

Web Development & Design Foundations with HTML5

7th Edition

Chapter 5 - Key Concepts

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
 - ▶ Apply best practices of web design

Overall Design Is Related to the Site Purpose

The screenshot shows the official NASA website. The header includes the NASA logo, a search bar, and links for HOME, NEWS, MISSIONS, MULTIMEDIA, CONNECT, and ABOUT NASA. Below the header, there's a navigation bar for 'For Public', 'For Educators', 'For Students', 'For Media', 'For Policymakers', 'For Employees', and 'MyNASA'. A large image of a satellite launching from a shuttle is the main visual. A news article about the Aquarius observatory launch is displayed, followed by a sidebar with links like 'NASA Images' and 'NASA Multimedia'.

<http://nasa.gov>

Consider the target audience of these sites.

The screenshot shows the Bureau of Labor Statistics (BLS) CPI website. The header features the BLS logo and navigation links for Home, Subject Areas, Databases & Tools, Publications, Economic Releases, and Beta. The main content area is titled 'Consumer Price Index' and includes sections for 'Announcements', 'Next Release: June 15, 2011', and 'On This Page'. The right sidebar displays 'LATEST NUMBERS' for various CPI categories like NSA, SA, and CPI-U, along with their respective percentage changes. The footer contains links for CPI News Releases, CPI Publications, and CPI Special Notices.

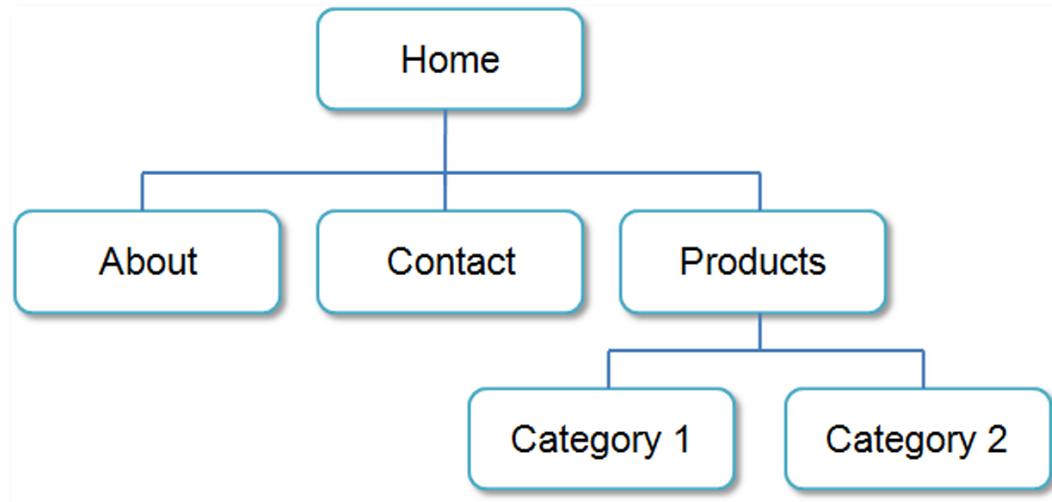


WebSite Organization

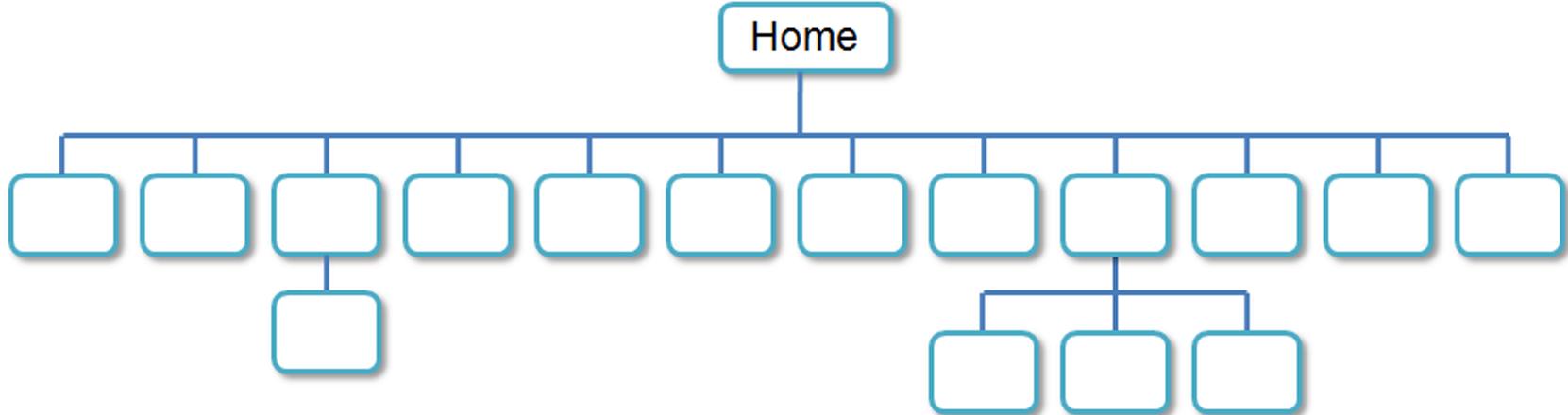
- Hierarchical
- Linear
- Random
(sometimes called Web Organization)

Hierarchical Organization

- A clearly defined home page
- Navigation links to major site sections
- Often used for commercial and corporate websites

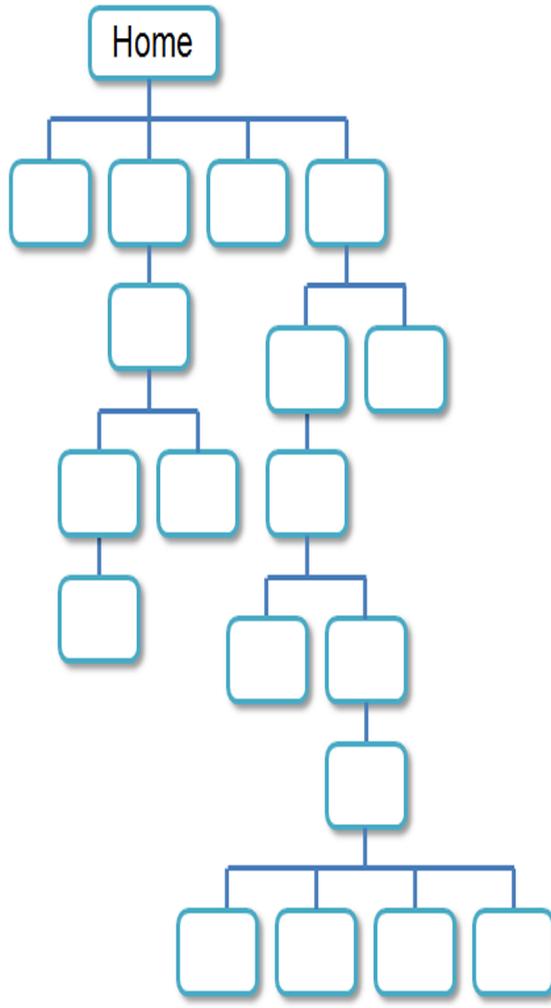


Hierarchical & Shallow



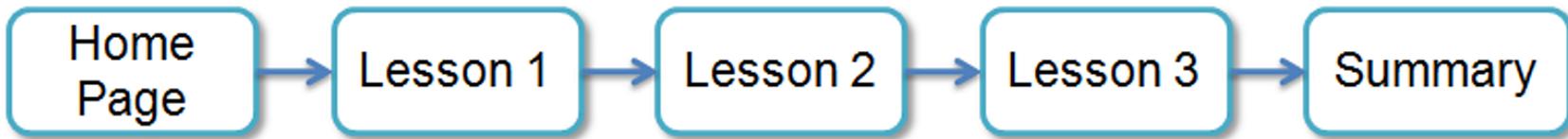
- Be careful that the organization is not too shallow.
 - Too many choices → a confusing and less usable web site
 - Information Chunking
 - Research by Nelson Cowan: adults typically can keep about four items or chunks of items in short-term memory (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2864034/>)
 - Be aware of the number of major navigation links
 - Try group navigation links visually into groups with no more than about four links.

Hierarchical & Deep



- 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.

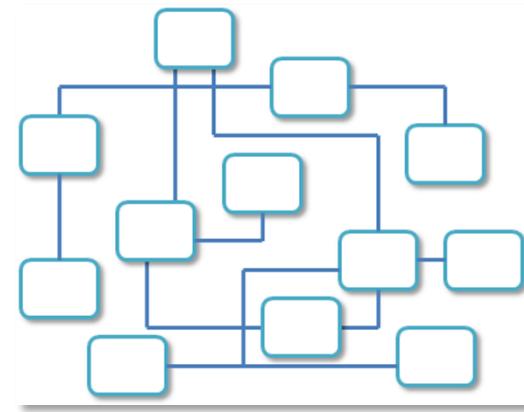
Linear Organization



- 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.



■ Repetition

- Repeat visual elements throughout design

■ Contrast

- Add visual excitement and draw attention

■ Proximity

- Group related items

■ Alignment

- Align elements to create visual unity



+ 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, out-dated computer
- A person using a mobile phone

■ Legal Requirement: Section 508

■ Standards: WCAG 2.0

- Web Content Accessibility Guidelines 2.0
WCAG 2.0
 - <http://www.w3.org/TR/WCAG20/Overview>
 - <http://www.w3.org/WAI/WCAG20/quickref>

Based on Four Principles (POUR)

1. Perceivable
Content must be Perceivable
2. Operable
Interface components in the content must be Operable
3. Understandable
Content and controls must be Understandable
4. Robust.
Content should be Robust enough to work with current and future user agents, including assistive technologies

- Avoid long blocks of text
- Use bullet points
- Use headings and subheadings
- Use short paragraphs

- 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)

Use Color Theory

■ Color Theory:

- the study of color and its use in design

■ Color Wheel

- Primary Colors
- Secondary Colors
- Tertiary Colors



Color Schemes Based on The Color Wheel (1)



- Monochromatic – shades, tints, or tones of the same color

<http://meyerweb.com/eric/tools/color-blend>



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



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

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



- Triadic- three colors that are equidistant on the color wheel



- Tetradic – two complementary color pairs



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

- <http://meyerweb.com/eric/tools/color-blend>
- <http://colorschemedesigner.com>
- <http://www.colorsontheweb.com/colorwizard.asp>
- <http://www.leestreet.com/QuickColor.swf>
- <http://kuler.adobe.com>
- <http://www.colorsinspire.com>
- <http://colrd.com>
- <http://hslpicker.com>





The screenshot shows a colorful website for 'Snurpy Games'. At the top, there's a purple navigation bar with links: Home, Puzzles, Matching, Words, Action, and Sports. Below it, a yellow header features the text 'Game of the Week' and a large blue button labeled 'Pop the Bubbles!' with a hand cursor icon. The main background is yellow with a pattern of small bubbles. At the bottom, there's a copyright notice 'Copyright © 2014 Snurpy Games' and a link 'Contact Snurpy Games'.

Appealing to Kids & Preteens

The screenshot shows the official website of the U.S. National Park Service. It features a large image of a lighthouse on Anacapa Island. The header includes the 'National Park Service' logo and the 'U.S. Department of the Interior'. A search bar and a 'Find a Park' dropdown are visible on the right. The main content area has sections for 'News', 'Events', and 'More Events'. At the bottom, there's a banner for 'Making America's Best Idea Even Better!' showing a scenic mountain landscape.

Appealing to Everyone

<http://nps.gov>

Color & Target Audience

The screenshot shows the 'mySnurpy' website. It has a dark theme with purple and white text. The top navigation bar includes 'Home', 'Log In', and 'Sign Up'. Below it is a search bar. The main content area features a 'Play Free' button, a 'Forum Posts' section with a 'mySnurpy Cheat Codes' link, and a 'Game of the Week' section with a message about winning a game. There's also a 'Text Messages' sidebar with a 'Play Free' button. The footer includes a copyright notice 'Copyright © 2014 Snurpy Games' and a 'Contact Snurpy Games' link.

Appealing to Young Adults

The screenshot shows the Medicare.gov website. The top navigation bar includes links for 'About Us', 'FAQ', 'Glossary', 'CMS.gov', and 'MyMedicare.gov Login'. The main content area has a 'Get help paying costs' section with links for 'Medicaid', 'Medicare Savings Programs', 'PACE', 'Save on drug costs', 'Programs in U.S. territories', 'Find your level of Extra Help (Part D)', 'Part A costs', 'Part B costs', and 'Costs for Medicare drug coverage'. The footer includes a 'Learn about your health care options' link and a 'Share' button.

Appealing to Older Adults



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. However, choose colors on the web palette if consistency across older Windows/Mac platforms is important.
- Use anti-aliased text in images

Antialiased Aliased



Graphic Design Best Practices(2)

- Use only necessary images
- Reuse images
- Goal: image file size should be as small as possible with acceptable display quality



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

Web Page Design Browsers & Screen Resolution

- Test with multiple browsers
 - Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari
- Test at various screen resolutions
 - Most widely used: 1366x768, 1024x768, 1280x800, and 1280x1024
- Design to look good at various screen resolutions
 - Centered page content
 - Set to either a fixed or percentage width

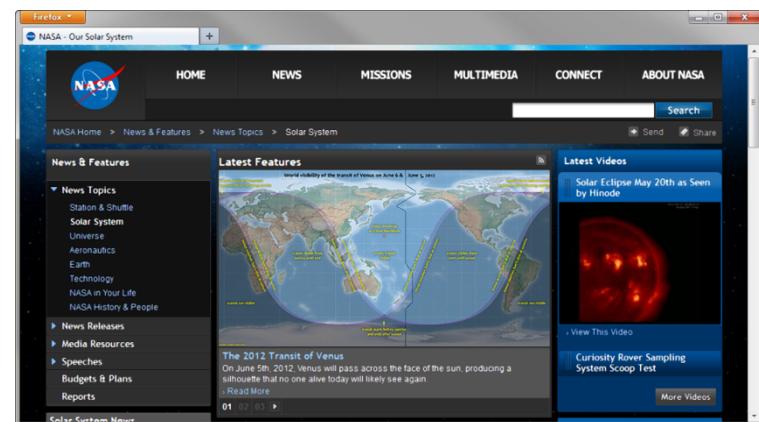


■ Make your site easy to navigate

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

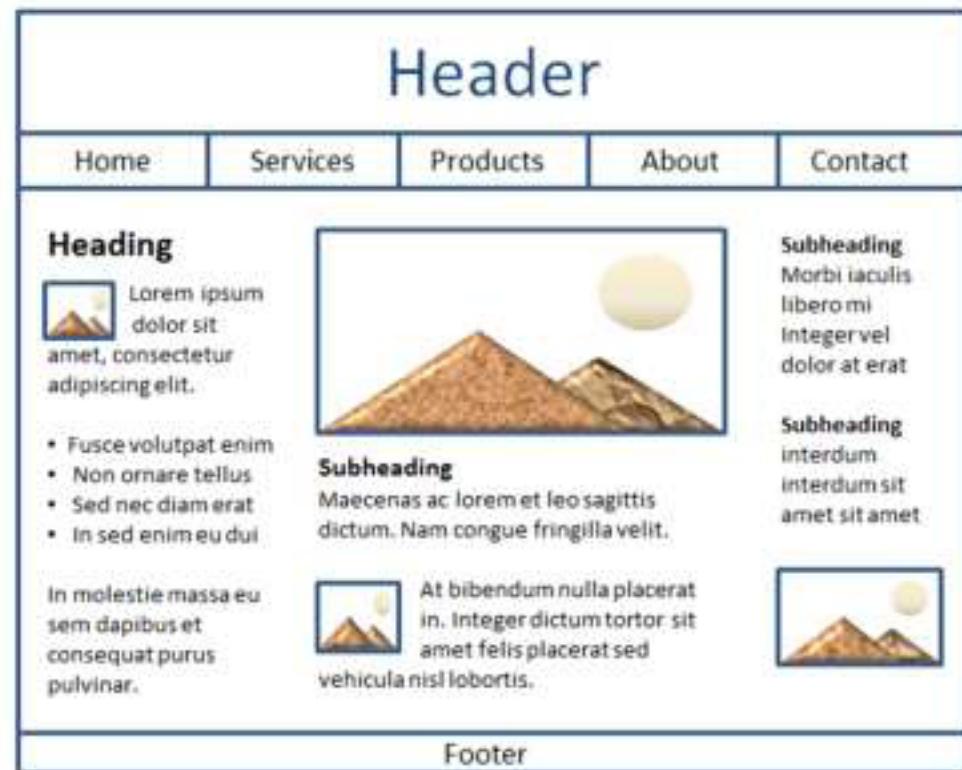
■ Consider:

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



Wireframe

- A sketch or blueprint of a web page
- Shows the structure of the basic page elements, including:
 - Logo
 - Navigation
 - Content
 - Footer

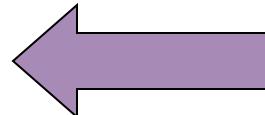




Web Page Design Page Layout (1)

- Place the most important information "above the fold"
- Use adequate "white" or blank space
- Use an interesting page layout

Header				
Home	Services	Products	About	Contact
Heading Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam laoreet mi sed sapien tristique et cursus lorem venenatis. Curabitur fermentum purus ut odio sodales consectetur interdum purus dictum. Donec ac purus a lectus rutrum auctor quis sed justo. In sed enim eu dui posuere lobortis id eget diam.				
Subheading Maecenas ac lorem et leo sagittis dictum. Nam congue fringilla velit, at bibendum nulla placerat in. Integer dictum tortor sit amet felis placerat sed vehicula nisl lobortis. <ul style="list-style-type: none">• Fusce volutpat enim ut felis tincidunt.• Non ornare tellus commodo• Sed nec diam erat				
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Footer				



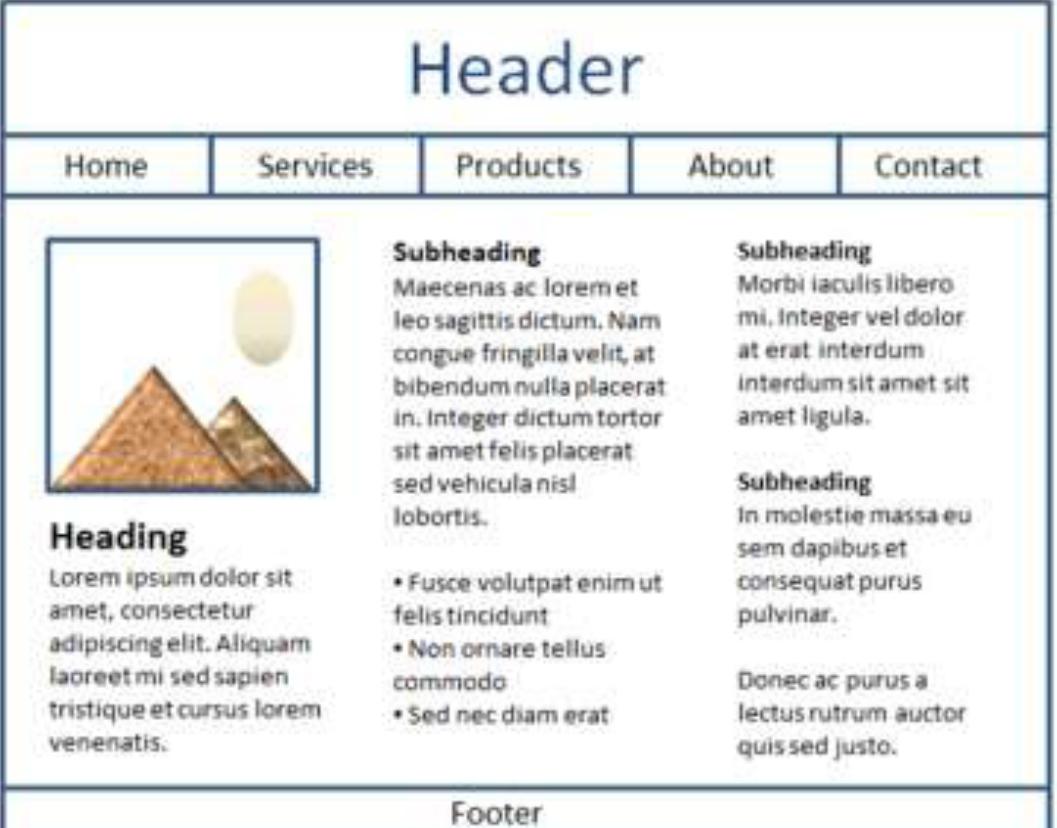
This is usable, but a little boring. See the next slide for improvements in page layout.

Web Page Design Page Layout (2)

Better



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



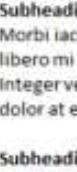
The image shows a web page layout with a header, a navigation menu, and three columns of content. The header contains the word "Header". The navigation menu includes links for Home, Services, Products, About, and Contact. The first column features a small image of two pyramids under a sun and a heading followed by a paragraph of placeholder text. The second column has a subheading, a long paragraph of placeholder text, and a bulleted list. The third column also has a subheading and a paragraph of placeholder text. A footer section is at the bottom.

Header		
Home	Services	Products
About	Contact	
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Footer		

Web Page Design Page Layout (3)

Best

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

Header				
Home	Services	Products	About	Contact
Heading  Lorem ipsum dolor sit amet, consectetur adipiscing elit. <ul style="list-style-type: none">• Fusce volutpat enim• Non ornare tellus• Sed nec diam erat• In sed enim eu dui In molestie massa eu sem dapibus et consequat purus pulvinar.	 Subheading Maecenas ac lorem et leo sagittis dictum. Nam congue fringilla velit.  At bibendum nulla placerat in. Integer dictum tortor sit amet felis placerat sed vehicula nisl lobortis. 	 Subheading Morbi iaculis libero mi Integervel dolor at erat  Subheading interdum interdum sit amet sit amet	 Subheading Morbi iaculis libero mi Integervel dolor at erat	 Subheading interdum etu interdum sit amet sit amet
Footer				

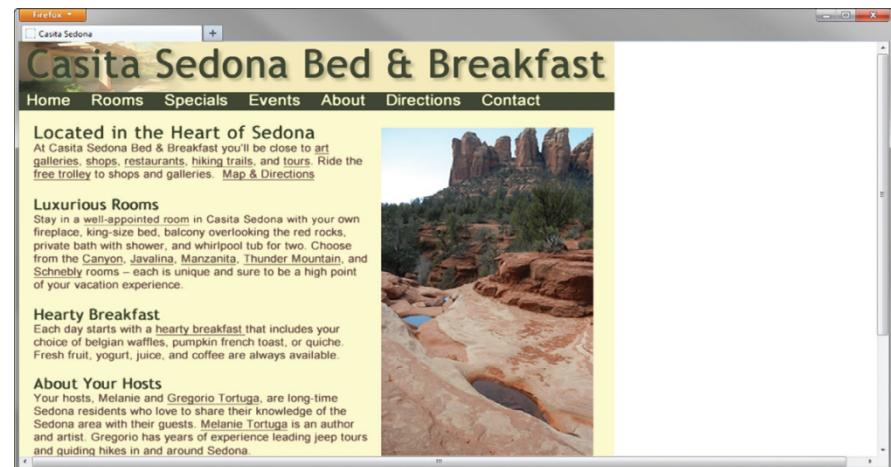
Header	
Home	
Services	
Products	
About	
Contact	
Heading Lorem ipsum dolor sit amet, consectetur adipiscing elit. et ipsum dolor sit amet, consectetur adipiscing elit. <ul style="list-style-type: none">• Fusce volutpat enim• Non ornare tellus• Sed nec diam erat• In sed enim eu dui  Subheading Morbi iaculis libero mi Integervel dolor at erat  Subheading interdum etu interdum sit amet sit amet	
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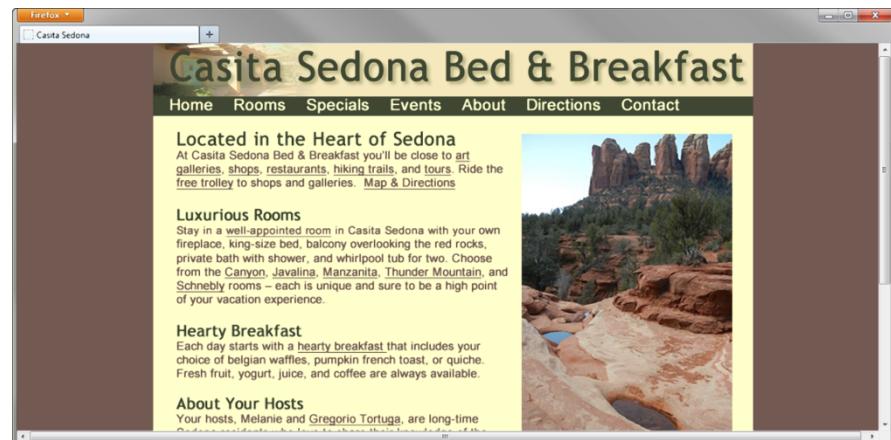
Page Layout Design Techniques

Fixed Layout

- AKA rigid or “ice” design
- Fixed-width often at left margin



- More appealing if fixed with content is centered

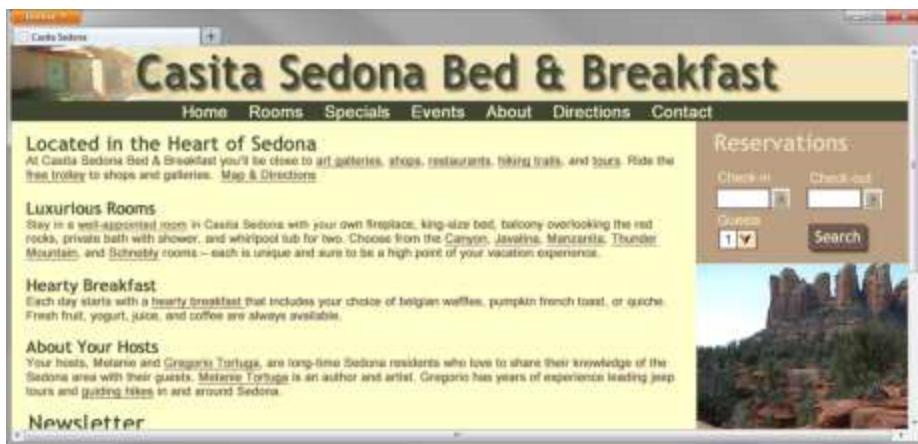




Page Layout Design Techniques

Fluid Layout

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



◦ Adaptation:

- Page content typically centered and often configured with a percentage width such as 80%

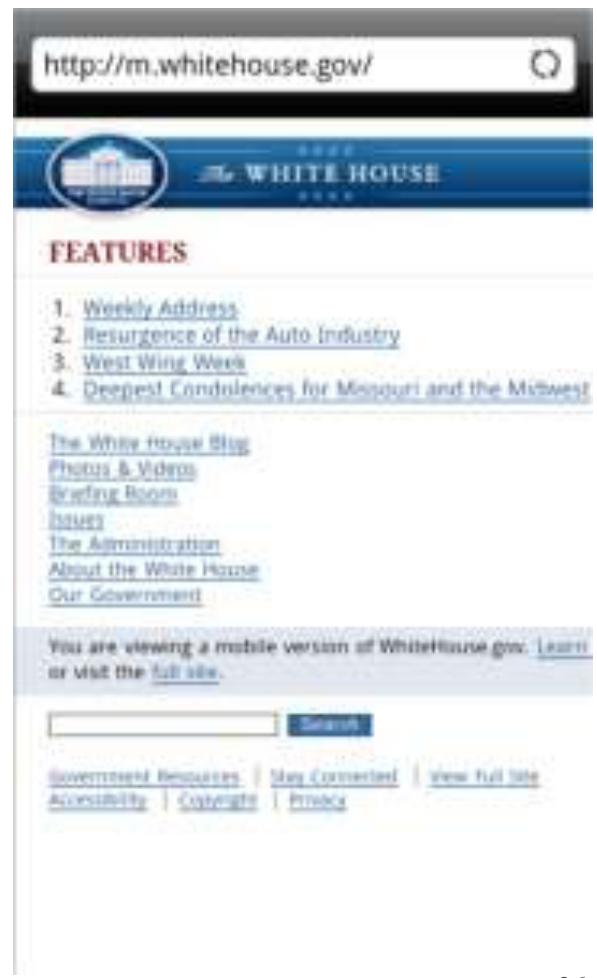
Design for the Mobile Web

- Predicted that by 2015, more users will access websites using mobile devices than with desktop computers



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



Responsive Web Design

- Ethan Marcotte, noted web developer
<http://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: <http://www.mediaquerie.es>

+ Web Design Best Practices Checklist

<http://terrymorris.net/bestpractices>

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

- ▶ 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.
-