

Web Development & Design Foundations with HTML5 8th Edition

CHAPTER 7 KEY CONCEPTS

Learning Outcomes

In this chapter, you will learn how to ...

- Code relative hyperlinks to web pages in folders within a website
- Configure a hyperlink to a named fragment internal to a web page
- Provide for accessibility by configuring ARIA landmark roles for structural HTML elements
- Configure images with CSS sprites
- Configure a three-column page layout using CSS
- Configure CSS for printing
- Describe mobile design best practices
- Configure web pages for mobile display using the viewport meta tag
- Apply responsive web design techniques with CSS3 media queries and flexible images

More on Relative Linking

Relative links from the Home page:
`index.html`

```
<a href="contact.html">Contact</a>  
<a href="rooms/canyon.html">Canyon</a>
```

Relative links from the Canyon page:
`rooms/canyon.html`

```
<a href="../index.html">Home</a>  
<a href="../events/weekend.html">Weekend</a>
```



casita
`index.html`
`contact.html`
`casita.css`



images
`logo.gif`
`scenery.jpg`



rooms
`canyon.html`
`javelina.html`



events
`weekend.html`
`festival.html`

HTML Linking to Fragment Identifiers

- A link to a part of a web page
- Also called named fragments, fragment ids
- Two components:
 1. The element that identifies the named fragment of a web page. This requires the id attribute.
`<div id="top"> </div>`

2. The anchor tag that links to the named fragment of a web page. This uses the href attribute.

```
<a href="#top">Back to Top</a>
```

Note the use of the # in the anchor tag!

Landmark Roles with ARIA

Accessible Rich Internet Applications (ARIA)

Landmark Roles

- banner (a header/logo area)
- navigation (a collection of navigation elements)
- main (the main content of a document)
- complementary (a supporting part of the web page document, designed to be complementary to the main content)
- contentinfo (an area that contains information about the content such as copyright)
- form (an area that contains a form)
- search (an area of a web page that provides search functionality)

Example: <header role="banner">

Opening a Link in a New Browser Window

The target attribute on the anchor element opens a link in a new browser window or new browser tab.

```
<a href="http://yahoo.com" target="_blank">Yahoo!</a>
```

HTML5 Block Anchor

Configure block display elements within a hyperlink

```
<a href="http://www.w3.org/TR/html-markup">  
  <h1>HTML5 Reference</h1>  
  
  <p>Bookmark this site for a handy HTML5 reference.</p>  
</a>
```



Telephone & Text Message Hyperlinks

Telephone Scheme

<[Call 888-555-5555](tel:888-555-5555)>

Many mobile browsers will initiate a phone call when the hyperlink is clicked.

SMS Scheme

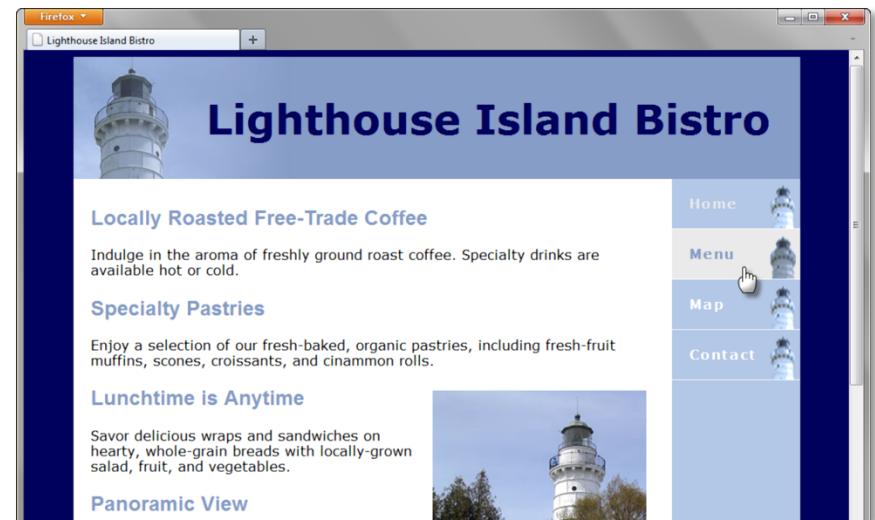
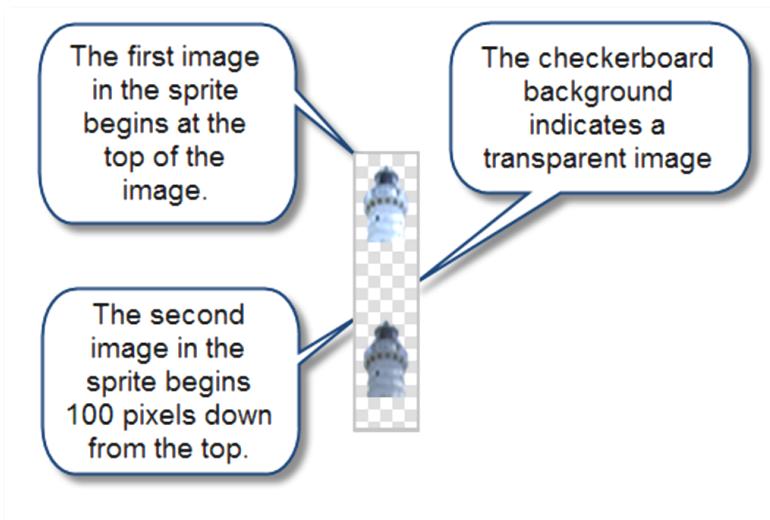
<[Text 888-555-5555](sms:888-555-5555)>

Many mobile browsers will initiate a text message to the phone number when the hyperlink is clicked.

CSS Sprites

Sprite

- an image file that contains multiple small graphics
- advantage: saves download time

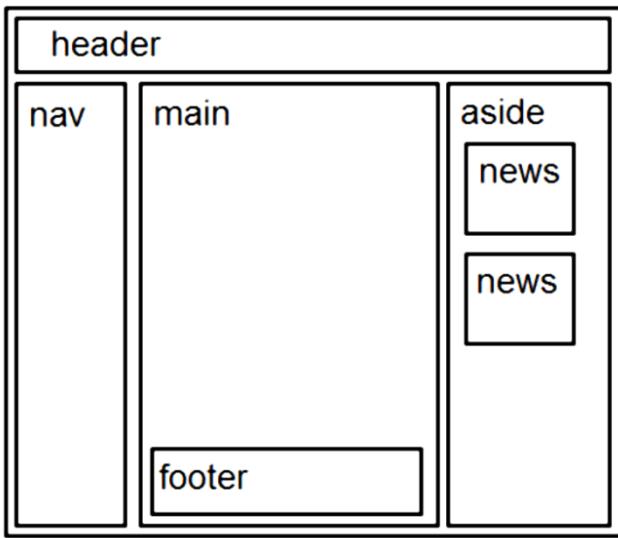


Checkpoint

1. Describe a reason to organize the files in a website using folders and subfolders.
2. Which attribute configures a hyperlink to open the file in a new browser window or tab?
3. State an advantage of using CSS sprites in a website.

Three Column Page Layout

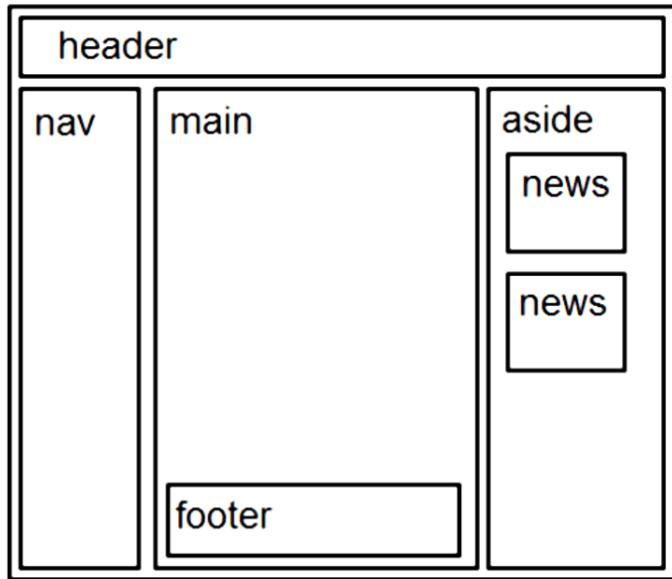
container



A common web page layout consists of a header across the top of the page with three columns below: navigation, content, and sidebar.

Three Column Layout

container



container sets default background color, text color, font typeface, and a minimum width

Left-column navigation

- float: left; width:150px;

Right-column content

- float: right; width: 200px;

Center column

- Uses the remaining screen room available room after the floating columns display
- margin: 0 210px 0 160px;

Footer – clears the float

- clear: both;



CSS Styling for Print

Create an external style sheet with the configurations for browser display.

Create a second external style sheet with the configurations for printing.

Connect both of the external style sheets to the web page using two `<link>` elements.

```
<link rel="stylesheet" href="wildflower.css" type="text/css" media="screen">
<link rel="stylesheet" href="wildflowerprint.css" type="text/css" media="print">
```

Print Styling Best Practices

Hide non-essential content

Example:

```
#nav { display: none; }
```

Configure font size and color for printing

- Use pt font sizes, use dark text color

Control page breaks

Example:

```
.newpage { page-break-before: always; }
```

Print URLs for hyperlinks

Example:

```
#sidebar a:after { content: "(" attr(href) ")"; }
```

Mobile Web Limitations

Small Screen Size

Low bandwidth

Limited fonts

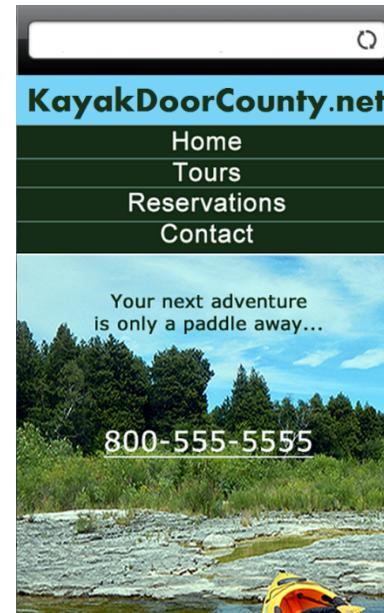
Limited color

Awkward controls

Lack of Flash support

Limited processor and memory

Cost per kilobyte



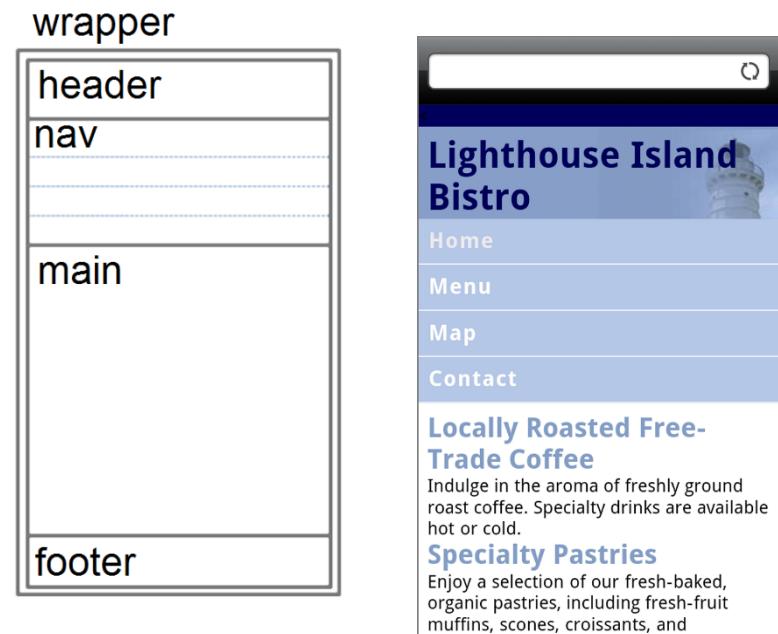
Mobile Web Design Best Practices



- Recommended by the W3C
 - <http://www.w3.org/TR/mobile-bp>
 - http://www.w3.org/2007/02/mwbp_flip_cards.html
- Optimize Layout, Navigation, Graphics, and Text for Mobile Use
- Design for One Web

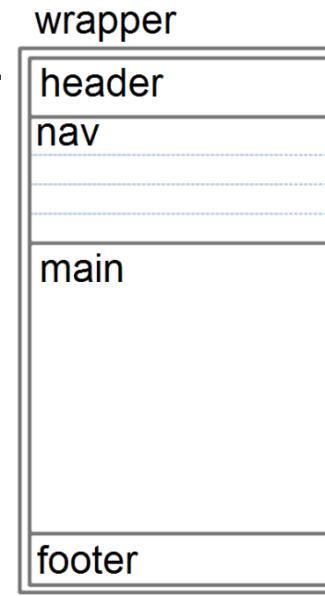
Optimize Layout for Mobile Use

- Single column design
- Limit scrolling to one direction
- Use heading elements
- Use lists
- Avoid using tables
- Provide labels for form controls
- Avoid using pixel units in style sheets
- Avoid absolute positioning in style sheets
- Hide content that is not essential for mobile use.



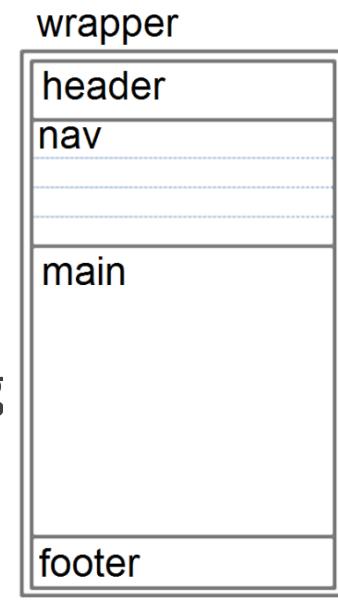
Optimize Navigation for Mobile Use

- Provide minimal navigation near the top of the page
- Provide consistent navigation
- Avoid hyperlinks that open files in new windows or pop-up windows
- Try to balance both the number of hyperlinks on a page and the number of levels needed to access information



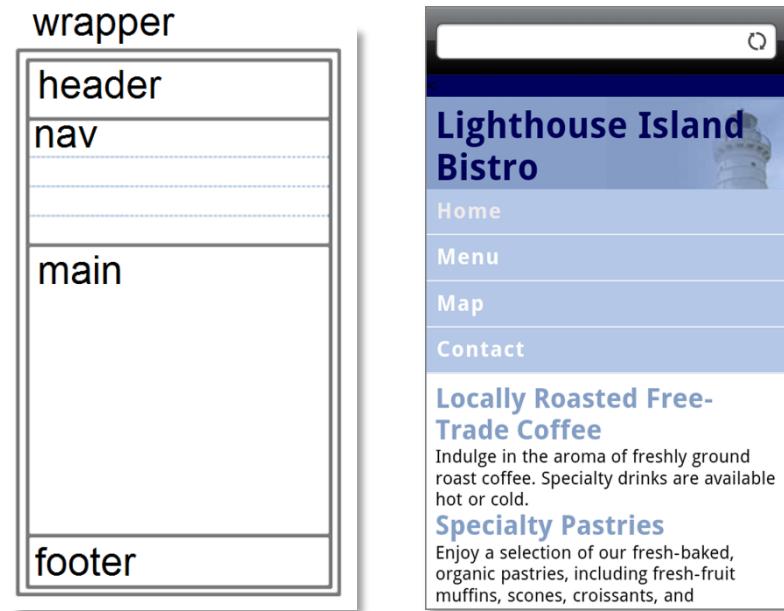
Optimize Graphics for Mobile Use

- Avoid displaying images that are wider than the screen width
- Configure alternate, small optimized background images
- Some mobile browsers will downsize all images, so avoid using images that contain text
- Avoid the use of large graphic images
- Specify the size of images
- Provide alternate text for graphics and other non-text elements.



Optimize Text for Mobile Use

- Configure good contrast between text and background colors
- Use common font typefaces
- Configure font size with em units or percentages
- Use a short, descriptive page title



Viewport Meta Tag

Default action for most mobile devices
is to zoom out and scale the web page



Viewport Meta Tag

Created as an Apple extension to configure
display on mobile devices

Configures width and initial scale of browser viewport

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```



CSS3 Media Queries

Media Query

- Determines the capability of the mobile device, such as screen resolution
- Directs the browser to styles configured specifically for those capabilities

Example with link tag

```
<link href="lighthousemobile.css" rel="stylesheet"  
      media="only all and (max-device-width: 480px)">
```

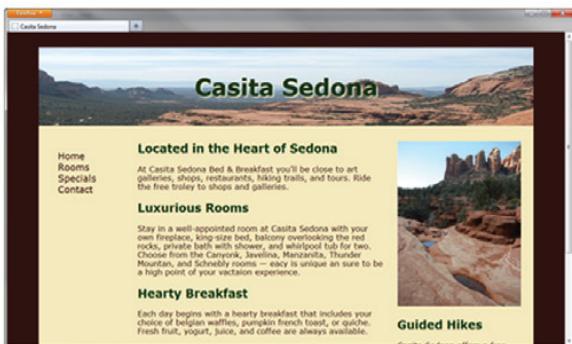
Example within CSS

```
@media only all and (max-width: 768px) {  
}
```



Flexible Images

Desktop Browser



Tablet
Display Width



Smartphone
Display Width



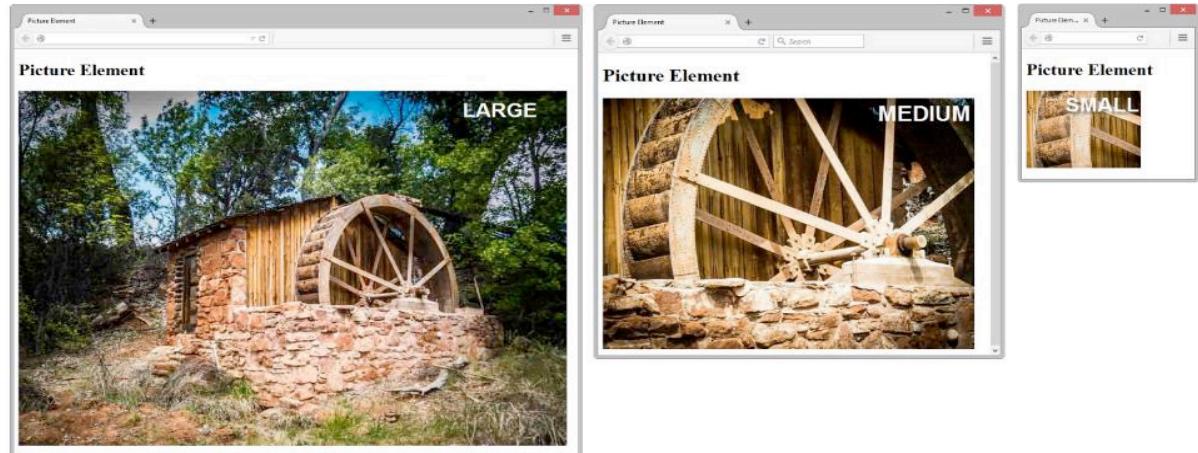
Edit HTML:
remove height and width attributes

CSS:

```
img { max-width: 100%;  
      height: auto; }
```

Responsive Images

HTML 5.1 Picture Element

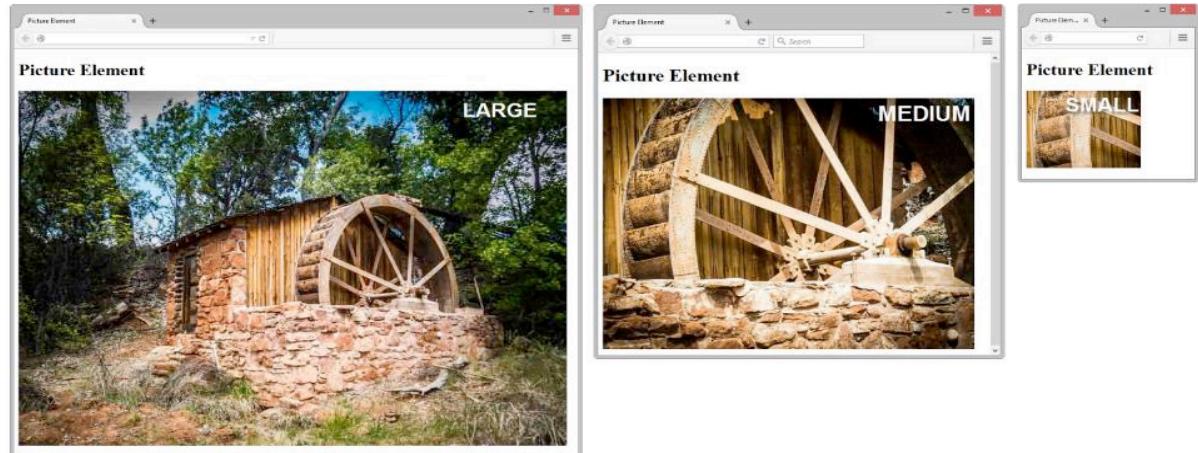


```
<picture>
```

```
  <source media="(min-width: 1200px)" srcset="large.jpg">  
  <source media="(min-width: 800px)" srcset="medium.jpg">  
  <source media="(min-width: 320px)" srcset="small.jpg">  
    
</picture>
```

Responsive Images

HTML 5.1 sizes & srcset Attributes



```

```

Testing Mobile Display Options

- Test with a mobile device
- Emulators
 - Opera Mobile Emulator
 - Mobilizer
 - iPhone Emulator
- Test with a Desktop Browser
- Install an iOS or Android SDK



CSS Flexible Box Layout Module

- Referred to as “flexbox”
- GREAT way to easily configure multi-column page layout
- elements contained within a flex container can be configured either horizontally or vertically in a flexible manner with flexible sizing
- Flexbox is not yet well-supported by browsers.
- Check <http://caniuse.com/flexbox> for the current level of browser support.
- Common Properties used with flexbox:

display	flex
flex-direction	order
flex-wrap	justify-content

Using Flexbox

Configure a flexible container “flex container”

Configure the direction of the flex

Example:

```
#demo { display: -webkit-flex;
         display: flex;
         -webkit-flex-direction: row;
             flex-direction: row; }
```

Adjust the proportion of the “flex item” elements in the container

Example:

```
nav    { -webkit-flex: 1; flex: 1; }
main { -webkit-flex: 7; flex: 7; }
aside { -webkit-flex: 2; flex: 2 }
```

CSS Debugging Tips

- Manually check syntax errors
- Use W3C CSS Validator to check syntax errors
 - <http://jigsaw.w3.org/css-validator/>
- Configure temporary background colors
- Configure temporary borders
- Use CSS comments to find the unexpected
 - /* the browser ignores this code */
- Don't expect your pages to look exactly the same in all browsers!
- Be patient!

Checkpoint

1. State an advantage of using CSS to style for print.
2. Describe a design consideration when configuring a web page for mobile display.
3. Describe coding techniques that will configure an image with a flexible display.

Summary

This chapter introduced you to a variety of topics related to hyperlinks, page layout, and configuring responsive web pages that display well on desktop browsers and mobile devices.