

## 1 **HTML5 and CSS3**

### THE CSS BOX MODEL

## 2 **The Box Model—Page 1**

- Every HTML element created with style sheets is enclosed in an invisible “box”
  - Size, color and spacing of the box may be controlled, as well as the way it flows with respect to other elements

## 3 **The Box Model—Page 2**

- Three special areas of the box that can be controlled:
  - Surrounding the contents is a space called the padding; its width may be controlled
  - Around the padding is the border which can be colored and thickened, and also can have texture
  - Around the border is a transparent space called the margin; cannot be colored but its width and height may be set effectively assisting in controlling its position

## 4 **The Box Model**

## 5 **Try It Out**

- Create web document, add your name and the date to it and examine its parts

## 6

## 7 **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>`
    - ✘ `<li>`
    - ✘ `<header>`
    - ✘ `<section>`
    - ✘ `<footer>`

## 8 **Display Style—Page 2**

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

## 9 **Display Style—Page 3**

- The display property specifies 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;
- Example:
  - li
 

```
{
                display: inline;
            }
```
- Watch “Tryit Editor” at w3schools.com
  - [http://www.w3schools.com/css/tryit.asp?filename=trycss\\_display\\_inline\\_list](http://www.w3schools.com/css/tryit.asp?filename=trycss_display_inline_list)
- 

## 10 **Reset Style Sheets**

- The internal default style sheets of *different browsers* may have small (or not-so-small) differences
- Web designers may create a reset style sheet to define their own default styles

## 11 **Try It Out**

- Create the “reset” style sheet, and add your name and the date to it
- Link the web document to this style sheet
- Add the display property to the “reset” style sheet
- Set the default styles for the web site
- Temporarily hide the different sections of the page

## 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 both horizontally and 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 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

- 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
- Example:
  - body

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

## 19   Background Size—Page 1

- The background-size property controls size of the image
- Format:
  - background-size: *width height*;
- Example:
  - body

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

## 20   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: 200 px auto;
}
```

## 21   Setting Backgrounds in One Property

- 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*;
- Example:
  - body

```
{
    background: white url(logo.gif) fixed center center no-repeat;
```

}

22  **Try It Out**

- Create the “styles” style sheet, and add your name and the date to it
- Link the web document to this style sheet
- Format the page background

23  **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 indentified 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
- The last property in the list that is recognized by the browser is the one that will be implemented

24  **Browser Extensions—Page 2**

- The vendor prefixes for the browser-specific extentsions to CSS are:
  - -khtml- Konqueror
  - -moz- Foxfile, Camino
  - -ms- Internet Explorer
  - -o- Opera, Nintendo, Wii browser
  - -webkit- Android browser, Chrome, Safari

25  **Browser Extensions—Page 3**

- Format:
  - *selector*

```

{
    css2_property: value;
    -khtml-property: value;
    -moz-property: value;
    -ms-property: value;
    -o-property: value;
    -webkit-property: value;
    css3_property: value;
}
```

26  **Browser Extensions—Page 4**

- Example:
  - `img`

```

{
    -moz-background-size: 100px 150px;
```

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

## 27 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 known as liquid layout
- Elastic layout—all measurements are expressed relative to the default font size using the em unit of measure

## 28 Setting Page Width and Height

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

```
{
  width: 95%;
}
```

  - ✘ Browsers usually increase document web page height automatically to match content

## 29 Maximum and Minimum Width and 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*;
  -

## 30 Maximum and Minimum Width and Height—Page 2

- Example:
  - body

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

31  **Try It Out**

- Set the page width

32  **“Floating” Elements—Page 1**

- Elements are “floated” horizontally, that is to the left or right, not up and down
- A floated element will move as far left or right as it can, usually all the way to the edge of the containing element
- The float property specifies whether or not a box (that contains an element) should float
- The float property assumes block layout
- If several block elements in sequence are floated left, they will be positioned next to each other left to right

33  **“Floating” Elements—Page 2**

- Format:
  - float: left | right | none;
- Example:
  - nav

```
{
  float: left;
}
```

34  **Try It Out**

- Format the navigation list

35  **Clearing a Float**

- Sometimes the designer will want to ensure the “next item” following a row of floats appears in the next row
- This can be accomplished using the clear property
  - Default is none
- Format:
  - clear: left | right | none;
- Example:
  - #myMessage

```
{
  clear: left;
}
```

36  **Try It Out**

- Format the “President’s Message” navigation list

37  **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*;

### 38 **Setting Margins—Page 2**

- Example:
  - h1
    - {
    - margin-top: 10px;
    - margin-right: 20px;
    - margin-bottom: 10px;
    - margin-left: 20px;
    - }

### 39 **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;
    - }

### 40 **Setting Margins—Page 4**

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

### 41 **Setting Margins—Page 5**

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



- Example:

```
▪ h1
{
  margin: 10px;
}
```

#### 42 Try It Out

- Define the default margin size
- Change the margin spaces in the page

#### 43 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*;

#### 44 Setting Padding—Page 2

- Example:

```
▪ h1
{
  padding-top: 5px;
  padding-right: 5px;
  padding-bottom: 5px;
  padding-left: 5px;
}
```

#### 45 Setting Padding—Page 3

- All paddings for one element may be set using the padding property
- Format:
  - padding: *top right bottom left*;
- Example:

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

#### 46 Setting Padding—Page 4

- 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*;
- Example:
  - h1

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

#### 47 **Setting Padding—Page 5**

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

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

#### 48 **Try It Out**

- Modify the padding size
- Format the headings in the “President’s Message”
- Add a background image to the “President’s Message”
- Redisplay and format the vertical navigation list

#### 49 **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*;

#### 50 **Setting Border Widths—Page 2**

- Example:
  - img

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

#### 51 **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 3px 3px 3px;
  - }

#### 52 **Setting Border Widths—Page 4**

- 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*;
- Example:
  - img
  - {
  - border-width: 3px 3px;
  - }

#### 53 **Setting Border Widths—Page 5**

- 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;
  - }

#### 54 **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*;

#### 55 **Setting Border Colors—Page 2**

- Example:
  - img
  - {
  - border-color-top: red;

```
border-color-right: green;
border-color-bottom: blue;
border-color-left: rbg(100, 150, 200);
}
```

#### 56 **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);
  - }

#### 57 **Setting Border Colors—Page 4**

- 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*;
- Example:
  - img
  - {
  - border-color: red rgb(100, 150, 200);
  - }

#### 58 **Setting Border Colors—Page 5**

- 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;
  - }

#### 59 **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`;

#### 60 **Setting Border Styles—Page 2**

- Example:

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

#### 61 **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;
}
```

#### 62 **Setting Border Styles—Page 4**

- 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*;

- Example:

```
▪ img
{
  border-style: dashed dotted;
}
```

#### 63 **Setting Border Styles—Page 5**

- 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;
}

```

#### 64 **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*;

#### 65 **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;
}

```

#### 66 **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;
}

```

#### 67 **Try It Out**

- Add a bottom border to the hyperlink text

#### 68 **Setting Rounded Corners—Page 1**

- The "border ... radius" properties soften the corners of box elements by add curves
- The radius value is the measurement of the radius of the hypothetical circle placed at the corners of the box
- Formats:
  - border-top-left-radius: *radius*;

- `border-top-right-radius: radius;`
- `border-bottom-right-radius: radius;`
- `border-bottom-left-radius: radius;`

#### 69 **Setting Rounded Corners—Page 2**

- Example:
  - `img`

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

#### 70 **Setting Rounded Corners—Page 3**

- 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;
}
```

#### 71 **Setting Rounded Corners—Page 4**

- 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;
}
```

#### 72 **Setting Elongated Corners**

#### 73 **Try It Out**

- Create rounded corners

#### 74 **Setting Outlines**

- Outline styles are similar to borders and have many of the same properties (width, color and style)
- They do not add the total space of the element
- Useful for visualizing the boxes on a web page

- Can be non-rectangular in shape, e.g. the span tag

#### 75 **Try It Out**

- View the layout structure
  - This will be removed afterwards
- Display the “Story” section
- Format the “Article Heading”
- Format the paragraph and list items
- Format the figure box