16

IMAGES

- ▶ Controlling size of images in CSS
- ▶ Aligning images in CSS
- ▶ Adding background images

Controlling the size and alignment of your images using CSS keeps rules that affect the presentation of your page in the CSS and out of the HTML markup.

You can also achieve several interesting effects using background images. In this chapter you will learn how to:

- Specify the size and alignment of an image using
- Add background images to boxes
- Create image rollovers in CSS

CONTROLLING SIZES OF IMAGES IN CSS
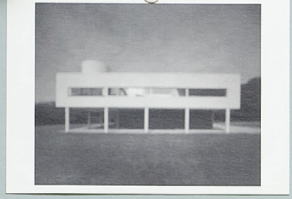
You can control the size of an image using the `width` and `height` properties in CSS, just like you can for any other box.

Specifying image sizes helps pages to load more smoothly because the HTML and CSS code will often load before the images, and telling the browser how much space to leave for an image allows it to render the rest of the page without waiting for the image to download.

You might think that your site is likely to have images of all different sizes, but a lot of sites use the same sized image across many of their pages.

For example, an e-commerce site tends to show product photos at the same size. Or, if your site is designed on a grid, then you might have a selection of image sizes that are commonly used on all pages, such as:

Small portrait: 220 x 360
Small landscape: 330 x 210
Feature photo: 620 x 400

Whenever you use consistently sized images across a site, you can use CSS to control the dimensions of the images, instead of putting the dimensions in the HTML.

`chapter-16/image-sizes.html`   HTML

```html
<img src="images/magnolia-large.jpg"
     class="large" alt="Magnolia" />
<img src="images/magnolia-medium.jpg"
     class="medium" alt="Magnolia" />
<img src="images/magnolia-small.jpg"
     class="small" alt="Magnolia" />
```

CSS

```css
img.large {
  width: 500px;
  height: 500px;}
img.medium {
  width: 250px;
  height: 250px;}
img.small {
  width: 100px;
  height: 100px;}
```

RESULT

First you need to determine the sizes of images that will be used commonly throughout the site, then give each size a name.

For example:
`small`
`medium`
`large`

Where the `<img>` elements appear in the HTML, rather than using `width` and `height` attributes you can use these names as values for the `class` attribute.

In the CSS, you add selectors for each of the class names, then use the CSS `width` and `height` properties to control the image dimensions.

ALIGNING IMAGES USING CSS

In the last chapter, you saw how the `float` property can be used to move an element to the left or the right of its containing block, allowing text to flow around it.

Rather than using the `<img>` element's `align` attribute, web page authors are increasingly using the `float` property to align images. There are two ways that this is commonly achieved:

1: The `float` property is added to the class that was created to represent the size of the image (such as the `small` class in our example).

2: New classes are created with names such as `align-left` or `align-right` to align the images to the left or right of the page. These class names are used in addition to classes that indicate the size of the image.

In this example you can see the `align-left` and `align-right` classes used to align the image.

It is also common to add a margin to the image to ensure that the text does not touch their edges.

chapter-16/aligning-images.html   `HTML`

```
<p><img src="images/magnolia-medium.jpg"
   alt="Magnolia" class="align-left medium" />
   <b><i>Magnolia</i></b> is a large genus that
   contains over 200 flowering plant species...</p>
<p><img src="images/magnolia-medium.jpg"
   alt="Magnolia" class="align-right medium" />
   Some magnolias, such as <i>Magnolia stellata</i>
   and <i>Magnolia soulangeana</i>, flower quite
   early in the spring before the leaves open...</p>
```

`CSS`

```
img.align-left {
  float: left;
  margin-right: 10px;}
img.align-right {
  float: right;
  margin-left: 10px;}
img.medium {
  width: 250px;
  height: 250px;}
```

`RESULT`

Magnolia is a large genus that contains over 200 flowering plant species. It is named after French botanist Pierre Magnol, and having evolved before bees appeared the flowers were developed to encourage pollination by beetles.

Some magnolias, such as *Magnolia stellata* and *Magnolia soulangeana*, flower quite early in the spring before the leaves open. Others flower in late spring or early summer, such as *Magnolia grandiflora*.

CENTERING IMAGES USING CSS

```
<p><img src="images/magnolia-medium.jpg"
   alt="Magnolia" class="align-center medium" />
   <b><i>Magnolia</i></b> is a large genus that
   contains over 200 flowering plant species. It
   is named after French botanist Pierre Magnol and,
   having evolved before bees appeared, the
   flowers were developed to encourage pollination
   by beetle.</p>
```

CSS

```
img.align-center {
   display: block;
   margin: 0px auto;}
img.medium {
   width: 250px;
   height: 250px;}
```

RESULT

Magnolia is a large genus that contains over 200 flowering plant species. It is named after French botanist Pierre Magnol and, having evolved before bees appeared, the flowers were developed to encourage pollination by beetle.

By default, images are inline elements. This means that they flow within the surrounding text. In order to center an image, it should be turned into a block-level element using the `display` property with a value of `block`.

Once it has been made into a block-level element, there are two common ways in which you can horizontally center an image:

1: On the containing element, you can use the `text-align` property with a value of `center`.

2: On the image itself, you can use the use the `margin` property and set the values of the left and right margins to `auto`.

You can specify class names that allow any element to be centered, in the same way that you can for the dimensions or alignment of images.

The techniques for specifying image size and alignment of images can also be used with the HTML5 `<figure>` element, which you met on page 119.

BACKGROUND IMAGES
background-image

The `background-image` property allows you to place an image behind any HTML element. This could be the entire page or just part of the page. By default, a background image will repeat to fill the entire box.

The path to the image follows the letters `url`, and it is put inside parentheses and quotes.

Here is the image tile used in this example.

In the first example, you can see a background image being applied to an entire page (because the CSS selector applies to the `<body>` element). In the second example, the background image just applies to a paragraph.

If you search online, you will find lots of resources that offer background textures that you can use on your pages.
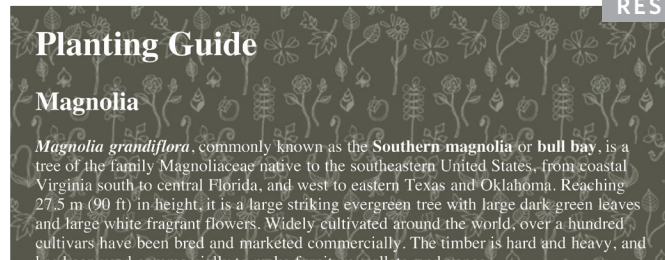
Background images are often the last thing on the page to load (which can make a website seem slow to load). As with any images you use online, if the size of the file is large it will take longer to download.

chapter-16/background-image-body.html   CSS

```
body {
    background-image: url("images/pattern.gif");}
```

RESULT

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred cultivars have been bred and marketed commercially. The timber is hard and heavy, and has been used commercially to make furniture, pallets, and veneer.

chapter-16/background-image-element.html   CSS

```
p {
    background-image: url("images/pattern.gif");}
```

RESULT

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred cultivars have been bred and marketed commercially. The

REPEATING IMAGES
background-repeat
background-attachment

```
body {
  background-image: url("images/header.gif");
  background-repeat: repeat-x;}
```

RESULT

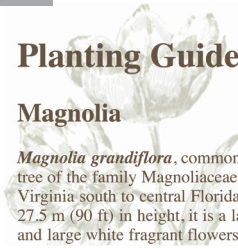**Planting Guide**

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred

```
body {
  background-image: url("images/tulip.gif");
  background-repeat: no-repeat;
  background-attachment: fixed;}
```

RESULT

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred

The background-repeat property can have four values:

repeat
The background image is repeated both horizontally and vertically (the default way it is shown if the background-repeat property isn't used).

repeat-x
The image is repeated horizontally only (as shown in the first example on the left).

repeat-y
The image is repeated vertically only.

no-repeat
The image is only shown once.

The background-attachment property specifies whether a background image should stay in one position or move as the user scrolls up and down the page. It can have one of two values:

fixed
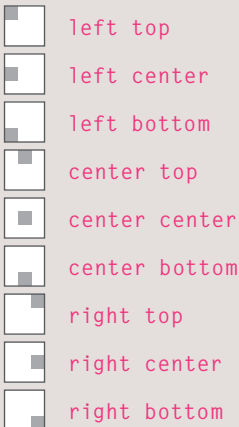The background image stays in the same position on the page.

scroll
The background image moves up and down as the user scrolls up and down the page.

BACKGROUND POSITION
background-position

When an image is not being repeated, you can use the `background-position` property to specify where in the browser window the background image should be placed.

This property usually has a pair of values. The first represents the horizontal position and the second represents the vertical.

left top

left center

left bottom

center top

center center

center bottom

right top

right center

right bottom

If you only specify one value, the second value will default to `center`.

You can also use a pair of pixels or percentages. These represent the distance from the top left corner of the browser window (or containing box). The top left corner is equal to `0% 0%`. The example shown, with values of `50% 50%`, centers the image horizontally and vertically.

chapter-16/background-position.html   **CSS**

```
body {
    background-image: url("images/tulip.gif");
    background-repeat: no-repeat;
    background-position: center top;}
```

RESULT

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred

chapter-16/background-position-percentage.html   **CSS**

```
body {
    background-image: url("images/tulip.gif");
    background-repeat: no-repeat;
    background-position: 50% 50%;}
```

RESULT

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred cultivars have been bred and marketed commercially. The timber is hard and heavy, and has been used commercially to make furniture, pallets, and veneer.

```
body {
  background: #ffffff url("images/tulip.gif")
    no-repeat top right;}
```

RESULT

Planting Guide

Magnolia

Magnolia grandiflora, commonly known as the **Southern magnolia** or **bull bay**, is a tree of the family Magnoliaceae native to the southeastern United States, from coastal Virginia south to central Florida, and west to eastern Texas and Oklahoma. Reaching 27.5 m (90 ft) in height, it is a large striking evergreen tree with large dark green leaves and large white fragrant flowers. Widely cultivated around the world, over a hundred cultivars have been bred and marketed commercially. The timber is hard and heavy, and has been used commercially to make furniture, pallets, and veneer.

Ranunculus

Ranunculus asiaticus (Persian Buttercup) is a species of buttercup (Ranunculus) native to the eastern Mediterranean region in southwestern Asia, southeastern Europe (Crete, Karpathos and Rhodes), and northeastern Africa. It is a herbaceous perennial plant growing to 45 cm tall, with simple or branched stems. The basal leaves are three-lobed, with leaves higher on the stems more deeply divided; like the stems, they are downy or hairy. The flowers are 3-5 cm diameter, variably red to pink, yellow, or white, with one to several flowers on each stem.

Tulip

Tulipa gesneriana L. or "Didier's tulip" is a plant belonging to the family of Liliaceae. This species has uncertain origins, possibly from Asia, and has become naturalised in south-west Europe. Most of the cultivated species, subspecies and cultivars of tulip are derived from Tulipa gesneriana. The flower and bulb can cause dermatitis through the allergen, tuliposide A, even though the bulbs may be consumed with little ill-effect. The sweet-scented bisexual flowers appear during April and May. Bulbs are extremely resistant to frost, and can tolerate temperatures well below freezing - a period of low temperature is necessary to induce proper growth and flowering, triggered by an increase in sensitivity to the phytohormone auxin. The bulbs may be dried and pulverised and added to cereals or flour.
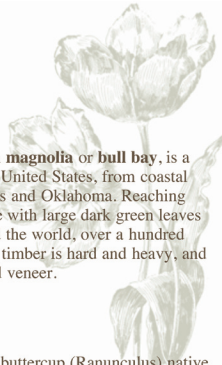
The background property acts like a shorthand for all of the other background properties you have just seen, and also the background-color property.

The properties must be specified in the following order, but you can miss any value if you do not want to specify it.

1: background-color
2: background-image
3: background-repeat
4: background-attachment
5: background-position

CSS3 will also support the use of multiple background images by repeating the background shorthand. Because few browsers supported this property at the time of writing, it was not commonly used.

```
div {
  background:
    url(example-1.jpg)
    top left no-repeat,
    url(example-2.jpg)
    bottom left no-repeat,
    url(example-3.jpg)
    centre top repeat-x;}
```

The first image is shown on top, with the last one on the bottom.

IMAGE ROLLOVERS & SPRITES

Using CSS, it is possible to create a link or button that changes to a second style when a user moves their mouse over it (known as a **rollover**) and a third style when they click on it.

This is achieved by setting a background image for the link or button that has three different styles of the same button (but only allows enough space to show one of them at a time). You can see the image we are using in this example on the right. It actually features two buttons on the one image.

When the user moves their mouse over the element, or clicks on it, the position of the background image is moved to show the relevant image.

When a single image is used for several different parts of an interface, it is known as a **sprite**. You can add the logo and other interface elements, as well as buttons to the image.

The advantage of using sprites is that the web browser only needs to request one image rather than many images, which can make the web page load faster.

chapter-16/image-rollovers-and-sprites.html `HTML`

```html
<a class="button" id="add-to-basket">
    Add to basket</a>
<a class="button" id="framing-options">
    Framing options</a>
```

`CSS`

```css
a.button {
  height: 36px;
  background-image: url("images/button-sprite.jpg");
  text-indent: -9999px;
  display: inline-block;}
a#add-to-basket {
  width: 174px;
  background-position: 0px 0px;}
a#framing-options {
  width: 210px;
  background-position: -175px 0px;}
a#add-to-basket:hover {
  background-position: 0px -40px;}
a#framing-options:hover {
  background-position: -175px -40px;}
a#add-to-basket:active {
  background-position: 0px -80px;}
a#framing-options:active {
  background-position: -175px -80px;}
```

ADD TO BASKET ⊕   FRAMING OPTIONS ☐

ADD TO BASKET ⊕   FRAMING OPTIONS ☐

ADD TO BASKET ⊕   FRAMING OPTIONS ☐

RESULT

ADD TO BASKET ⊕   FRAMING OPTIONS ☐

In this example, you can see two links that look like buttons. Each of the buttons has three different states. These are all represented in a single image.

Because the `<a>` element is an inline element, we set the `display` property of these links to indicate that they should be `inline-block` elements. This allows us to specify the width and height of each `<a>` element so that it matches the size of its corresponding button.

The `background-position` property is used to move the image in order to show the button in the right state.

When the user hovers over a link, the `:hover` pseudo-class has a rule that moves the `background-position` of the image to show a different state for that button.

Similarly, when the user clicks on the link, the `:active` pseudo-class has a rule to show the third state for that button.

Touch screen devices will not change a link's state when the user hovers over it, as the screens do not yet have a way to tell when the user is hovering. However, they will change their appearance when the user activates them.

CSS3: GRADIENTS
background-image

CSS3 is going to introduce the ability to specify a gradient for the background of a box. The gradient is created using the `background-image` property and, at the time of writing, different browsers required a different syntax.

Since it is not supported by all browsers, it is possible to specify a background image for the box first (which would represent the gradient) and then provide the CSS alternatives for browsers that support gradients.

On this page, we are focusing on linear gradients. You can see that in order to create a linear gradient, we need to specify two colors (that the gradient is between).

Some browsers allow you to specify the angle of the gradient, or even different types of gradients (such as radial gradients), but support is not as widespread as that for linear gradients.

chapter-16/gradient.html `CSS`

```
#gradient {
  /* fallback color */
  background-color: #66cccc;
  /* fallback image */
  background-image: url(images/fallback-image.png);
  /* Firefox 3.6+ */
  background-image: -moz-linear-gradient(#336666,
    #66cccc);
  /* Safari 4+, Chrome 1+ */
  background-image: -webkit-gradient(linear, 0% 0%,
    0% 100%, from(#66cccc), to(#336666));
  /* Safari 5.1+, Chrome 10+ */
  background-image: -webkit-linear-gradient(#336666,
    #66cccc);
  /* Opera 11.10+ */
  background-image: -o-linear-gradient(#336666,
    #66cccc);
  height: 150px;
  width: 300px;}
```

RESULT

CONTRAST OF BACKGROUND IMAGES

If you want to overlay text on a background image, the image must be low contrast in order for the text to be legible.

HIGH CONTRAST

A high contrast background image makes the text difficult to read.

The majority of photographs have quite a high contrast, which means that they are not ideal for use as a background image.

LOW CONTRAST

A low contrast background image makes the text easier to read.

Image editing applications such as Photoshop and GIMP have tools that allow you to manually adjust your images to have lower contrast.

SCREEN

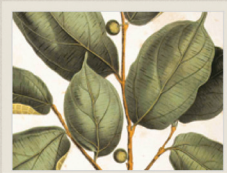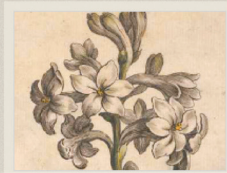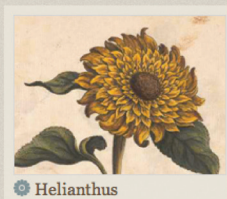A screen added to a high contrast image makes the text easier to read.

To overlay text on an image with high contrast, you can place a semi-transparent background color (or "screen") behind the text to improve legibility.

EXAMPLE
IMAGES

This example demonstrates how to use CSS to create a simple image gallery layout.

A background texture is applied to the whole page by repeating an image with the texture behind the `<body>` element. A repeating background image is sometimes referred to as **wallpaper**.

The content of the page is put inside a `<div>` element whose class is `wrapper`. This is used to fix the width of the page to 720 pixels. Its left and right margins are set to `auto` to center it in the middle of the screen.

The images sit inside an HTML5 `<figure>` element, and their captions are provided in the `<figcaption>` element. CSS is used to set the dimensions and background color for each `<figure>` element. The dimensions of the images themselves are also set using CSS, and they are given a single pixel gray border.

For the captions, a background image is used to the left of the text. We do not want this image to fill the background so we specify that it should not repeat. Padding is used to the left of the text so that the words do not go over the background image.

Each of the `<figure>` elements is contained within a `<div>`, which has two purposes. Firstly, it is used to create the three-column layout by specifying a width and margins for the element and then floating it to the left. Secondly, it adds a subtle shadow underneath each image. This creates a three-dimensional appearance making it look like a piece of card. To ensure that this sits underneath the image, the `background-position` property is used.

EXAMPLE
IMAGES

```
<!DOCTYPE html>
<html>
  <head>
    <title>Images</title>
    <style type="text/css">
      body {
        color: #665544;
        background-color: #d4d0c6;
        background-image: url("images/backdrop.gif");
        font-family: Georgia, "Times New Roman", serif;
        text-align: center;}
      .wrapper {
        width: 720px;
        margin: 0px auto;}
      .header {
        margin: 40px 0px 20px 0px;}
      .entry {
        width: 220px;
        float: left;
        margin: 10px;
        height: 198px;
        background-image: url("images/shadow.png");
        background-repeat: no-repeat;
        background-position: bottom;}
      figure {
        display: block;
        width: 202px;
        height: 170px;
        background-color: #e7e3d8;
        padding: 9px;
        text-align: left;}
      figure img {
        width: 200px;
        height: 150px;
        border: 1px solid #d6d6d6;}
      figcaption {
        background-image: url("images/icon.png");
        padding-left: 20px;
        background-repeat: no-repeat;}
    </style>
```

```
  </head>
  <body>
    <div class="wrapper">
      <div class="header">
        <img src="images/title.gif" alt="Galerie Botanique" width="456" height="122" />
        <p>Here is a selection of antique botanical prints held in our collection.</p>
      </div>
      <div class="entry">
        <figure><img src="images/print-01.jpg" alt="Helianthus" />
          <figcaption>Helianthus</figcaption>
        </figure>
      </div>
      <div class="entry">
        <figure><img src="images/print-02.jpg" alt="Passiflora" />
          <figcaption>Passiflora</figcaption>
        </figure>
      </div>
      <div class="entry">
        <figure><img src="images/print-03.jpg" alt="Nyctocalos" />
          <figcaption>Nyctocalos</figcaption>
        </figure>
      </div>
      <div class="entry">
        <figure><img src="images/print-04.jpg" alt="Polianthes" />
          <figcaption>Polianthes</figcaption>
        </figure>
      </div>
      <div class="entry">
        <figure><img src="images/print-05.jpg" alt="Ficus" />
          <figcaption>Ficus</figcaption>
        </figure>
      </div>
      <div class="entry">
        <figure><img src="images/print-06.jpg" alt="Dendrobium" />
          <figcaption>Dendrobium</figcaption>
        </figure>
      </div>
    </div>
  </body>
</html>
```

SUMMARY
IMAGES

▸ You can specify the dimensions of images using CSS. This is very helpful when you use the same sized images on several pages of your site.

▸ Images can be aligned both horizontally and vertically using CSS.

▸ You can use a background image behind the box created by any element on a page.

▸ Background images can appear just once or be repeated across the background of the box.

▸ You can create image rollover effects by moving the background position of an image.

▸ To reduce the number of images your browser has to load, you can create image sprites.