

# Web Development & Design Foundations with HTML5 8<sup>th</sup> Edition

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## CHAPTER 5 KEY CONCEPTS

# Learning Outcomes

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## 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



**Consider the target audience of these sites.**

A screenshot of a web browser showing a page titled "Web Design &amp; Instructional Technology Resources". The page has a blue header with links for home, books, news, resources, and contact. The main content includes sections on "Web Design Best Practices Checklist", "Distance Learning Orientation", "Software Tutorials", and "Learning Objects", each with a list of links.

# Website Organization

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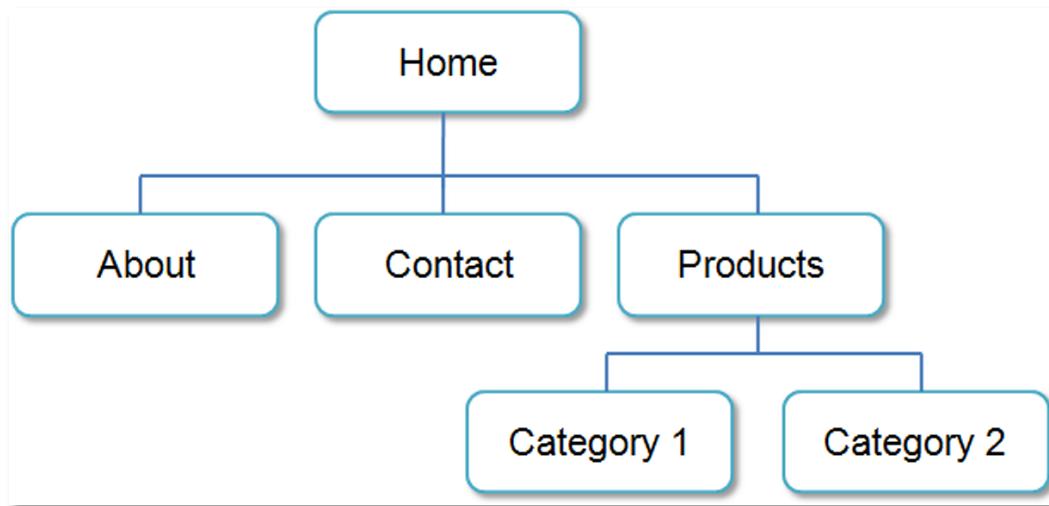
Hierarchical  
Linear  
Random  
*(sometimes called Web Organization)*

# Hierarchical Organization

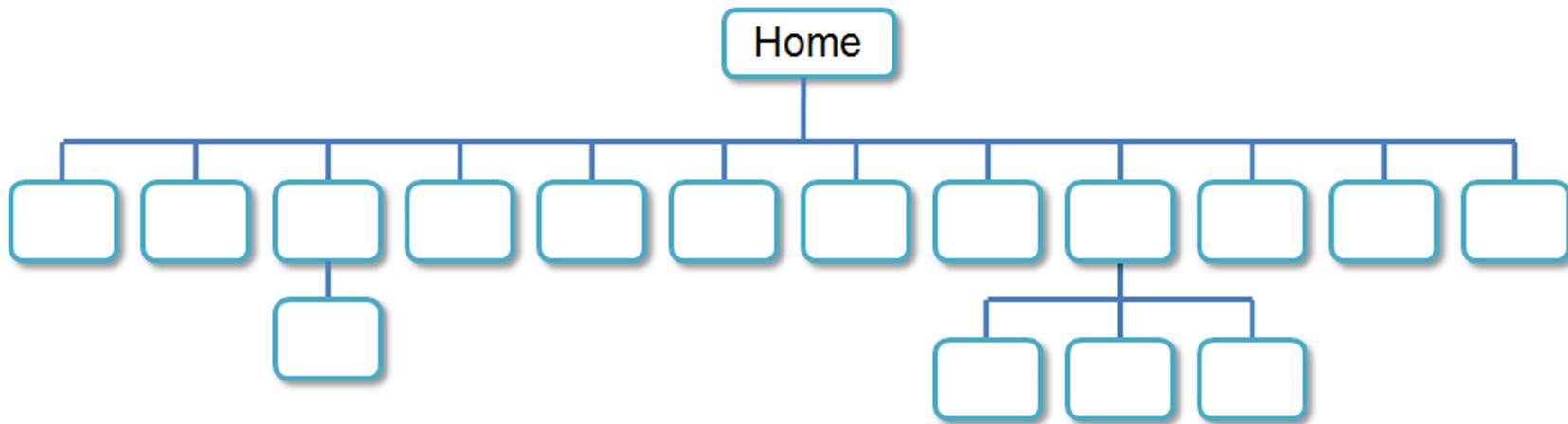
A clearly defined home page

Navigation links to major site sections

Often used for commercial and corporate websites

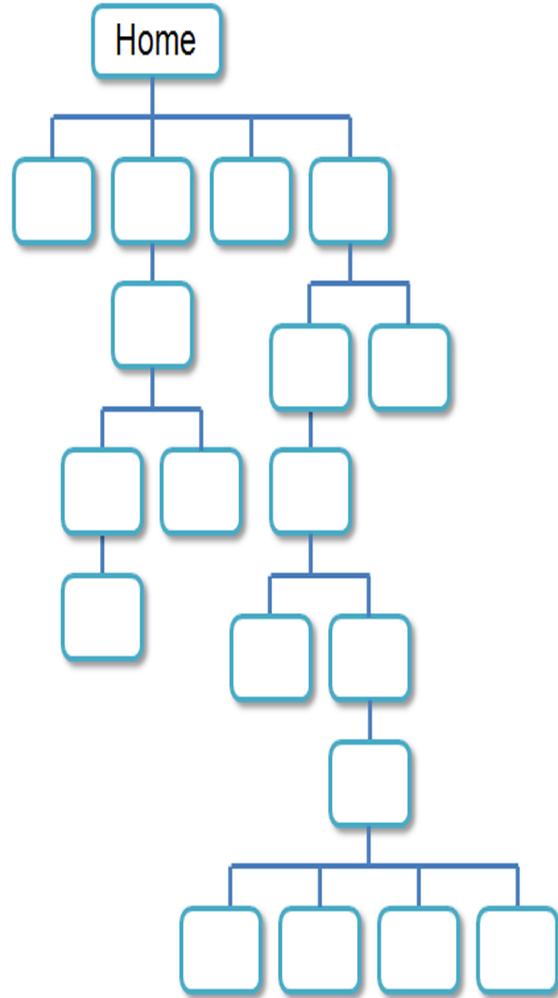


# Hierarchical & Shallow



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

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- 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

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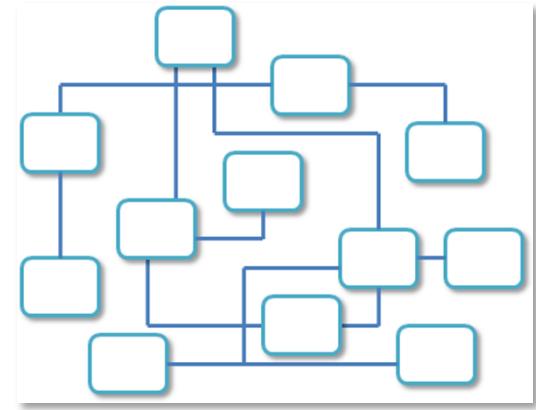
A series of pages that provide a tutorial, tour, or presentation.

Sequential viewing

# Random Organization

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- 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.



# 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



# Design to Provide for Accessibility

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“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

# Design for Accessibility

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- 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

# Writing for the Web

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Avoid long blocks of text

Use bullet points

Use headings and subheadings

Use short paragraphs

# Design “Easy to Read” Text

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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

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- Carefully choose text in hyperlinks
  - Avoid “click here”
  - Hyperlink key words or phrases, not entire sentences
- Chek yur spellin (Check your spelling)

# Color Theory

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## 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)

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**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)

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**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

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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

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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://snook.ca/technical/colour_contrast/colour.html)
- <http://juicystudio.com/services/luminositycontrastratio.php>

# Color Scheme Resources

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

<http://colorschemedesigner.com>

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

<http://www.leestreet.com/QuickColor.swf>

<https://color.adobe.com>

<http://www.colorsprise.com>

<http://colrd.com>

<http://hslpicker.com>





Appealing to Kids & Preteens

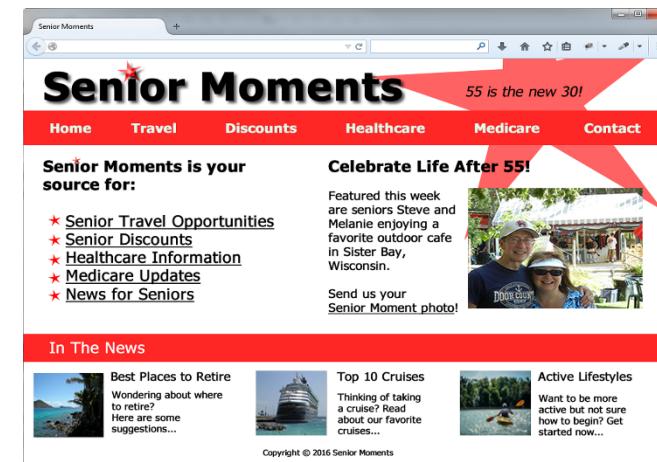


Appealing to Everyone

# Color & Target Audience



Appealing to Young Adults



Appealing to Older Adults

# Checkpoint

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1. List the four basic principles of design.

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

2. View <http://www.walmart.com>,  
<http://www.willyporter.com>, and  
<http://www.sesamestreet.org/muppet>

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

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- 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)

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- Be careful with large graphics!
  - Remember 60K recommendation
- 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)

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- There is no requirement to limit your color choices to web safe colors.
- Use anti-aliased text in images

**Antialiased**

**Aliased**

# Graphic Design Best Practices(3)

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

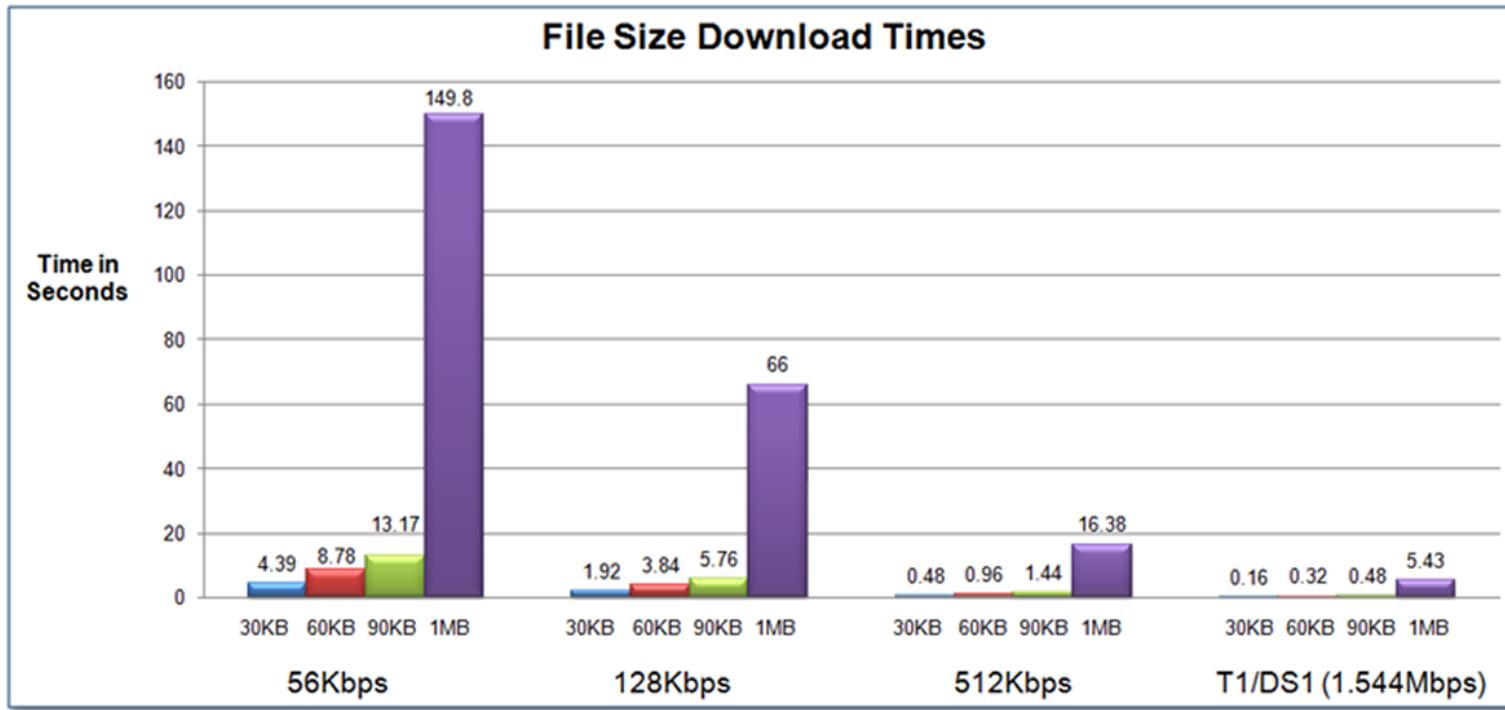


Do you really  
need to see a  
photo of my dog  
right now?

# Web Page Design Load Time

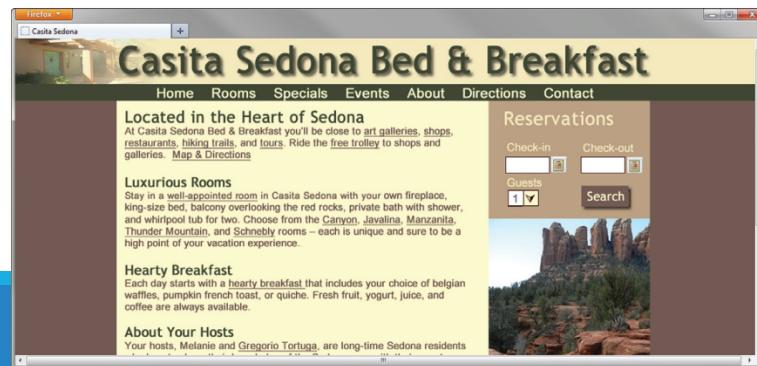
Watch the load time of your pages

Try to limit web page document and associated media to under 60K on the home page



# Web Page Design Browsers & Screen Resolution

- Test with multiple browsers
  - Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari
- Test at various screen resolutions
- Design to look good at various screen resolutions
  - Centered page content
  - Set to either a fixed or percentage width



# Navigation Design

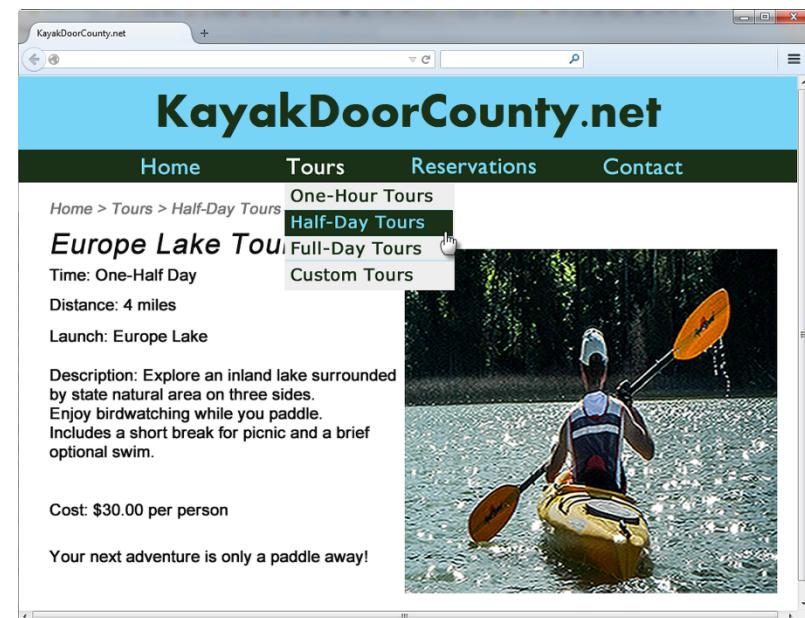
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## Make your site easy to navigate

- 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

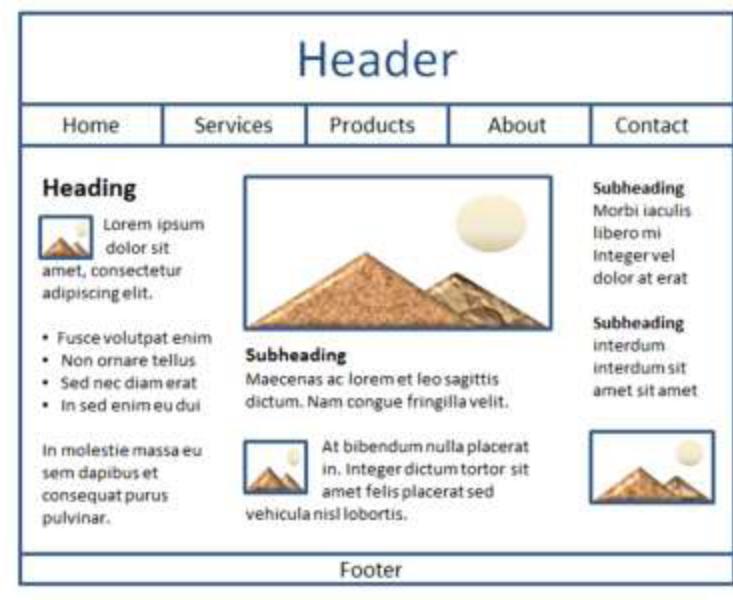


# Wireframe

A sketch or blueprint of a web page

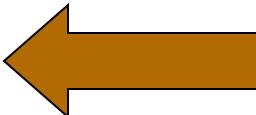
Shows the structure of the basic page elements, including:

- Header
- Navigation
- Content
- Footer
- Image locations



# 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
<b>Heading</b> 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.		<b>Subheading</b> 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"><li>• Fusce volutpat enim ut felis tincidunt.</li><li>• Non ornare tellus commodo</li><li>• Sed nec diam erat</li></ul> Morbi iaculis libero mi. Integer vel dolor at erat interdum interdum sit amet sit amet ligula. In molestie massa eu sem dapibus et consequat purus pulvinar.	<b>Footer</b>	

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

# Web Page Design Page Layout (2)

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Better



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

Header				
Home	Services	Products	About	Contact
	<b>Subheading</b> 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.	<b>Subheading</b> Morbi iaculis libero mi, Integer vel dolor at erat interdum. Interdum sit amet sit amet ligula.		
<b>Heading</b> Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam laoreet mi sed sapien tristique et cursus lorem venenatis.	<ul style="list-style-type: none"><li>• Fusce volutpat enim ut felis tincidunt</li><li>• Non ornare tellus commodo</li><li>• Sed nec diam erat</li></ul>	<b>Subheading</b> In molestie massa eu sem dapibus et consequat purus pulvinar.		
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.

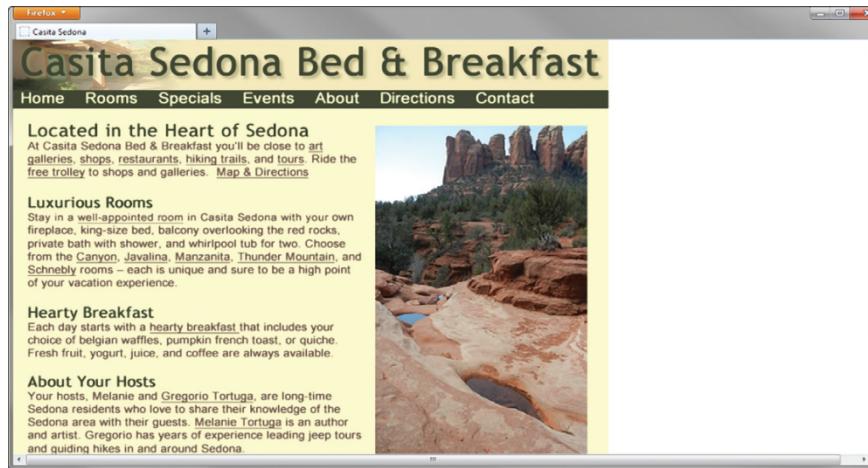
Header				
Home	Services	Products	About	Contact
<b>Heading</b>  Lorem ipsum dolor sit amet, consectetur adipiscing elit. <ul style="list-style-type: none"><li>• Fusce volutpat enim</li><li>• Non ornare tellus</li><li>• Sed nec diam erat</li><li>• In sed enim eu dui</li></ul> In molestie massa eu sem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

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

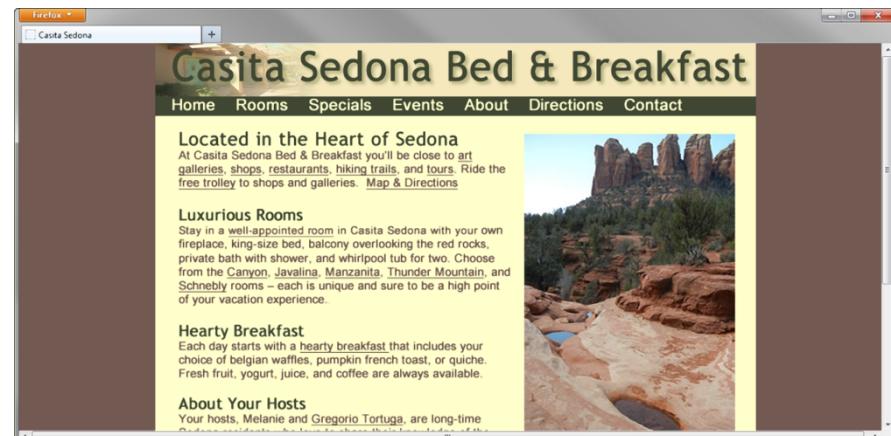
# Page Layout Design Techniques

## Fixed Layout

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



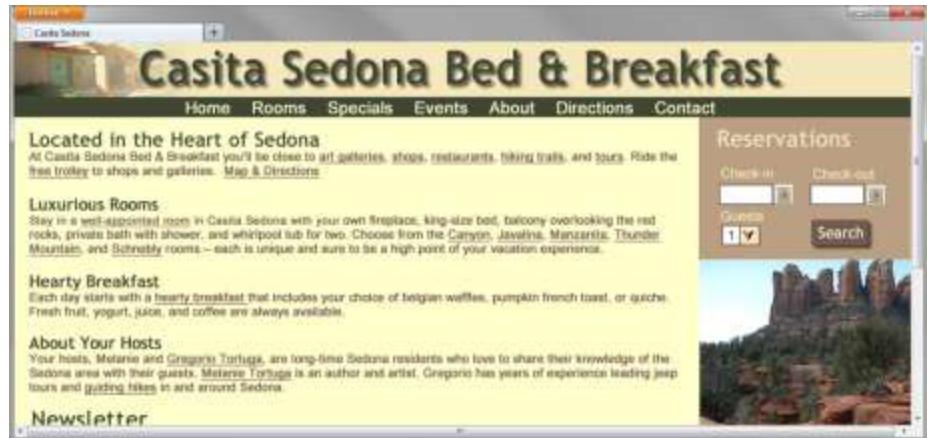
- More appealing if fixed with content is centered



# 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%



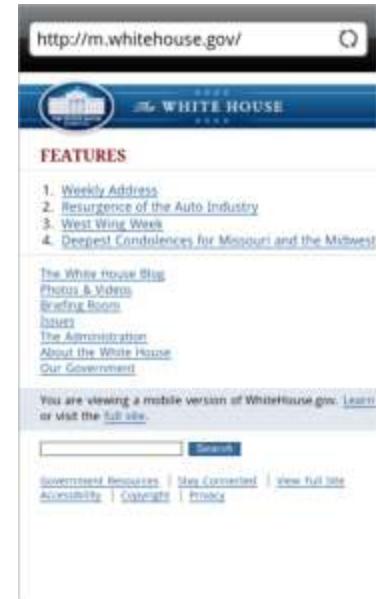
# Design for the Mobile Web

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

## Three Approaches:

- Separate .mobi mobile site
- Host the mobile site within your current domain
- Configure your current website for mobile display using responsive web design techniques



# Mobile Design Quick Checklist

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Small screen size

Bandwidth issues

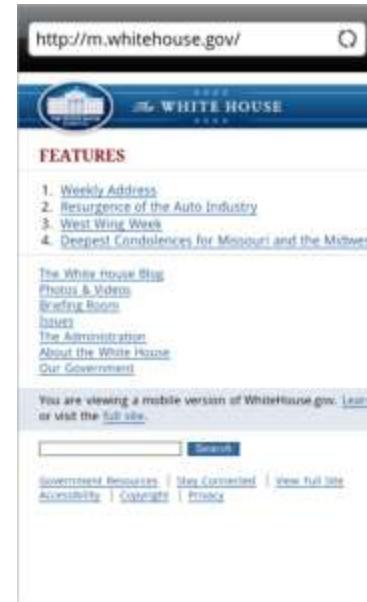
Single-column layout

Maximize contrast

Optimize images for mobile display

Descriptive alternate text for images

Avoid display of non-essential content



# Responsive Web Design

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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.mediaqueri.es>

# Web Design Best Practices Checklist

<http://terrymorris.net/bestpractices>

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- 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

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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.

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