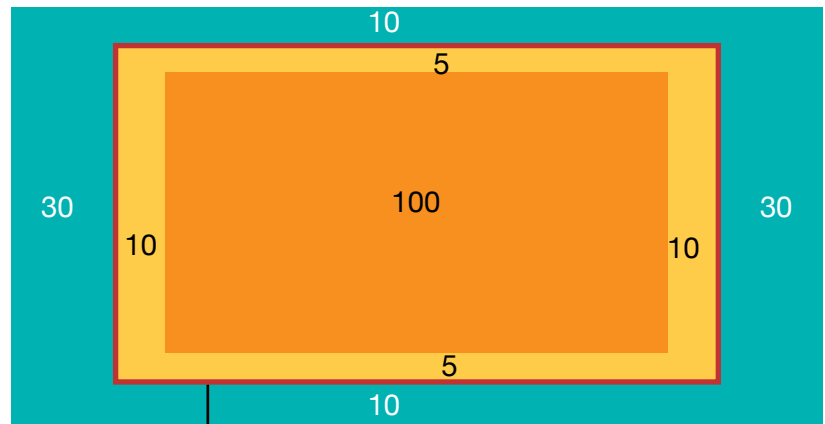
Quiz Yourself:

Check your answers at the bottom of the page.

1. If you have an element with these settings, how much space does the width actually take up (in pixels)?

width: 100px;
padding: 10px;
margin: 5px 30px;
border: 1px solid red;

Total width: _____



border: 1px
on each side

2. If you have an element with these settings, how much space does the width actually take up (in pixels)?

width: 1100px;
padding: 30px 20px;
margin: 10px 5px 20px 10px;
border: 2px solid purple;

Total width: _____

3. **A slightly different one...**

This is what you'll often be doing when working on your site.

Say that you only have **900px** of space available on your screen to place this element within. You need these margin and padding settings. What do you need to change the width setting to in order to make the element fit within the 1000px space?

width: 900px;
padding: 20px;
margin: 5px;
border: none;

Change width to: _____