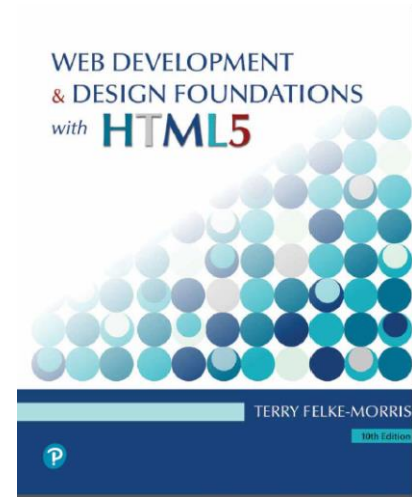# Web Development & Design Foundations with HTML5

10th Edition

CHAPTER 5
WEB DESIGN

Learning Outcomes

In this chapter, you will learn how to …

- Describe the most common types of website organization
- Describe principles of visual design
- Design for your target audience
- Create clear, easy-to-use navigation
- Improve the readability of the text on your web pages
- Use graphics appropriately on web pages
- Apply the concept of universal design to web pages
- Describe web page layout design techniques
- Describe the concept of responsive web design
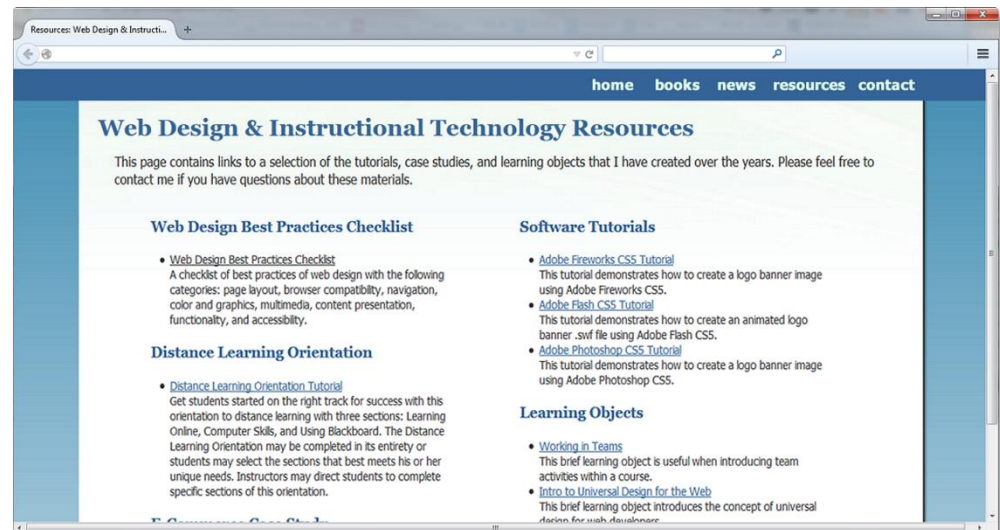- Apply best practices of web design

Overall Design Is Related to the Site Purpose

Figure 5.1

Consider the target audience of these sites.

Figure 5.2

Website Organization

Hierarchical

Linear

Random
(sometimes called Web Organization)

Hierarchical Organization

A clearly defined home page

Navigation links to major site sections

Often used for commercial and corporate websites
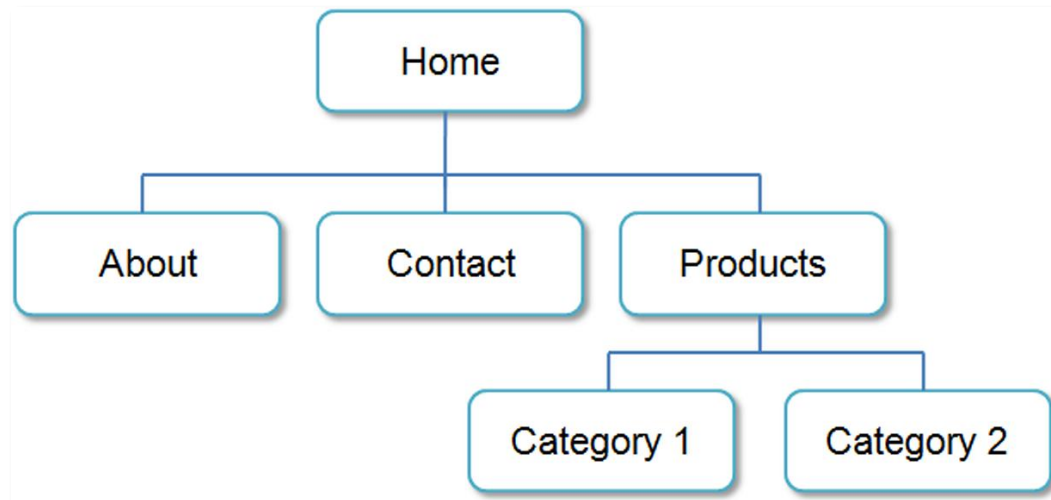

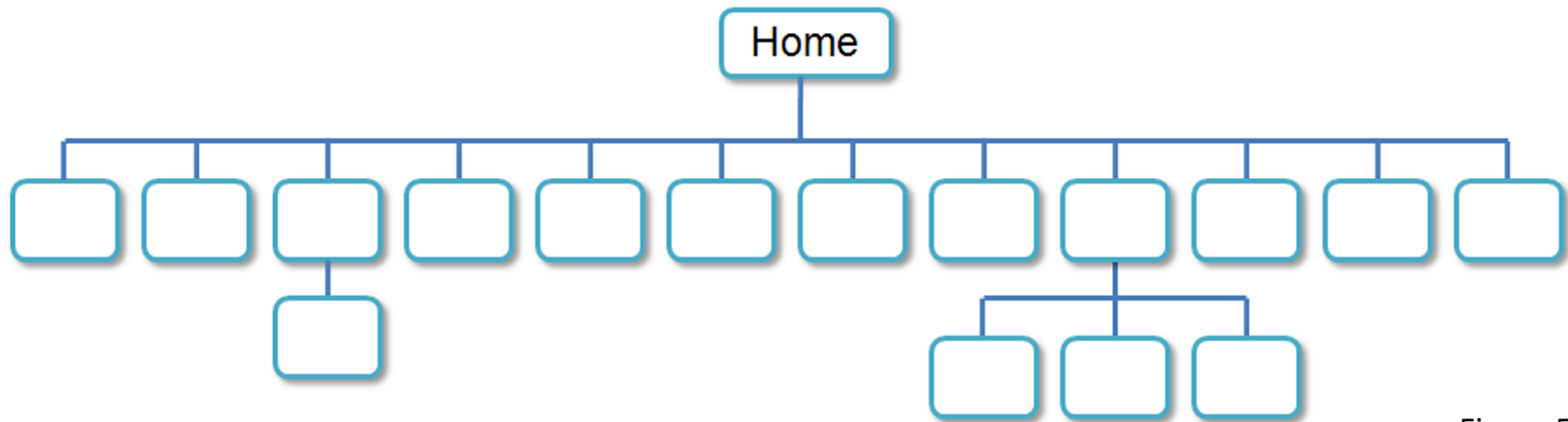Figure 5.3

Hierarchical & Shallow

Figure 5.4

Be careful that the organization is not too shallow.

- Too many choices → a confusing and less usable web site
- Information Chunking
- Be aware of the number of major navigation links
- Try to group navigation links visually into groups with no more than about four links.
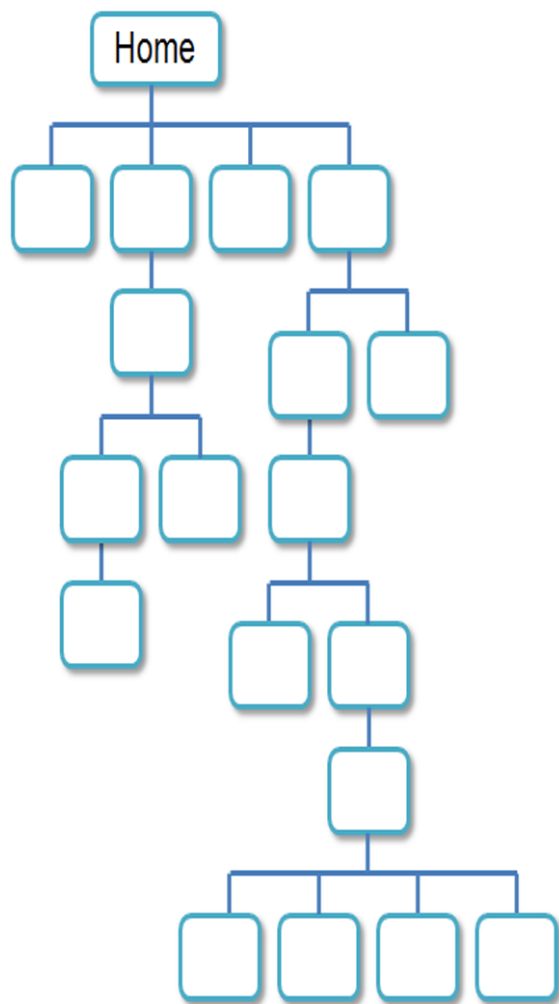
Hierarchical & Deep

Figure 5.5

- Be careful that the organization is not too deep.

  - This results in many "clicks" needed to drill down to the needed page.

  - User Interface "Three Click Rule"
    - A web page visitor should be able to get from any page on your site to any other page on your site with a maximum of three hyperlinks.

Linear Organization

Figure 5.6

A series of pages that provide a tutorial, tour, or presentation.

Sequential viewing

Random Organization

- Sometimes called "Web" Organization

- Usually there is no clear path through the site

- May be used with artistic or concept sites
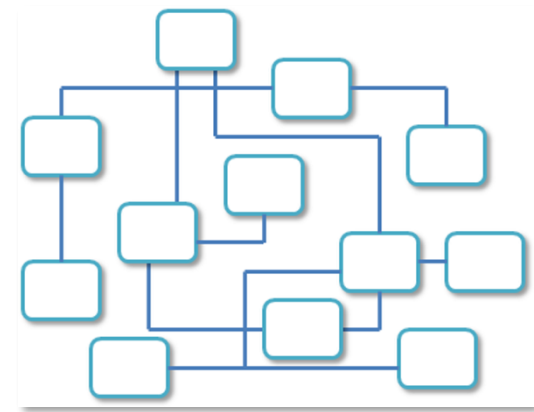
- Not typically used for commercial sites.

Figure 5.7

Design Principles

Repetition
◦ Repeat visual elements throughout design

Contrast
◦ Add visual excitement and draw attention

Proximity
◦ Group related items
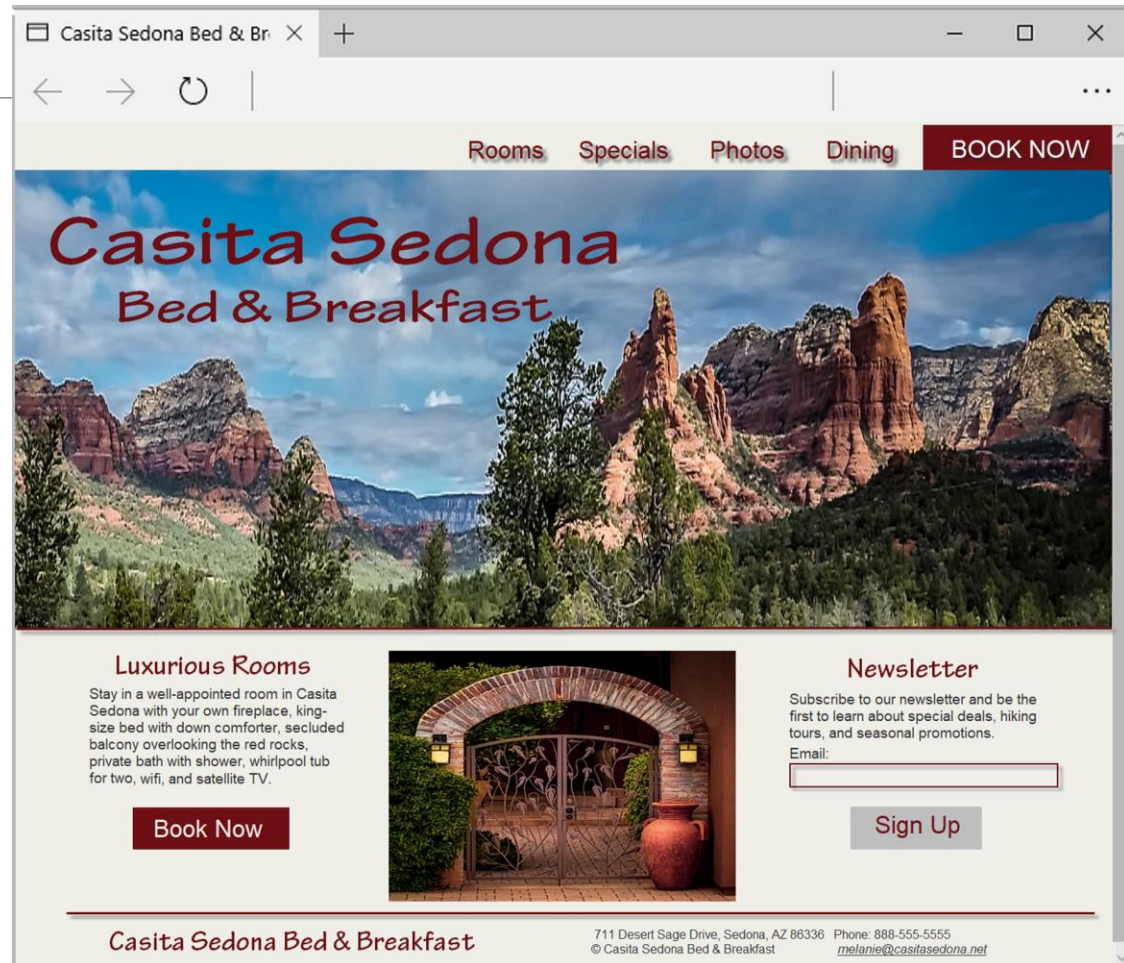
Alignment
◦ Align elements to create visual unity

Figure 5.8

Design to Provide for Accessibility

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect." – Tim Berners-Lee

Who benefits from increased accessibility?
- A person with a physical disability
- A person using a slow Internet connection
- A person using an old, outdated computer
- A person using a mobile phone

Legal Requirement: Section 508

Standards: WCAG 2.0, WCAG 2.1

Design for Accessibility

- Web Content Accessibility Guidelines 2.0 WCAG 2.0
  https://www.w3.org/TR/WCAG21/Overview
  https://www.w3.org/WAI/WCAG21/quickref/?versions=2.0

  Based on Four Principles (POUR)
  1. **P**erceivable
     Content must be **P**erceivable
  2. **O**perable
     Interface components in the content must be **O**perable
  3. **U**nderstandable
     Content and controls must be **U**nderstandable
  4. **R**obust.
     Content should be **R**obust enough to work with current and future user agents, including assistive technologies

Writing for the Web

Avoid long blocks of text

Use bullet points

Use headings and subheadings

Use short paragraphs

Design "Easy to Read" Text

Use common fonts:
- Arial, Helvetica, Verdana, Times New Roman

Use appropriate text size:
- medium, 1em, 100%

Use strong contrast between text & background

Use columns instead of wide areas of horizontal text

More Text Design Considerations

- Carefully choose text in hyperlinks

  - Avoid "click here"
  - Hyperlink key words or phrases, not entire sentences

- Chek yur spellin (Check your spelling)

Color Theory

Color Theory:
- ◦ the study of color and its use in design

Color Wheel
- ◦ Primary Colors
- ◦ Secondary Colors
- ◦ Tertiary Colors

Figure 5.11

Color Schemes Based on The Color Wheel (1)

Monochromatic – shades, tints, or tones
of the same color
http://meyerweb.com/eric/tools/color-blend

Figure 5.13

Analogous – a main color and two colors adjacent
to it on the color wheel

Figure 5.14

Complementary – two colors that are opposite
each other on the color wheel

Figure 5.15

Color Schemes Based on The Color Wheel (2)

Split Complementary – a main color, the color opposite it on the color wheel (the complement) and two colors adjacent to the complement

Figure 5.16

Triadic- three colors that are equidistant on the color wheel

Figure 5.17

Tetradic – two complementary color pairs

Figure 5.18

Implementing a Color Scheme

Choose one color to be dominant

Use other colors in the color scheme as accent colors
- headings,
- subheadings
- borders,
- list markers, etc.

Use neutrals such as white, off-white, gray, black, or brown

Do not restrict yourself to web-safe colors

Feel free to use tints, shades, or tones of colors

Verify Sufficient Contrast

When you choose colors for text and background, sufficient contrast is needed so that the text is easy to read.

Use one of the following online tools to verify contrast:

- ◦ http://webaim.org/resources/contrastchecker
- ◦ http://snook.ca/technical/colour_contrast/colour.html
- ◦ http://juicystudio.com/services/luminositycontrastratio.php

Color Scheme Resources

https://meyerweb.com/eric/tools/color-blend

http://paletton.com

http://www.colorsontheweb.com/colorwizard.asp

https://color.adobe.com/create

http://www.colorspire.com

http://hslpicker.com

Figure 5.11

Figure 5.20
Appealing to Kids & Preteens

Figure 5.22
Appealing to Everyone

Color & Target Audience

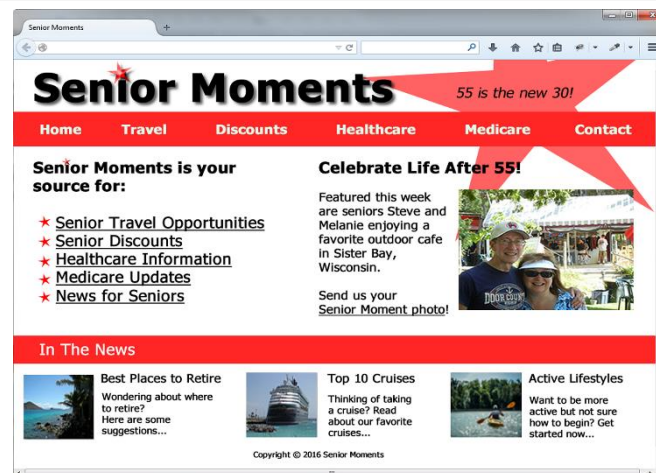
Figure 5.21
Appealing to Young Adults

Figure 5.23
Appealing to Older Adults

Checkpoint

1. List the four basic principles of design.

   View the home page of your school and describe how each principle is applied.

2. View https://www.walmart.com and https://www.sesamestreet.org/art-maker

3. Describe the target audience for each site.

   How do their designs differ?

   Do the sites meet the needs of their target audiences?

Use of Graphics & Multimedia

- File size and dimension matter

- Provide for robust navigation

- Antialiased/aliased text considerations

- Provide alternate text

- Use only necessary multimedia

Graphic Design Best Practices(1)

- Be careful with large graphics!

- Use the alt attribute to supply descriptive alternate text

- Be sure your message gets across even if images are not displayed.
  - If using images for navigation provide plain text links at the bottom of the page.

- Use animation only if it makes the page more effective and provide a text description.

Graphic Design Best Practices(2)

- There is no requirement to limit your color choices to web safe colors.

- Use anti-aliased text in images

Antialiased Figure 5.24

Aliased

Also see Figure 5.25

Graphic Design Best Practices(3)

- Use only necessary images

Sparky the Dog © Terry Felke-Morris

Do you really need to see a photo of my dog right now?

- Reuse images

- Goal: image file size should be as small as possible with acceptable display quality

Web Page Design
Browsers & Screen Resolution

- Test with multiple browsers
  - Google Chrome, Mozilla Firefox, Microsoft Edge, Apple Safari

- Test at various screen resolutions

Figure 5.38

- Design to look good at various screen resolutions
  - Centered page content
  - Set to either a fixed or percentage width
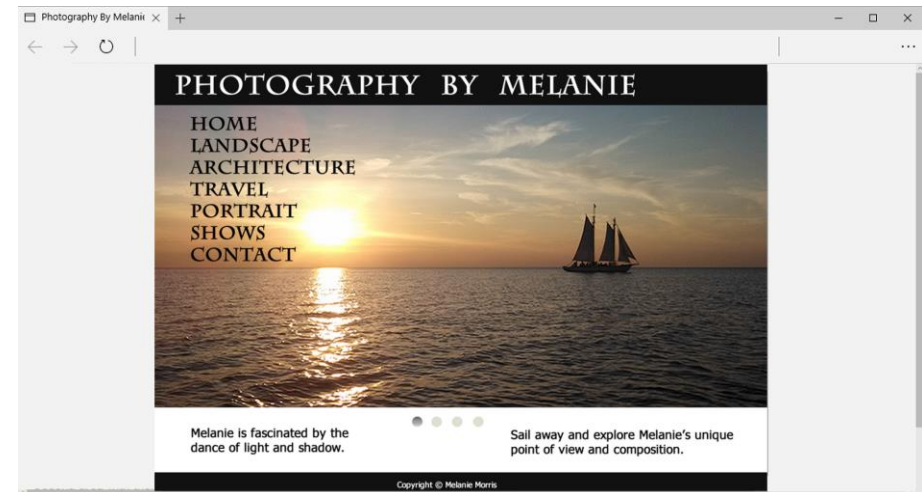
Flat Web Design

A minimalistic design style with a focus on simplicity, blocks of color, empty space between design elements, hero images, long shadows, buttons with transparent backgrounds, and use of typography.
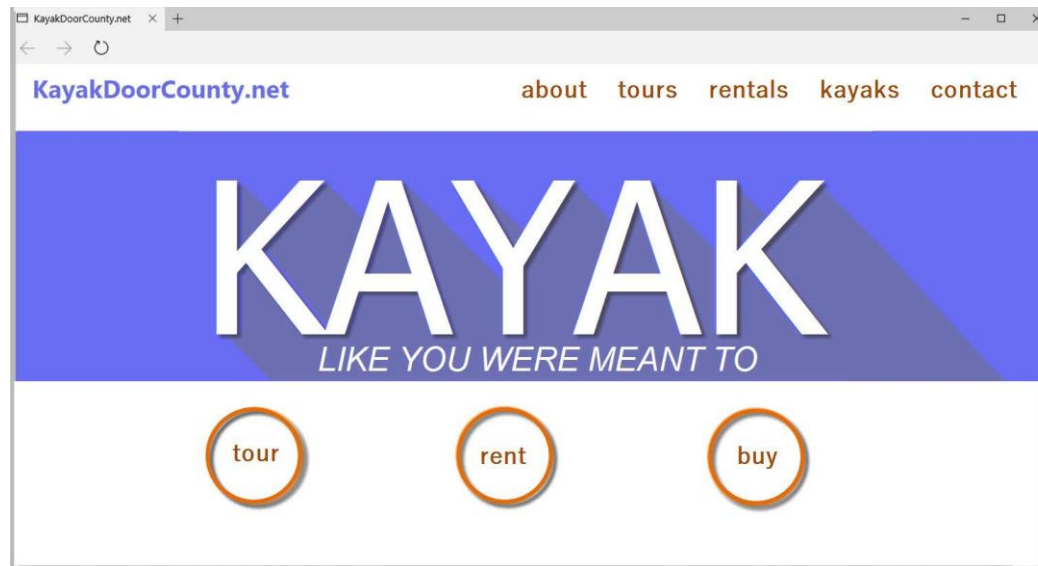
Figure 5.27

Single Page Website

"One Page Website"

Contains one very long page (a single HTML file) with a clearly defined navigation area, usually at the top of the page. This navigation takes you to specific areas on the page.
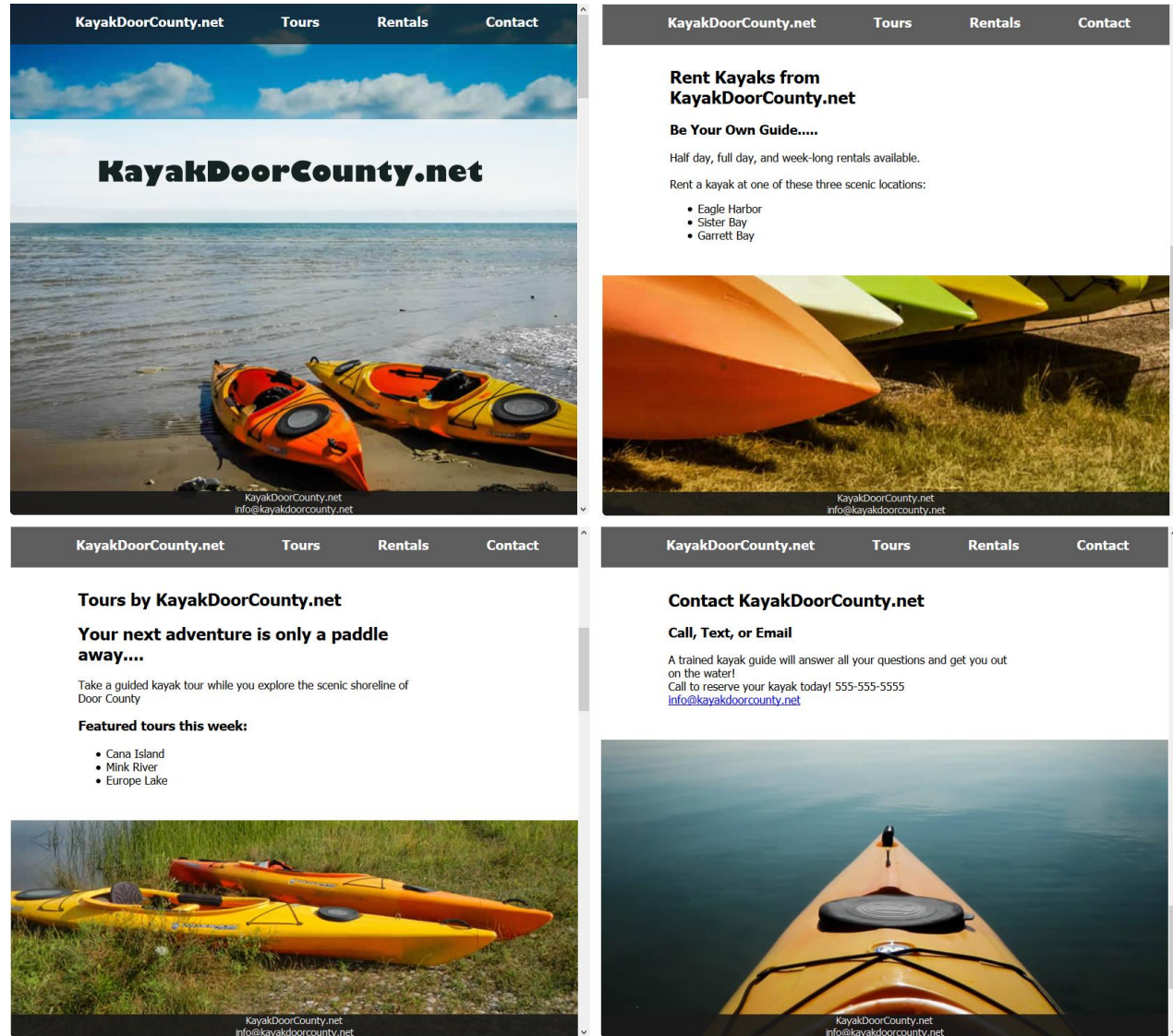
(More in Chapter 6)

Figure 6.53

Navigation Design

Make your site easy to navigate

- Provide clearnavigation in the same location on each page
- Most common – across top or down left side

Consider:

- Navigation Bars
- Breadcrumb Navigation
- Using Graphics for Navigation
- Dynamic Navigation
- Site Map
- Site Search Feature
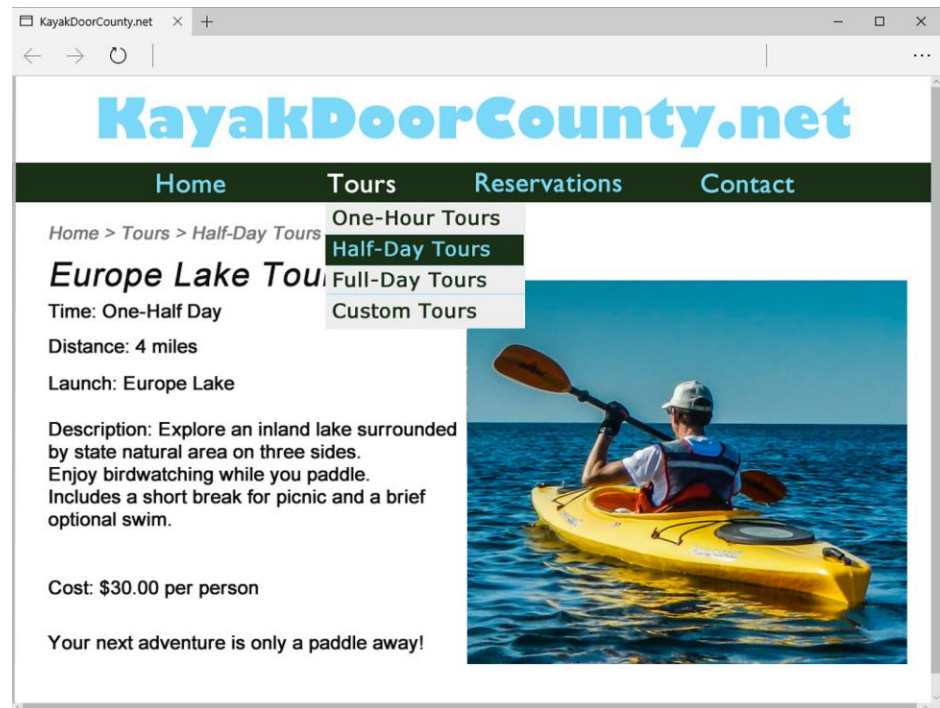- "Skip to Content" Hyperlink

Figure 5.31

Wireframe

A sketch or blueprint of a web page

Shows the structure of the basic page elements, including:

- Header
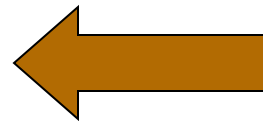- Navigation
- Content
- Footer
- Image locations

Figure 5.35

Web Page Design Page Layout (1)

- Place the most important information "above the fold"

- Use adequate "white" or blank space

- Use an interesting page layout

Figure 5.33

This is usable, but a little boring. See the next slide for improvements in page layout.

Web Page Design Page Layout (2)

Better ⟶

Figure 5.34

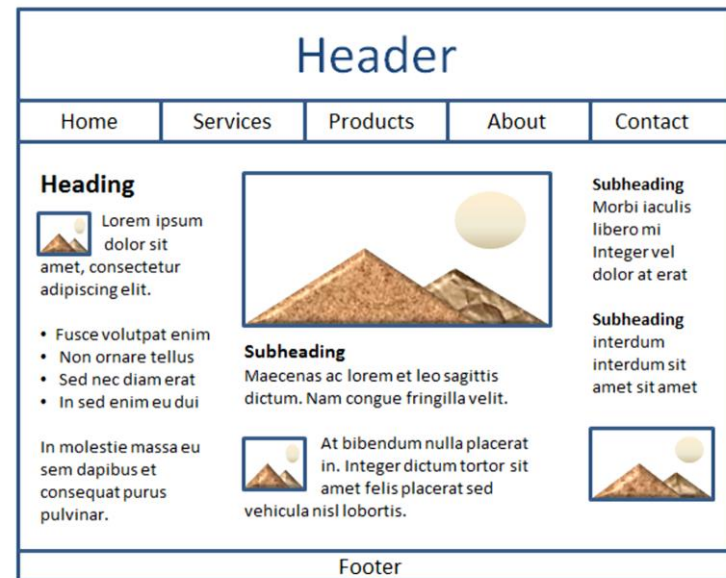Columns make the page more interesting and it's easier to read this way.

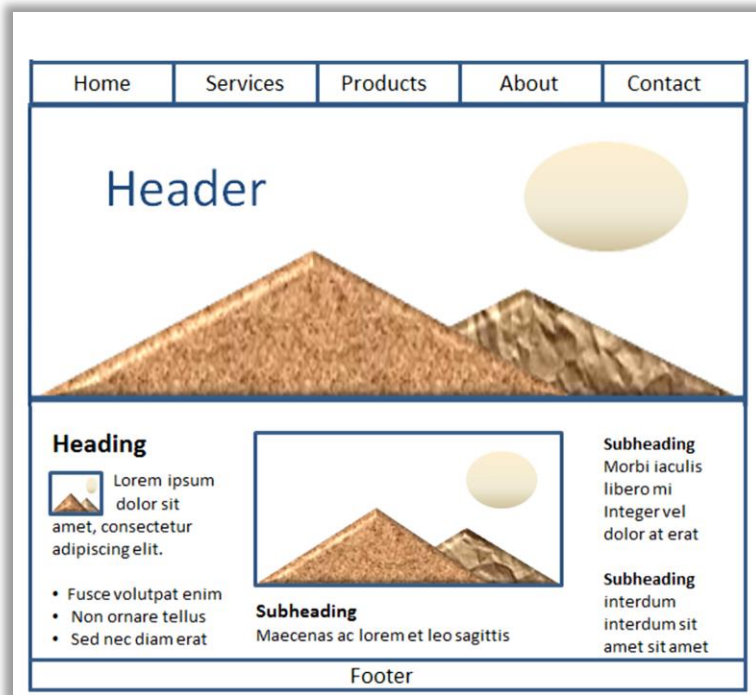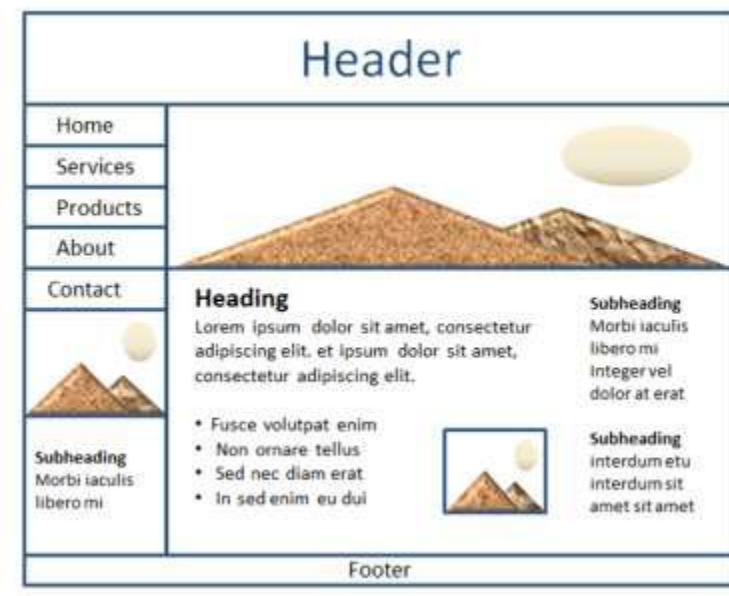# Web Page Design Page Layout (3)

Best

Figure 5.36

Figure 5.35

Columns interspersed with graphics and headings create the most interesting, easy to read page.

Page Layout Design Techniques

Fixed Layout

○ AKA rigid or "ice" design

○ Fixed-width often at left margin

Figure 5.37

○ More appealing if fixed with content is centered
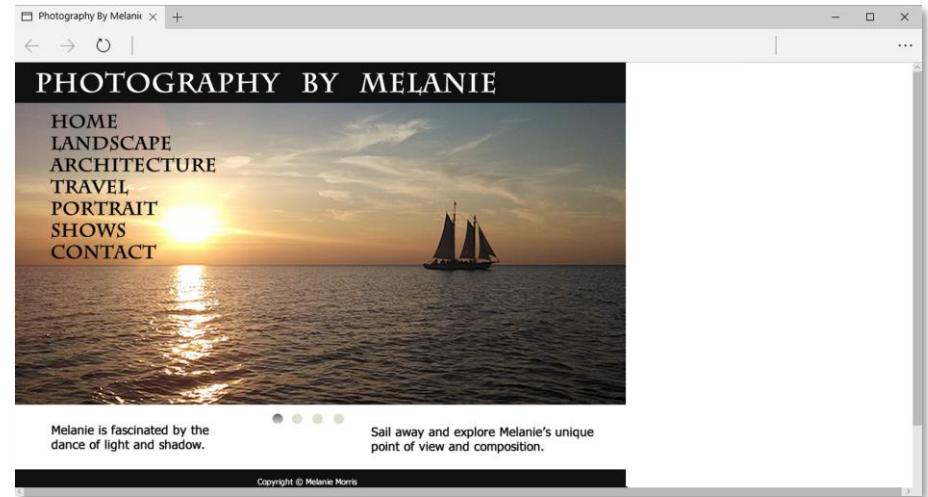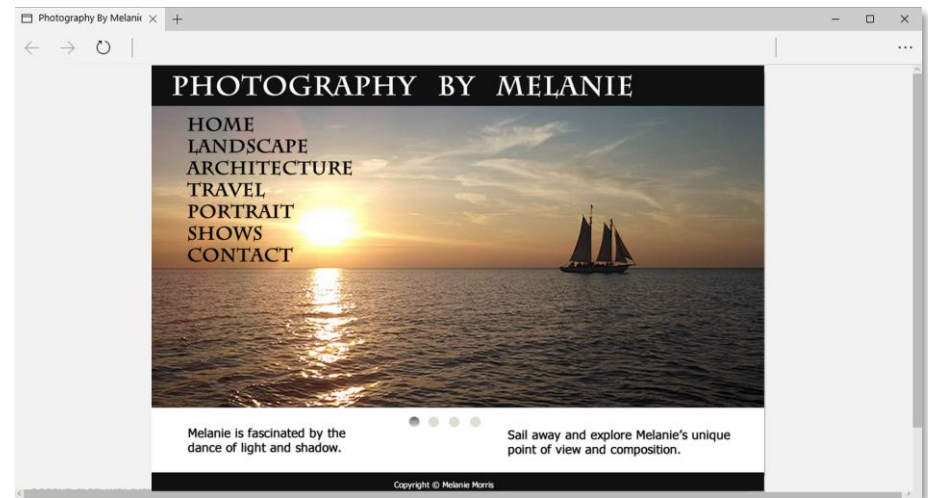

Figure 5.38

Page Layout Design Techniques

Figure 5.39

Figure 5.40

Fluid Layout

- AKA "liquid" design
- Expands to fill the browser at all resolutions.

◦ Fluid Layout Adaptation:
  ◦ Full width top bar
  ◦ Other page content typically centered with side margins

Mobile Design Quick Checklist

Small screen size

Bandwidth issues

Single-column layout

Maximize contrast

Optimize images for mobile display

Descriptive alternate text for images
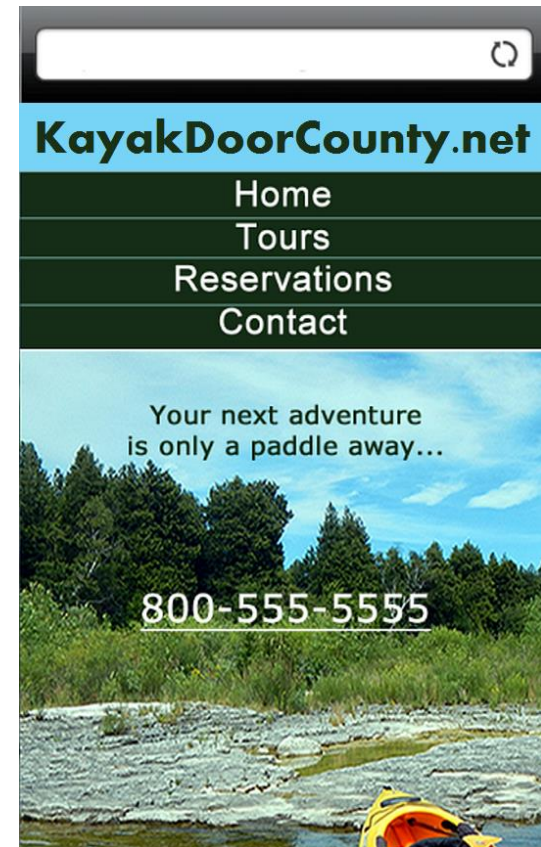
Avoid display of non-essential content

Figure 5.42

Progressive Enhancement

- Design your website so it displays well in mobile devices

- Design your website so that it is usable in older browsers

- Add enhancements with CSS and/or HTML5 to take advantage of the capabilities of modern browsers.
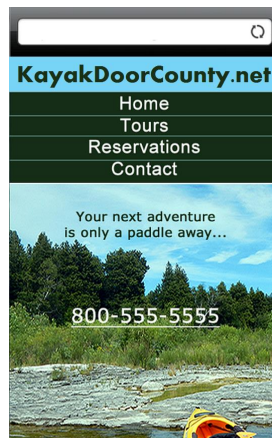
Figure 5.42

Figure 5.41

Responsive Web Design

Ethan Marcotte, noted web developer
https://www.alistapart.com/articles/responsive-web-design

Progressively enhancing a web page
for different viewing contexts
(such as smartphones and tablets)
through the use of coding techniques, including
flexible layouts and media queries.

Examples: https://www.mediaqueri.es

Web Design Best Practices Checklist

https://terrymorris.net/bestpractices

- Page Layout
- Browser Compatibility
- Navigation
- Color and Graphics
- Multimedia
- Content Presentation
- Functionality
- Accessibility

Checkpoint

1. View the home page of your school. Use the Best Practices Checklist (Table 5.1) to evaluate the page. Describe the results.

2. View your favorite web site (or a URL provided by your instructor).
   ◦ Maximize and resize the browser window.
   ◦ Decide whether the site uses fixed or fluid design.
   ◦ Adjust the screen resolution on your monitor
     (Start > Control Panel > Display > Settings) to a different resolution than you normally use.
   ◦ Does the site look similar or very different?
   ◦ List two recommendations for improving the design of the site.

3. List three best practices of using graphics on web pages. View the home page of your school. Describe the use of graphic design best practices on this page.

Summary

This chapter introduced you to best practices of web design.

The choices you make in the use of color, graphics, and text should be based on your particular target audience.