

1 THE CSS BOX MODEL

HTML5 and CSS3

2 THE BOX MODEL—PAGE 1

- Every HTML element is enclosed in an invisible “box”
- With stylesheets:
 - The size, color and spacing of the box may be formatted
 - Also the way the box “flows” with respect to other elements can be controlled

3 THE BOX MODEL—PAGE 2

- Three special areas of the box that can be controlled:
 - Padding—the space surrounding the contents (inside the border); its width may be controlled
 - Border—the element around the padding which can be colored and thickened, and also can have texture
 - Margin—a transparent space the area around (outside) the border; its width and height may be set effectively assisting in controlling its position

8 DISPLAY STYLE—PAGE 1

- A block element is positioned in a “box” that takes up the full width available in the browser window and has a line break (some double-spaced/some not) before and after it
- Examples:
 - `<h1>`
 - `<p>`
 - ``
 - `<header>`
 - `<section>`
 - `<footer>`

9 DISPLAY STYLE—PAGE 2

- An inline element is positioned in a “box” that only takes up as much width and/or height as needed and does not force line breaks
- Examples:
 - ``
 - `<a>`
 - ``
 - ``
 - ``

10 DISPLAY STYLE—PAGE 3

- The display property specifies (modifies) the type of “box” (block or inline) used for an HTML element

- Also whether or not the element is displayed
- Format:
display: block | inline | none;

11 **DISPLAY STYLE—PAGE 4**

- Example:
 - li

```
{  
    display: inline;  
}
```
- Watch “Tryit Editor” at w3schools.com
 - http://www.w3schools.com/css/tryit.asp?filename=trycss_display_inline_list
-

12 **DESIGNING BACKGROUNDS**

- CSS supports background images (image behind element)
- May be applied to almost any HTML element
- Format:
background-image: url(*url*);
- Example:
body
{
 background-image: url(myImage.png);
}

13 **BACKGROUND IMAGE REPEAT OPTIONS—PAGE 1**

- A process called tiling repeats the background image horizontally and/or vertically until the element is filled
- Format:
background-repeat: repeat | repeat-x | repeat-y | no-repeat | round | space | initial;
 - repeat – repeats horizontally and vertically (default)
 - repeat-x—just horizontally
 - repeat-y—just vertically
 - no-repeat—displays just once
 - round—tiled and resized to fit space a whole # of times
 - space—tiled and space added to fit space a whole # of times
 - initial—uses browser default

14 **BACKGROUND IMAGE REPEAT OPTIONS—PAGE 2**

- Example:
body
{

```
background-repeat: no-repeat;
}
```

•

15 BACKGROUND POSITION—PAGE 1

- The location of a background image can be changed using the background-position property
 - By default placed in the upper-left corner of the element
- Format:


```
background-position: horizontal vertical;
```

 - Represents position of upper-left corner of the image

16 BACKGROUND POSITION—PAGE 2

- Examples:


```
body
{
background-position: 10% 15%;
}
body
{
background-position: 50px;
```

 - Placed 50 pixels to the right of element (body or almost any other block element) and centered vertically

17 BACKGROUND POSITION—PAGE 3

- Examples:


```
body
{
background-position: right bottom;
}
```

 - Background image is placed in the lower-right corner of the element

18 BACKGROUND SCROLLING—PAGE 1

- The background-attachment property controls whether or not the image scrolls with the element
- Format:


```
background-attachment: scroll | fixed | local;
```

 - The default is scroll
 - Value local is used for elements like scroll boxes and indicates background scrolls with the content

19 BACKGROUND SCROLLING—PAGE 2

- Example:

```
body
{
    background-attachment: fixed;
}
```

20 BACKGROUND SIZE—PAGE 1

- The background-size property controls size of the image
- Format:

```
background-size: width height;
```
- Example:

```
body
{
    background-size: 100px 150px;
}
```

21 BACKGROUND SIZE—PAGE 2

- If just one background side is specified, the auto option automatically sets the other to retain the image proportions
- Example:

```
body
{
    background-size: 200px auto;
}
```

22 SETTING BACKGROUNDS IN ONE PROPERTY—PAGE 1

- The background property sets several values related to element backgrounds
 - Just like the font property for typographical properties
- Format:

```
background: color url(url) attachment position repeat;
```

23 SETTING BACKGROUNDS IN ONE PROPERTY—PAGE 2

- Example:

```
body
{
    background: black url(bike_bg.png) top left no-repeat;
}
```

25 PAGE LAYOUTS

- Fixed layout—size of web page and elements set without regard to screen resolution
- Fluid layout—defines web page and its elements as a percentage of screen width
 - Also know as liquid layout
- Elastic layout—all measurements are expressed relative to the default font size using

the em unit of measure

26 **SETTING PAGE WIDTH AND HEIGHT—PAGE 1**

- The width and height values for elements including the web page are set as follows:
- Formats:
 - width: *value*;
 - height: *value*;

27 **SETTING PAGE WIDTH AND HEIGHT—PAGE 2**

- Example:
 - body

```
{
  width: 95%;
}
```
 - Browsers usually increase document web page height automatically to match the content

28 **MAXIMUM AND MINIMUM WIDTH & HEIGHT—PAGE 1**

- For fluid layouts it often is useful to provide limits on how narrow or wide the element can expand
- Formats:
 - min-width: *value*;
 - min-height: *value*;
 - max-width: *value*;
 - max-height: *value*;
 -

29 **MAXIMUM AND MINIMUM WIDTH & HEIGHT—PAGE 2**

- Example:
 - body

```
{
  width: 95%;
  min-width: 1000px;
  max-width: 1400px;
}
```

31 **SETTING MARGINS—PAGE 1**

- On the very outside of a “box” is its margin which separates one element from another
- Its size can be set using the one of the following “margin” properties
- Formats:
 - margin-top: *length*;
 - margin-right: *length*;

- margin-bottom: *length*;
- margin-left: *length*;

32 **SETTING MARGINS—PAGE 2**

- Example:
 - .horizontalNAV
- ```
{
 margin-left: 33%;
}
```

### 33 **SETTING MARGINS—PAGE 3**

- All margins of one element may be set using the margin property
  - Format:
    - margin: *top right bottom left*;
  - Example:
    - h1
- ```
{
    margin: 10px 20px 10px 20px;
}
```

34 **SETTING MARGINS—PAGE 4**

- All margins of one element may be set using the margin property
 - Alternate format:
 - margin: *top rightLeft bottom* ;
 - Example:
 - h1
- ```
{
 margin: 10px 20px 10px;
}
```

### 35 **SETTING MARGINS—PAGE 5**

- If two values are given for the margin property, the first value applies to the top and bottom sides, and the second to the right and left sides
- Format:
  - margin: *vertical horizontal*;
  - (*vertical* is top and bottom)
  - (*horizontal* is right and left)

### 36 **SETTING MARGINS—PAGE 6**

- Example:
    - h1
- ```
{
    margin: 10px 20px;
}
```

}

37 **SETTING MARGINS—PAGE 7**

- If one value is given for the margin property, the length applies to all four sides

- Format:

- margin: *length*;

- Example:

- h1

{

margin: 10px;

}

39 **SETTING PADDING—PAGE 1**

- On the inside of a “box” between its border and the element itself is the “padding”

- Its size can be set using the one of the following “padding” properties

- Formats:

- padding-top: *length*;

- padding-right: *length*;

- padding-bottom: *length*;

- padding-left: *length*;

40 **SETTING PADDING—PAGE 2**

- Example:

- h1

{

padding-top: 5px;

padding-right: 10px;

padding-bottom: 5px;

padding-left: 10px;

}

41 **SETTING PADDING—PAGE 3**

- All padding for one element may be set using the padding property

- Format:

- padding: *top right bottom left*;

- Example:

- h1

{

padding: 5px 10px 5px 10px;

}

42 **SETTING PADDING—PAGE 4**

- All padding for one element may be set using the padding property

- Alternate format:
 - padding: *top rightLeft bottom*;
- Example:
 - h1

```
{  
    padding: 5px 10px 5px;  
}
```

43 **SETTING PADDING—PAGE 5**

- If two values are given for the padding property, the first value applies to the top and bottom sides, and the second to the right and left sides
- Format:
 - padding: *vertical horizontal*;
(*vertical* is top and bottom)
(*horizontal* is right and left)

44 **SETTING PADDING—PAGE 6**

- Example:
 - h1

```
{  
    padding: 5px 10px;  
}
```

45 **SETTING PADDING—PAGE 7**

- If one value is given for the padding property, *length* applies to all sides
- Format:
 - padding: *length*;
- Example:
 - h1

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

47 **BROWSER EXTENSIONS—PAGE 1**

- Some styles added to the CSS specification more recently may not be recognized by older browsers
- An older version on the style can be identified through use of a vendor prefix which indicates browser vendor that supports an older version of the property
- Older browsers that might not support a current CSS specification, might support one of the older extensions

48 **BROWSER EXTENSIONS—PAGE 2**

- The vendor prefixes for the browser-specific extensions to CSS are:

- -khtml- Konqueror
- -moz- Foxfire, Camino
- -ms- Internet Explorer
- -o- Opera, Nintendo, Wii browser
- -webkit- Android browser, Chrome, Safari

49 **BROWSER EXTENSIONS—PAGE 3**

- Format (last property in list recognized by browser will be implemented):

- *selector*

```
{
  css2-property: value;
  -khtml-property: value;
  -moz-property: value;
  -ms-property: value;
  -o-property: value;
  -webkit-property: value;
  css3-property: value;
}
```

50 **BROWSER EXTENSIONS—PAGE 4**

- Example (background-size property implements browser extensions):

- *img*

```
{
  -moz-background-size: 100px 150px;
  -o-background-size: 100px 150px;
  -webkit-background-size: 100px 150px;
  background-size: 100px 150px;
}
```

52 **SETTING BORDER WIDTHS—PAGE 1**

- The “width” of the borders of most elements may be set individually
- Formats:
 - border-width-top: *width*;
 - border-width-right: *width*;
 - border-width-bottom: *width*;
 - border-width-left: *width*;

53 **SETTING BORDER WIDTHS—PAGE 2**

- Example:
 - *img*

```
{
  border-width-top: 3px;
```

```
border-width-right: 5px;
border-width-bottom: 3px;
border-width-left: 5px;
}
```

54 **SETTING BORDER WIDTHS—PAGE 3**

- All border widths for one element may be set using the border-width property

- Format:

- border-width: *top right bottom left*;

- Example:

- `img`

```
{
border-width: 3px 5px 3px 5px;
}
```

55 **SETTING BORDER WIDTHS—PAGE 4**

- All border widths for one element may be set using the border-width property

- Format:

- border-width: *top rightLeft bottom* ;

- Example:

- `img`

```
{
border-width: 3px 5px 3px;
}
```

56 **SETTING BORDER WIDTHS—PAGE 5**

- If two values are given for the border-width property, the first value applies to the top and bottom sides, and the second to the right and left sides

- Format:

- border-width: *vertical horizontal*;
(*vertical* is top and bottom)
(*horizontal* is right and left)

57 **SETTING BORDER WIDTHS—PAGE 6**

- Example:

- `img`

```
{
border-width: 3px 5px;
}
```

58 **SETTING BORDER WIDTHS—PAGE 7**

- If one value is given for the border-width property, the width applies to all four sides

- Format:

- border-width: *width*;
- Example:
 - img


```
{
    border-width: 3px;
}
```

59 **SETTING BORDER COLORS—PAGE 1**

- The color of the borders of most elements may be set individually
- Formats:
 - border-color-top: *rgb(red, green, blue) | colorName*;
 - border-color-right: *rgb(red, green, blue) | colorName*;
 - border-color-bottom: *rgb(red, green, blue) | colorName*;
 - border-color-left: *rgb(red, green, blue) | colorName*;

60 **SETTING BORDER COLORS—PAGE 2**

- Example:
 - img


```
{
    border-color-top: red;
    border-color-right: green;
    border-color-bottom: blue;
    border-color-left: rgb(100, 150, 200);
}
```

61 **SETTING BORDER COLORS—PAGE 3**

- All border colors for one element may be set using the border-color property
- Format:
 - border-color: *top right bottom left*;
- Example:
 - img


```
{
    border-color: red, green, blue, rbg(100, 150, 200);
}
```

62 **SETTING BORDER COLORS—PAGE 3**

- All border colors for one element may be set using the border-color property
- Format:
 - border-color: *top rightLeft bottom*;
- Example:
 - img


```
{
```

```
border-color: red, green, blue;
}
```

63 **SETTING BORDER COLORS—PAGE 5**

- If two values are given for the border-color property, the first value applies to the top and bottom sides, and the second to the right and left sides
- Format:
 - border-color: *vertical horizontal*;
(*vertical* is top and bottom)
(*horizontal* is right and left)

64 **SETTING BORDER COLORS—PAGE 6**

- Example:
 - img

```
{
border-color: red rgb(100, 150, 200);
}
```

65 **SETTING BORDER COLORS—PAGE 7**

- If one value is given for the border-color property, the color applies to all four sides
- Format:
 - border-color: *rgb(red, green, blue) | colorName*;
- Example:
 - img

```
{
border-color: red;
}
```

66 **SETTING BORDER STYLES—PAGE 1**

- In addition to border width and color, a “style” may be defined as well
- Formats:
 - border-style-top: solid | dashed | dotted | double | outset | inset | groove | ridge | none;
 - border-style-right: solid | dashed | dotted | double | outset | inset | groove | ridge | none;
 - border-style-bottom: solid | dashed | dotted | double | outset | inset | groove | ridge | none;
 - border-style-left: solid | dashed | dotted | double | outset | inset | groove | ridge | none;

67 **SETTING BORDER STYLES—PAGE 2**

- Example:
 - img

```

{
  border-style-top: dashed;
  border-style-right: inset;
  border-style-bottom: dotted;
  border-style-left: outset;
}

```

68 **SETTING BORDER STYLES—PAGE 3**

- All border styles for one element may be set using the border-style property
- Format:
 - border-style: *top right bottom left*;
- Example:
 - img


```

{
  border-style: dashed inset dotted outset;
}

```

69 **SETTING BORDER STYLES—PAGE 4**

- All border styles for one element may be set using the border-style property
- Format:
 - border-style: *top rightLeft bottom*;
- Example:
 - img


```

{
  border-style: dashed inset dotted;
}

```

70 **SETTING BORDER STYLES—PAGE 5**

- If two values are given for the border-style property, the first value applies to the top and bottom sides, and the second to the right and left sides
- Format:
 - border-style: *vertical horizontal*;
(*vertical* is top and bottom)
(*horizontal* is right and left)
- Example:
 - img


```

{
  border-style: dashed dotted;
}

```

71 **SETTING BORDER STYLES—PAGE 6**

- If one value is given for the border-style property, the style applies to all four sides

- Format:
 - border-style: solid | dashed | dotted | double | outset | inset | groove | ridge | none;
- Example:
 - img


```
{
  border-style: ridge;
}
```

72 **SETTING ALL BORDER PROPERTIES—PAGE 1**

- The width, style and color of an element's borders may be set together using one of the "border" properties
- Formats:
 - border-top: *width* | *style* | *color*;
 - border-right: *width* | *style* | *color*;
 - border-bottom: *width* | *style* | *color*;
 - border-left: *width* | *style* | *color*;

73 **SETTING ALL BORDER PROPERTIES—PAGE 2**

- Example:
 - img


```
{
  border-top: red dashed 3px;
  border-right: green inset 3px;
  border-bottom: blue dotted 3px;
  border-left: rgb(100, 150, 200) outset 3px;
}
```

74 **SETTING ALL BORDER PROPERTIES—PAGE 3**

- The border property can be used to set the width, style and color in a single property
- Does not allow for setting the four sides individually
- Format:
 - border *width style color*;
- Example:
 - img


```
{
  border: 3px ridge red;
}
```

76 **SETTING ROUNDED CORNERS—PAGE 1**

- The "border ... radius" properties soften the corners of box elements by adding curves
- The radius value is the measurement of the radius of the hypothetical "circle" placed at the corners of the box

77 **SETTING ROUNDED CORNERS—PAGE 2**

- Formats:
 - border-top-left-radius: *radius*;
 - border-top-right-radius: *radius*;
 - border-bottom-right-radius: *radius*;
 - border-bottom-left-radius: *radius*;

78 **SETTING ROUNDED CORNERS—PAGE 3**

- Example:
 - `img`

```
{
  border-top-left-radius: 20px;
  border-top-right-radius: 20px;
  border-bottom-right-radius: 30px;
  border-bottom-left-radius: 30px;
}
```

79 **SETTING ROUNDED CORNERS—PAGE 4**

- All border radii for one element may be set using the border-radius property
- Format:
 - border-radius: *top-left top-right bottom-right bottom-left*;
- Example:
 - `img`

```
{
  border-radius: 20 20 30 30;
}
```

80 **SETTING ROUNDED CORNERS—PAGE 5**

- If one value is given for the border-radius property, the style applies to all four sides
- Format:
 - border-radius: *radius*;
- Example:
 - `img`

```
{
  border-radius: 25px;
}
```

81 **SETTING ROUNDED CORNERS—PAGE 6**

- The border-radius property implements browser extensions
- Format:
 - *-extension-border-radius value*;

82  **SETTING ROUNDED CORNERS—PAGE 7**

- Example:

```
img
{
  -o-border-radius: 25px;
  -moz-border-radius: 25px;
  -webkit-border-radius: 25px;
  border-radius: 25px;
}
```