More CSS

The contents and slides of this topic are used with permission from:

- Jennifer Robbins, Learning Web Design, O'Reilly, 5th edition, May 2018, ISBN 978-1-491-96020-2.
- Paul S. Wang, Dynamic Web programming and HTML5, Routledge, 1 edition, 2012, ISBN 1439871825.

CSS Colors

- CSS color names
- RGB and HSL color values
- Foreground and background colors
- Tiling background images
- More selectors and external style sheets

Named Color Values

Specify foreground or background color using one of 140 predefined CSS3 color names:

```
h1 { color: red; }
h2 { color: darkviolet; }
body { background-color: papayawhip; }
```

learningwebdesign.com/colornames.html

Numeric Color Values

For more control, define colors numerically using one of these color models:

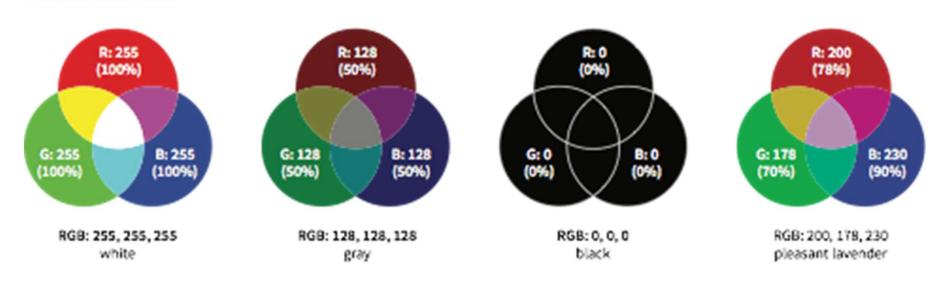
- ▶ **RGB** (combination of red, green, and blue light values)
- RGBa (RGB plus alpha transparency)
- HSL (hue, saturation, and luminosity)
- ► **HSLa** (HSL plus alpha transparency)

RGB Color

The RGB color model mixes color with red, green, and blue light.

Each channel can have 256 shades, for millions of color options.

The RGB Color Model



RGB Values in Style Rules

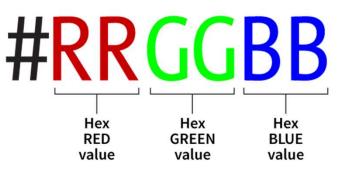
There are four formats for providing RGB color values:

- ► RGB values (0 to 255): rgb (200, 178, 230)
- ▶ Percentage values: rgb (78%, 70%, 90%)
- ► Hexadecimal values: #C8B2E6
- Condensed hexadecimal values (for double-digits only): #F06 is the same as #FF0066

Hexadecimal RGB Values

Red, green, and blue values converted to **hexadecimal** and preceded by the # symbol.





Decimal	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Hex	0	1	2	3	4	5	6	7	8	9	Α	В	С	D	Ε	F



The decimal number **32** is represented as

20 2 sixteens and 0 ones The decimal number **42** is represented as



2 sixteens and 10 ones

RGBa Color

- RGB + an alpha channel for transparency
- ► The first three values are RGB. The fourth is the transparency level from 0 (transparent) to 1 (opaque).

Playing with RGBa

Playing with RGBa

Playing with RGBa

```
color: rgba(0, 0, 0, .1);
color: rgba(0, 0, 0, .5);
color: rgba(0, 0, 0, 1);
```

HSL and **HSL**a

Colors described by values for hue (°), saturation (%), and luminosity (%):

```
hsl (180,50%,75%)
```

- ► Hue specifies the position on a color wheel (in degrees) that has red at 0°, green at 120°, and blue at 240°.
- ► HSL is less commonly used than RGB, but some find it more intuitive.
- HSLa adds an alpha value for transparency.

Foreground Color

color

Values: Color value (named or numeric)

```
Example: blockquote {border: 4px dashed; color:
green;}
```

The **foreground** of an element consists of its text and border (if one is specified).

In the latitude of central New England, cabbages are not secure from injury from frost with less than a foot of earth thrown over the heads. In mild winters a covering of half that depth will be sufficient; but as we have no prophets to foretell our mild winters, a foot of earth is safer than six inches.

Background Color

background-color

Values: Color value (named or numeric)

The background painting area of an element fills the area behind the text to the outer edge of the border.

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Clipping the Background

background-clip

Values: border-box, padding-box, content-box

Specifies where the background painting area ends.

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background-clip: border-box;

background-clip: padding-box;

Opacity

opacity

Values: number (0 to 1)

Example:

```
h1 {color: gold; background: white; opacity: .25;}
```

Specifies the transparency level from 0 (transparent) to 1 (opaque):

```
Playing with opacity

Playing with opacity

opacity: .25;

opacity: .5;

Playing with opacity

opacity: 1;
```

Tiling Background Images

background-image

Values: url (*location of image*), none

Example: body {background-image: url(star.png);}

Locates an image to be used as a tiling background image behind an element. By default, it starts at the top, left corner and repeats horizontally and vertically:

0 0 0 D Ting beogrand 90 H H 90 Cabbages and Cauliflowers: How to Grow Them James J. H. Gregory star.png THE ORIGIN OF CABBAGE. 150 × 150 pixels Botanists tell us that all of the Cabbage family, which includes not only every variety of cabbage, Red, White, and Savoy, but all the cauliflower, broccoli, kale, and brussels sprouts, had their origin in the wild cabbage of Europe (Brassica oleracea), a plant with green, wavy leaves, much resembling charlock, found growing wild at Dover in England, and other parts of Europe. This plant, says McIntosh, is mostly confined to the sea-shore, and grows only on chalky or calcareous soils. Thus through the wisdom of the Great Futher of us all, who occasionally in his great garden allows vegetables to sport into a higher form of life, and grants to some of these sports sufficient strength of individuality to enable them to perpetuate themselves, and, at times, to blend their individuality with that of other sports, we have the heading cabbage in its numerous varieties, the creamy cauliflower, the feathery kale, the curled savoy. On my own grounds from a strain of seed that had been grown isolated for years, there recently came a plant that in its structure closely resembled Brussels Sprouts, growing about two feet in height, with a small head under each leaf. The cultivated cabbage was first introduced into England by the Romans, and from there nearly all the kinds cultivated in this country were originally brought. Those which we consider as peculiarly American varieties, have only been made so by years of

farther on.

careful improvement on the original imported sorts. The characteristics of these varieties will be given

Background Repeating

background-repeat

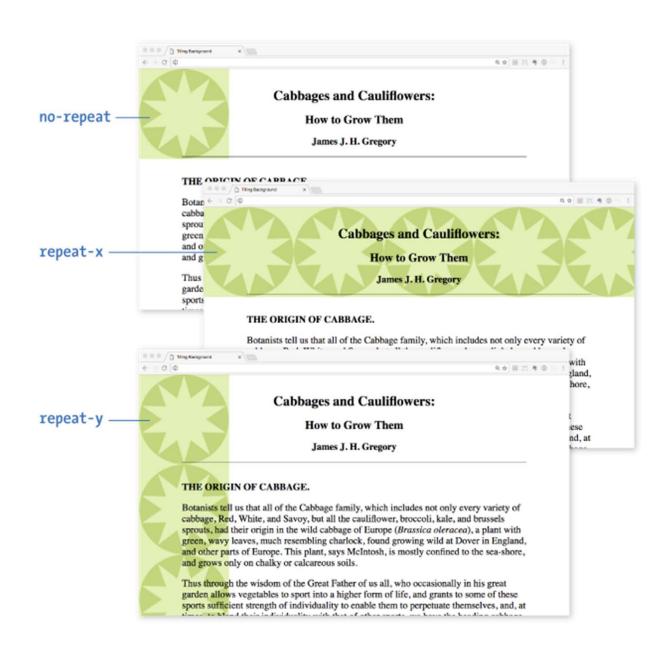
Values:

repeat, no-repeat, repeat-x, repeat-y, space, round

Specifies how the background image repeats and can restrict it to tiling in one direction or not at all:

- repeat-x: Tiles horizontally only
- repeat-y: Tiles vertically only
- **space:** Adds space around images so they fit in the window with no clipping
- round: Distorts the image so it fits without clipping

Background Repeating (cont'd)



Background Position

background-position

Values:

Length, percentage, left, center, right, top, bottom

Specifies the position of the **origin image**, the first image that is placed in the background from which tiling images extend.

Examples (horizontal position goes first):

```
background-position: left bottom;
background-position: 300px 100px;
background-position: 25% 100%;
```

Background Position (cont'd)

For this reason I believe that the office of the head is similar to and as necessary as that of the leaves which unwrap from around the blossom buds of our fruit trees. It is true that the parallel cannot be fully maintained, as the leaves which make up the cabbage head do not to an equal degree unfold (particularly is this true of hard heads); yet they exhibit a vitality of their own, which is seen in the deeper green color the outer leaves soon attain, and the change from tenderness to toughness in their structure.

background-position: left bottom;

SODX

•••

Eor this reason I believe that the office of the head is similar to and as necessary as that of the leaves which unwrap from around the blossom buds of our fruit trees. It is true that the parallel cannot be fully maintained, as the leaves which make up the cabbage head do not to an equal degree unfold (particularly is this true of hard heads); yet they exhibit a vitality of their own, which is seen in the deeper green color the outer leaves soon attain, and the change from tenderness to toughness in their structure.

background-position: 300px 50px;

◄-----25%------**>**

For this reason I believe that the office of the head is similar to and as necessary as that of the leaves which unwrap from around the blossom buds of our fruit trees. It is true that the parallel cannot be fully maintained, as the leaves which make up the cabbage head do not to an equal degree unfold (particularly is this true of hard heads); yet they exhibit a vitality of their own, which is seen in the deeper green color the outer leaves soon attain, and the change from tenderness to toughness in their structure.

background-position: 25% 100%;

Background Attachment

background-attachment

Values: scroll, fixed, local

Specifies whether the background image scrolls with the content or stays in a fixed position relative to the viewport.



A large non-repeating background image in the body of the document.



background-attachment: scroll;

By default, the background image is attached to the body element and scrolls off the page when the page content scrolls.



background-attachment: fixed;

When background-attachment is set to fixed, the image stays in its position relative to the browser viewing area and does not scroll with the content.

Background Size

background-size

Values:

Length, percentage, auto, cover, contain

Specifies the size of the tiling image:



WHAT A CABBAGE IS.

If we cut vertically derough the middle of the head, we shall find it made up of successive layers of leaves, which grow unaider and smaller, almost ad infinitum. Now, if we take a firtile bufferon on apple are and make a similar section of it, we shall find the sinner stretcute. If we observe the development of the two, us spring advances, we shall find another similarity (the looser the head for closer will be the resemblance)—the outset peaces of each will unwrip and unifold, and a flower time, will puble out firms each filter we see that a catalogue is a bod, a seed bod (or all futul bods may be termed, the production of seed being the primary object in nature, the finit exclosing a playing the ascondary part), the office of the kanes being of cover, protect, and after such sourch the good shoot.

The outer leaves which surround the head appear to have the same office as the leaves which surround the growing fruit bud, and that office closes with the first year, as does that of the feaves surrounding fruit bud, when each die and deep off. In my locally the public must have precived more or less clearly the analogs between the heads of cobbage and the bods of trees, for when they specifie of small beeds they frequently call them "bods." That the close verapped loves which make the cabbage head and surround the sound germ, situated just in the middle of the head at the termination of the stump, are necessary for its protection and intuition when young, is proved. I think, by the fact that those problemgs, the head of which are much decayed, when even did not consume have small the center may be at the end of the surround the second closely of the problemgs and the cold of the surround the second of the cold of the surround the cold of the cold of the surround the cold of the cold of the surround the cold of the cold of the cold of the surround the cold of the cold of the surround the cold of the cold of the public as feetble providing by the cold.

background-size: 600px 300px;

WHAT A CABBAGE IS.

If we cut vertically through the middle of the head, we shall find it made up of successive layers of leaves, which grow smaller and smaller, atmost ad infinition. Now, if we take a fruit but driven an opple-tree and make a similar section of s, we shall find the sume structure. If we observe the development of the two, us spring advances, we shall find another similarity (the looser the head the closer will be the resemblance),—the color-leaves of each will uswrap and unfold, and a flower stem will pash out from each. Here we see that a tablega is a bod, as end bad (as all fruit bods may be structed, the production of seed being the primary object in nature, the fruit enclosing a playing that a secondary part), the office of the kares being to cover, protect, and afterwards someth the young seed shoot.

The outer leaves which surround the head appear to have the same office as the leaves which surround the growing fruit bad, and that office closes with the first year, so does that of the leaves surrounding fruit bads, when each die and drop off, in so plocally the public must have precised more ne loss clearly the satisfiest phetween the heads of cubbags and the bads of trees, for when they speak of small beads they frequently call them "buds." That the close wrapped leaves which must the cabbags that does surround the soud grant, situated just in the middle of the head at the termination of the stamp, are necessary for its protection and natrition when young, is groved, I flink, by the fact that those cabbags, the theads of which are much decayed, when we cut offer seed, no matter low sound the seed grant may be at the end of the stump, nover make so large or healthy a seed shoot as those do the heads of which are sound, as a rate, other probling as feedbe growth, flowing.

background-size: cover;

The entire background area of the element is covered, and the image maintains its proportions even if it is clipped.

WHAT A CABBAGE IS.

If we cut vertically through the middle of the head, we shall find it made up of successive layers of leaves, which grow smaller and smaller, almost ad inflation. Now, if we take a fruit bud from an apple-tree and make a similar societion of it, we shall find the same structure. If we observe the development of the two, as spring advances, we shall find another similarity (the looper the head the closer will be the resemblance),—the outer leaves of each will use strain particularly and another similarity (the looper the head the closer will be the resemblance),—the outer leaves of each will use strain particularly according to the strain particular the strain will push or from each. Here we see that a cobbiguie is a fluct according in playing but a secondary part), the office of the leaves being to cover, protect, and afterwards mentish the young seed doord.

The outer leaves which surround the band appear to have the same office as the leaves which surround the growing finit bad, and that office closes with the first year, as does that of the leaves surrounding finit bads, when each die and deep off. In my locality the public must have perceived more or less clearly the analogy between the heads of eachbage and the bads of trees, for when they speak of small heads they frequently call them bads. That the close verapped leaves which make the cabbage head and sucround the seed germ, anisted just in the middle of the bad and the termination of the sating, are received from the protection and nutration when young, is proved, Thirtie, by the fact that those cabbages, the heads of which are much decayed, when set out for stend, on matter how sound the seed germ may be in the end of the stump, never make so large or healthy a seed shoot as those do the heads of which are second, as a rate, after pushing a feeble growth, they die.

background-size: contain;

The image is sized proportionally so it fits entirely in the element. There may be room left over for tiling (as shown).

Shorthand background Property background

Values:

background-color background-image background-repeat background-attachment background-position background-clip background-origin background-size

Specifies all background properties in one declaration

```
background: white url(star.png) no-repeat top
center fixed;
```

- Properties are optional and may appear in any order
- Properties not represented reset to their defaults—be careful it doesn't overwrite previous background settings.

Multiple Background Images

You can place more than one background image in a single image (separated by commas):

```
body {
  background:
    url(image1.png) left top no-repeat,
    url(image2.png) center center no-repeat,
    url(image3.png) right bottom no-repeat;
}
```

Gradient Fills

- A gradient is a transition from one color to another.
- Linear gradients change colors along a line.
- Radial gradients start at a point and spread outward in a circular or elliptical shape.
- You can generate a gradient image for use as a background using linear-gradient() and radial-gradient() notation.

Example:

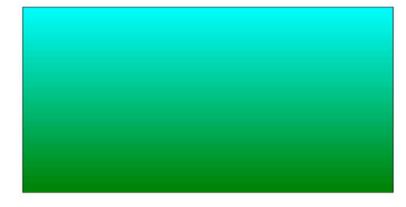
```
#banner {
   background-image: linear-gradient(180deg, aqua,
green);
}
```

Linear Gradient

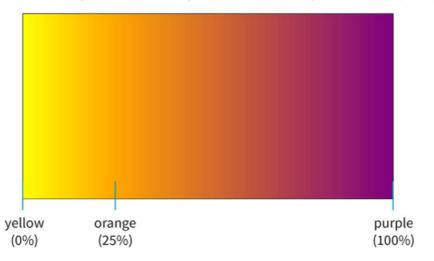
The linear-gradient() notation provides the angle of a gradient line and the colors the line passes through.

It is specified in degrees (deg) or keywords (to top, to right, to bottom, to left).

linear-gradient(180deg, aqua, green);
or
linear-gradient(to bottom, aqua, green);

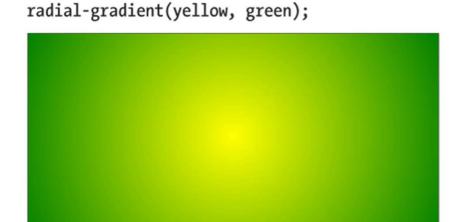


linear-gradient(90deg, yellow, orange 25%, purple);

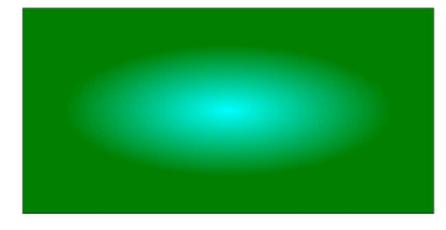


Radial Gradients

The radial-gradient() notation provides the color values and optional size, shape, and position information.



radial-gradient(200px 80px, aqua, green);



More Selector Types

Pseudo-class selectors
Pseudo-element selectors
Attribute selectors

Pseudo-Class Selectors

Treat elements in a certain state as belonging to the same class

Link Pseudo-classes

: link Applies style to unvisited (unclicked) links

:visited Applies style to visited links

User Action Pseudo-classes

:focus Applies when element is selected for input

:hover Applies when the mouse pointer is over the element

:active Applies when the element (such as a link or button) is in the process of being clicked or tapped

Pseudo-classes (cont'd)

Pseudo-classes must appear in the following order:

```
a { text-decoration: none; } /* turns underlines off for all links */
a:link { color: maroon; }
a:visited { color: gray; }
a:focus { color: maroon; background-color: #ffd9d9; }
a:hover { color: maroon; background-color: #ffd9d9; }
a:active { color: red; background-color: #ffd9d9; }
```

Samples of my work:

- Pen and Ink Illustrations
- Paintings
- Collage

a:link

Links are maroon and not underlined.

Samples of my work:

- Pen and Ink Illustrations
- Paintings
- Collage

a:focus a:hover

While the mouse is over the link or when the link has focus, the pink background color appears.

Samples of my work:

- Pen and Ink Illustration
- Paintings
- Collage

a:active

As the mouse button is being pressed, the link turns bright red.

Samples of my work:

- · Pen and Ink Illustrations
- Paintings
- Collage

a:visited

After that link has been visited, the link is gray.

Pseudo-Element Selectors

Applies styles to elements not explicitly marked up in the source.

```
::first-line
```

Applies a style to the first line of an element:

```
p:first-line {letter-spacing: 9px;}
::first-letter
```

Applies a style to the first letter of an element:

```
p:first-letter { font-size 300%; color: orange;}
```

Generated Content Example

0

We are required to warn you that undercooked food is a health risk. Thank you.

The style sheet:

```
p.warning::before {
  content: url(exclamation.png);
  margin-right: 6px;
}
p.warning::after {
  content: " Thank you.";
  color: red;
}
```

The markup:

We are required to warn you that
undercooked food is a health risk.

Attribute Selectors

Targets elements based on attribute names or values. There are eight types:

Simple attribute selector

Matches an element with a given attribute:

```
img[title] { border: 3px solid;}

(Matches every img element that has a title attribute)
```

Attribute Selectors (cont'd)

Exact attribute value selector

Matches an element with a specific value for an attribute:

```
E[attribute="exact value"]
```

```
img[title="first grade"] {border: 3px solid;}

(matches only if the title value is "first grade")
```

Partial attribute value selector (~)

Matches an element by one part of an attribute value.:

E[attribute~="value"]

```
img[title~="grade"] {border: 3px solid;}

(matches "first grade", "second grade", and so on)
```

Attribute Selectors (cont'd.)

Beginning substring attribute value selector (^)

Matches an element with attribute values that start with the given string of characters:

```
E[attribute^="first part of a value"]
```

Ending substring attribute value selector (\$)

Matches an element with attribute values that end with the given string of characters:

```
E[attribute$="last part of a value"]
```

Arbitrary substring attribute value selector (*)

Looks for the text string in any part of the attribute value:

```
E[attribute*="any part of the value"]
```

External Style Sheets

- Store styles in a separate .css file and attach to the document via <link> or @import
- Most efficient method: Change styles in multiple documents by editing one .css file
- A .css document is a simple text document (may begin with @charset to identify character set)

Attaching a Style Sheet with the link Element

- ► The link element defines a relationship between the current document and an external resource.
- It goes in the head of the document.
- Use the rel attribute to say it's a style sheet. Use href to provide the URL of the .css file (relative to the current document):

```
<head>
    <title>Titles are required.</title>
    link rel="stylesheet"
href="/path/stylesheet.css">
</head>
```

Attaching a Style Sheet with an @import rule

An @import rule imports the contents of an external style sheet into another style sheet (either a .css document or embedded with style):

Exercises

EXERCISE 13-7. Multiple background images

In this exercise, we'll give multiple background images a try (be sure you aren't using an old version of IE, or this won't work).

I'd like the dot pattern in the **header** to run along the left and right sides. I also have a little goose silhouette (*gooseshadow.png*) that might look cute walking along the bottom of the header. I'm making this example friendly for non-supporting browsers (IE8 and earlier) by providing a fallback declaration with just one image and separating out the **background-color** declaration so it doesn't get overridden. If IE8 is not a concern, you don't need the fallback.

You can see in the example that we are placing three images in a single header: dots on the left side, dots on the right, and a goose at the bottom.

```
header {
    background: url(images/purpledot.png) center top
repeat-x;
    background:
    url(images/purpledot.png) left top repeat-y,
    url(images/purpledot.png) right top repeat-y,
    url(images/purpledot.png) 90% bottom no-repeat;
    background-color: rgba(255,255,255,.5);
}
```

FIGURE 13-30 shows the final result. Meh, I liked it better before, but you get the idea.



FIGURE 13-30. The bistro menu header with two rows of dots and a small goose graphic in the header element.

EXERCISE 13-8.

Making an external style sheet

It is OK to use an embedded style sheet while designing a page, but it is probably best moved to an external style sheet once the design is finished so it can be reused by multiple documents in the site. We'll do just that for the summer menu style sheet.

- Open the latest version of summermenu.html. Select and cut all of the rules within the style element, but leave the <style>...</style> tags because we'll be using them in a moment.
- Create a new plain ASCII text document and paste all of the style rules. Make sure that no markup got in there by accident.
- Save this document as menustyles.css in the same directory as the summermenu.html document.
- Now, back in summer-menu.html, add an @import rule to attach the external style sheet:

```
<style>
@import url(menustyles.css);
</style>
```

Save the file and reload it in the browser. It should look exactly the same as it did when the style sheet was embedded. If not, go back and make sure that everything matches the examples.

Delete the whole style element, and this time we'll add the style sheet with a link element in the head of the document.

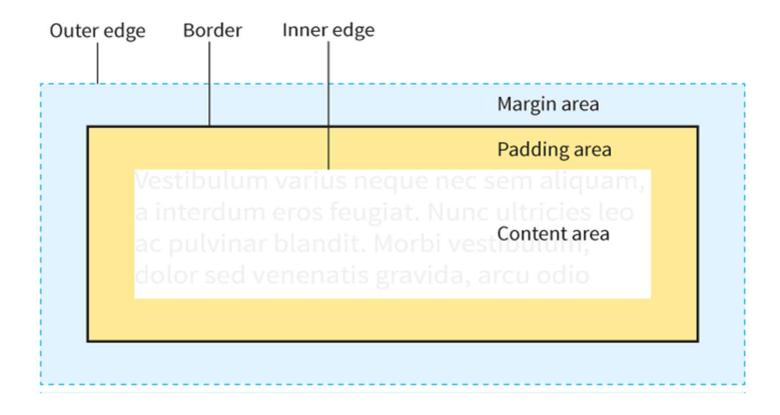
```
clink rel="stylesheet"
href="menustyles.css">
```

Again, test your work by saving the document and taking a look at it in the browser.

Thinking inside the box

- The parts of an element box
- Box dimensions
- Padding
- Borders
- Outlines
- Margins
- Display roles
- Drop shadows

The Parts of an Element Box



NOTE: The margin is indicated with a blue shade and outline, but is invisible in the layout.

Specifying Box Dimensions

width

Values: Length, percentage, auto

height

Values: Length, percentage, auto

Specify the dimensions of an element box with width and height properties

Box Sizing Models

box-sizing

Values: content-box, border-box

There are two methods for sizing an element box, specified with the box-sizing attribute:

Content-box sizing (default)

Applies width and height values to the content box only

Border-box sizing

Applies width and height values to the border box (including the padding and content)

Box Sizing Models Compared

Total visible box width = 550px ________ (50px of padding and 10px of border are added to 500px content box width)

box-sizing: content-box;
width: 500px;

This week I am extremely excited about a new cooking technique called sous vide. In sous vide cooking, you submerge the food (usually vacuum-sealed in plastic) into a water bath that is precisely set to the target temperature you vacuum-sealed in plastic) into a water bath that is precisely set to the target temperature you want the food to be cooked to.

box-sizing: border-box;
width: 500px;

Total visible box width = 500px →
 (50px of padding and 10px of border are included in the border-box size)

Overflow

overflow

Values: visible, hidden, scroll, auto

Specifies what to do when content doesn't fit in a sized element box:

visible

Applying the masks to the glasses is the most labor-intensive part of the process. Not only do you have to measure, place, and burnish on each mask, but you also need to completely cover the remainder of the glass in heavy paper. Any exposed areas (even inside) will get scratched by the flying sand, so it has to be a good seal.

hidden

Applying the masks to the glasses is the most labor-intensive part of the process. Not only do you have to measure, place, and burnish on each mask, but you also need to completely cover the remainder of the class.

scroll

the process. Not only do you have to measure, place, and burnish on each mask, but you also need to completely cover the remainder of the glass in heavy paper. Any exposed areas (even

auto (short text)

Applying the masks to the glasses is the most labor-intensive part of the process.

auto (long text)

Applying the masks to the glasses is the most labor-intensive part of the process. Not only do you have to measure, place, and burnish on each mask, but you also need to completely cover the

Padding

padding, padding-top, padding-right,
padding-bottom, padding-left

Values: Length, percentage

An amount of space between the content area and the border (or the space the border would be if one isn't specified).

You can add padding to one side at a time, or on all sides with the padding shorthand property.

Padding (cont'd)

```
blockquote {
  padding-top: 2em;
  padding-right: 4em;
  padding-bottom: 2em;
  padding-left: 4em;
  background-color: #D098D4; /*light green*/
}
```

This week I am extremely excited about a new cooking technique called sous vide. In sous vide cooking, you submerge the food (usually vacuum-sealed in plastic) into a water bath that is precisely set to the target temperature you want the food to be cooked to.

Shorthand padding Property

The **padding** property adds space around 1, 2, 3, or 4 sides of the content using the clockwise top, right, bottom, left (TRouBLe) order:

```
padding: top right bottom left;
```

padding: 2em 4em 2em 4em;

(this shorthand produces the same result as the example on the previous slide)

Shorthand padding Property (cont'd)

If the left and right sides are the same, you can omit the last value, and the second value will be applied on both the left and right sides:

```
padding: top right+left bottom;
```

padding: 2em 4em 2em;

(this shorthand produces the same result as the examples on the two previous slides)

Shorthand padding Property (cont'd)

If the top and and bottom sides are also the same, you can omit the third value, and the first value will be applied on both the top and bottom:

```
padding: top+bottom right+left;

padding: 2em 4em;

(same result as previous examples)
```

If all sides are the same, provide one value, and it's applied to all sides:

```
padding: all sides;

padding: 2em;

(2em padding all around)
```

Borders

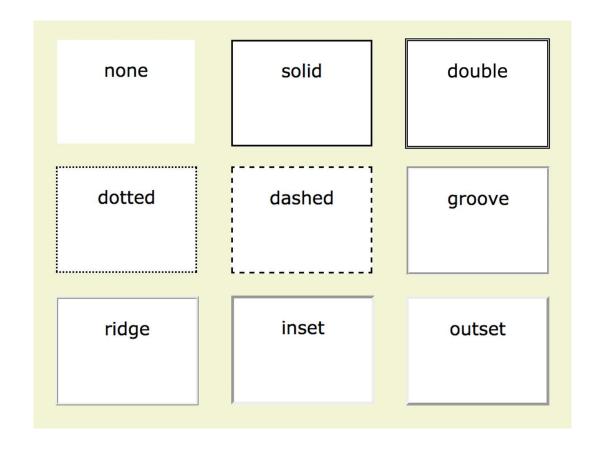
- A border is a line drawn around the content area and its (optional) padding.
- ► The thickness of the border is included in the dimensions of the element box.
- ▶ You define **style**, **width** (thickness), and **color** for borders.
- Borders can be applied to single sides or all around

Border Style

```
border-style,
border-top-style, border-right-style,
border-bottom-style, border-left-style
```

Values: none, solid, hidden, dotted, dashed, double, groove, ridge, inset, outset

NOTE: The default is none, so if you don't define a border style, it won't appear.



Border Style

border-style

The border-style shorthand uses the clockwise (TRouBLe) shorthand order. The following rules have the same effect:

```
div#silly {
  border-top-style: solid;
  border-right-style: dashed;
  border-bottom-style: double;
  border-left-style: dotted;
  width: 300px;
  height: 100px;
}

div#silly {
  border-style: solid dashed double dotted;
}
```

four different sides

Border Width

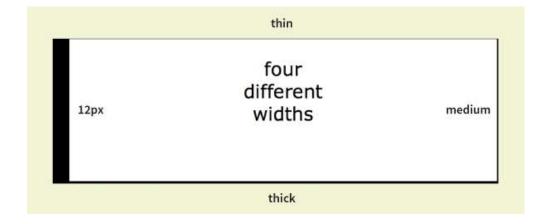
```
border-width,
border-top-width, border-right-width,
border-bottom-width, border-left-width
```

Values: Length, thin, medium, thick

The border-width shorthand uses the clockwise (TRouBLe) order:

```
div#help {
  border-width: thin medium thick 12px;
  border-style: solid;
  width: 300px;
  height: 100px;
}
```

NOTE: The border-style property is required for the border to be rendered.



Border Color

```
border-color,
border-top-color, border-right-color,
border-bottom-color, border-left-color
```

Values: Color value (named or numeric)

The border-color properties override the color property:

```
div#special {
  border-color: maroon aqua;
  border-style: solid;
  border-width: 6px;
  width: 300px;
  height: 100px;
}
```

NOTE: The border-style property is required for the border to be rendered.

maroon on the top and bottom; aqua on the sides

Border Shorthand Properties

```
border,
border-top, border-right,
border-bottom, border-left
```

Values: border-style border-width border-color

Combine style, width, and color values in shorthand properties for each side or all around (border):

```
p.example {
   border: 2px dotted aqua;
}
```

NOTE: The border-style property must be included in the shorthand for the border to be rendered.

Border Radius (Rounded Corners) border-radius

Values: 1, 2, 3, or 4 length or percentage values

- The border-radius property rounds off the corners of an element.
- The value is a length or percentage value reflecting the radius of the curve.
- Providing one value makes all the corners the same.
- Four values are applied clockwise, starting from the top-left corner.

Border Radius (cont'd)

```
p {
 width: 200px;
 height: 100px;
 background: darkorange;
                                          border-radius: 50px;
border-radius: 1em;
                                          border-top-left-radius: 1em;
                                          border-top-right-radius: 2em;
                                          border-bottom-right-radius: 1em;
                                          border-bottom-left: 2em;
                                          or
                                          border-radius: 1em 2em;
border-top-right-radius: 50px;
```

Margins

```
margin, margin-top, margin-right,
margin-bottom, margin-left
```

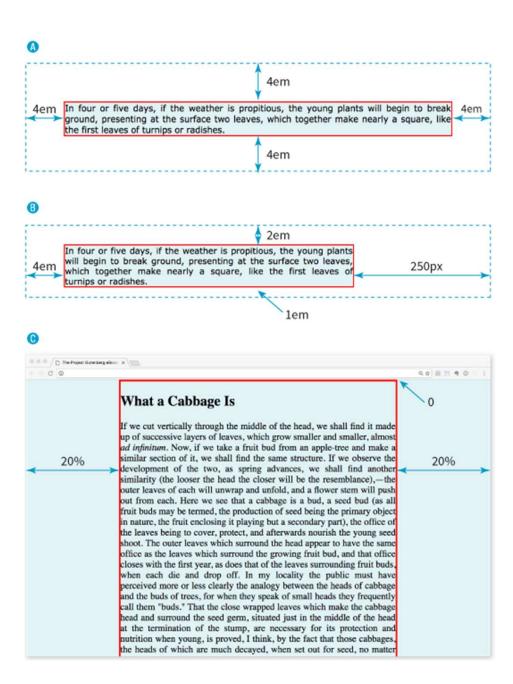
Values: Length, percentage

The margin is an amount of space added on the outside of the border. They keep elements from bumping into one another or the edge of the viewport.

The shorthand margin property works the same as the padding shorthand. Values are applied clockwise (TRouBLe order) and are repeated if fewer than 4 values are supplied.

Margins (cont'd)

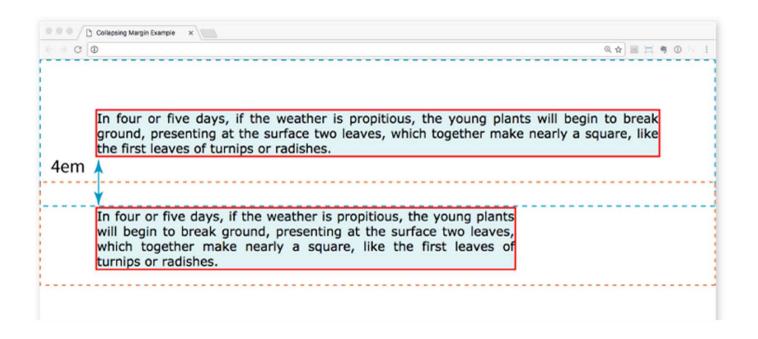
```
p#A {
   margin: 4em;
   border: 2px solid red;
   background: #e2f3f5;
p#B {
   margin-top: 2em;
   margin-right: 250px;
   margin-bottom: 1em;
   margin-left: 4em;
   border: 2px solid red;
   background: #e2f3f5;
body {
   margin: 0 20%;
   border: 3px solid red;
   background-color: #e2f3f5;
```



Margins (cont'd)

Top and bottom margins of neighboring elements collapse (they overlap instead of accumulating).

The top element has a bottom margin of 4em. The bottom element has a top margin of 2em. The resulting margin is 4em (the largest value).



Assigning Display Types

display

```
Values: inline | block | run-in | flex | grid | flow | flow-root | list-item | table | table-row-group | table-header-group | table-footer-group | table-row | table-cell | table-column-group | table-column | table-caption | ruby | ruby-base | ruby-text | ruby-base-container | ruby-text-container | inline-block | inline-table | inline-flex | inline-grid | contents | none
```

Assigns a **display type** that determines how the element box behaves in layouts.

Examples:

- Make li (normally block elements) into inline elements so they line up in a horizontal menu: nav li { display: inline; }
- Make an anchor (a) element (normally inline) display as a block so you can give it a width and height: nav li a { display: block; }

Box Drop Shadows

box-shadow

Values: horizontal-offset vertical-offset blur-distance spread-distance color inset, none

Applies a drop shadow around the visible element box.

The values are a horizontal and vertical offset, optional blur and spread values (in pixels), a color value, and the option to make it appear inset.

Box Drop Shadows (cont'd)

```
A box-shadow: 6px 6px gray;
B box-shadow: 6px 6px 5px gray; /* 5 pixel blur */
C box-shadow: 6px 6px 5px 10px gray; /* 5px blur, 10px spread */
                       B
```

Exercise

EXERCISE 14-2. Border tricks

In this exercise, we'll have some fun with borders on the Black Goose Bakery page. In addition to putting borders around content sections of the page, we'll use borders to beef up the headlines and as an alternative to underlines under links.

 Open bakery-styles.css in a text editor if it isn't already. We'll start with the basics by using the shorthand border property to add a tan double rule around the main element. Add the new declaration to the existing rule for main:

```
main {
    padding: iem;
    border: double 4px #EADDC4;
}
```

 Now try out some border-radius properties to add generous rounded corners to the main and aside sections. A 25-pixel radius should do. Pixels are my choice over ems here because I don't want the radius to scale with the text. Start by adding this declaration to the styles for main:

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

And give just the top-right corner of the aside a matching rounded corner:

```
aside {
    border-top-right-radius: 25px;
}
```

EXERCISE 14-2. Continued

3. Just for fun (and practice), we'll add a decorative border on two sides of the baked goods headings (h3). Find the existing rule for h3 elements and add a declaration that adds a 1-pixel solid rule on the top of the headline. Add another that adds a thicker 3-pixel solid rule on the left. I want the borders to be the same color as the text, so we don't need to specify the border-color. Finally, to prevent the text from bumping into the left border, add a little bit of padding (1em) to the left of the headline content:

```
h3 {
    border-top: 1px solid;
    border-left: 3px solid;
    padding-left: 1em;
}
```

4. The last thing we'll do is to replace the standard underline with a decorative bottom border under links. Start by turning off the underline for all links. Add this rule in the "link styles" section of the style sheet:

```
a (
text-decoration: none;
}
```

Then add a 1-pixel dotted border to the bottom edge of links:

```
a {
  text-decoration: none;
  border-bottom: 1px dotted;
}
```

As is often the case when you add a border to an element, it is a good idea to also add a little padding to keep things from bumping together:

```
a {
  text-decoration: none;
  border-bottom: 1px dotted;
  padding-bottom: .2em;
}
```

Now you can save the style sheet and reload bakery.html in the browser. FIGURE 14-14 shows a detail of how your page should be looking so far.

MUPFINS



Every day, we offer a large selection of muffins, including bineberry, multi-berry, bran, corn, lemon-poppyseed, and chocolate. Our muffins are made from scratch each day. Stop by to see our seasonal muffin flavors:

LEARN MORE ABOUT HOW WE MAKE OUR MUFFINS.

Hours

FIGURE 14-14. The results of our border additions.