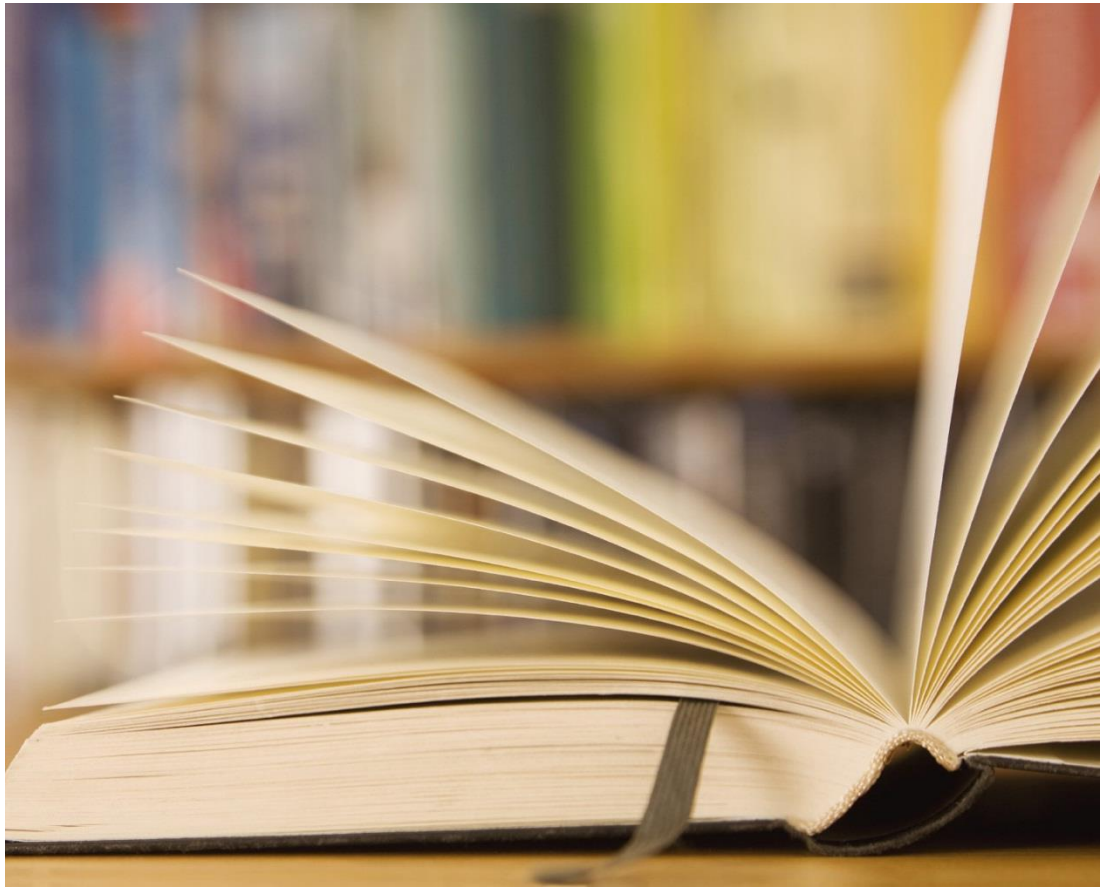
WEB DEVELOPMENT

Part 2



The Web Platform

- HTML5, according to Jason and James (2014) is a web platform as it is a series of complementary technologies; CSS3, SVG, JavaScript and more.
  - http://platform.html5.org/

Typical Website Evolution

Generation 1 -- replaces paper information

Generation 2 -- has flashy elements

Generation 3 -- is bleeding edge, causing content to suffer

Generation 4 -- content and technology are integrated

Ideally, try to skip the problems of Generations 1-3 by planning your web site carefully.

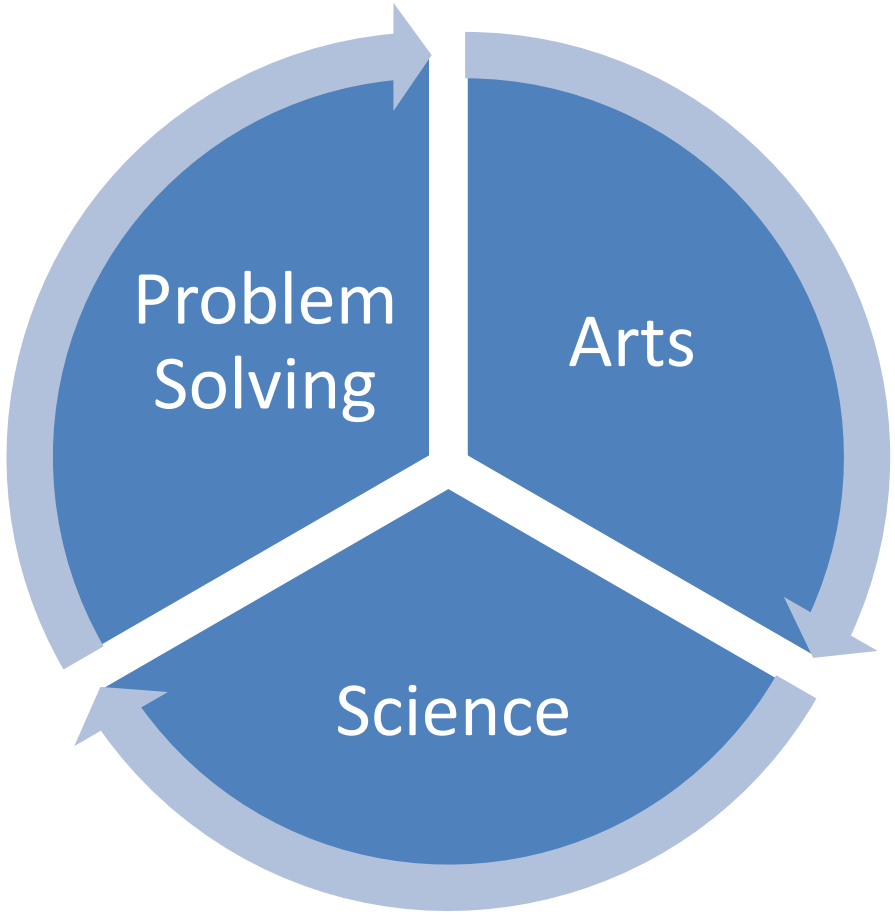
General Methods for Design

- "Ad-hoc" Process
  - Hastily put together
  - Created on the fly
  - "We need a web site TODAY"

- A methodical, well-thought process includes:
  - Planning
  - Quality-assurance testing

The Design Process

- Discovery
- Exploration
- Implementation



Defining Good Design

1. Functionality perspective
2. Aesthetic perspective

- Users are pleased by the design but drawn to the content.
- Users can move about easily via intuitive navigation.
- Users recognise each page as belonging to the site.

The Making of a Good Design

Content is important, but content alone will not make your site work.

Graphic Design and Page Template Creation

- Think about the actual HTML, PDF, graphic, sound, and other files you will need in the site;
  - Where will they be placed?
  - How will visitors access them?
- Designers prepare sketches and page mockups to represent page layouts
- All page layouts start with a mockup; Mockups can be easily edited based on feedback
- Wireframes document a more stable page design
- Wireframes offer a more complete view of what the final design will look like

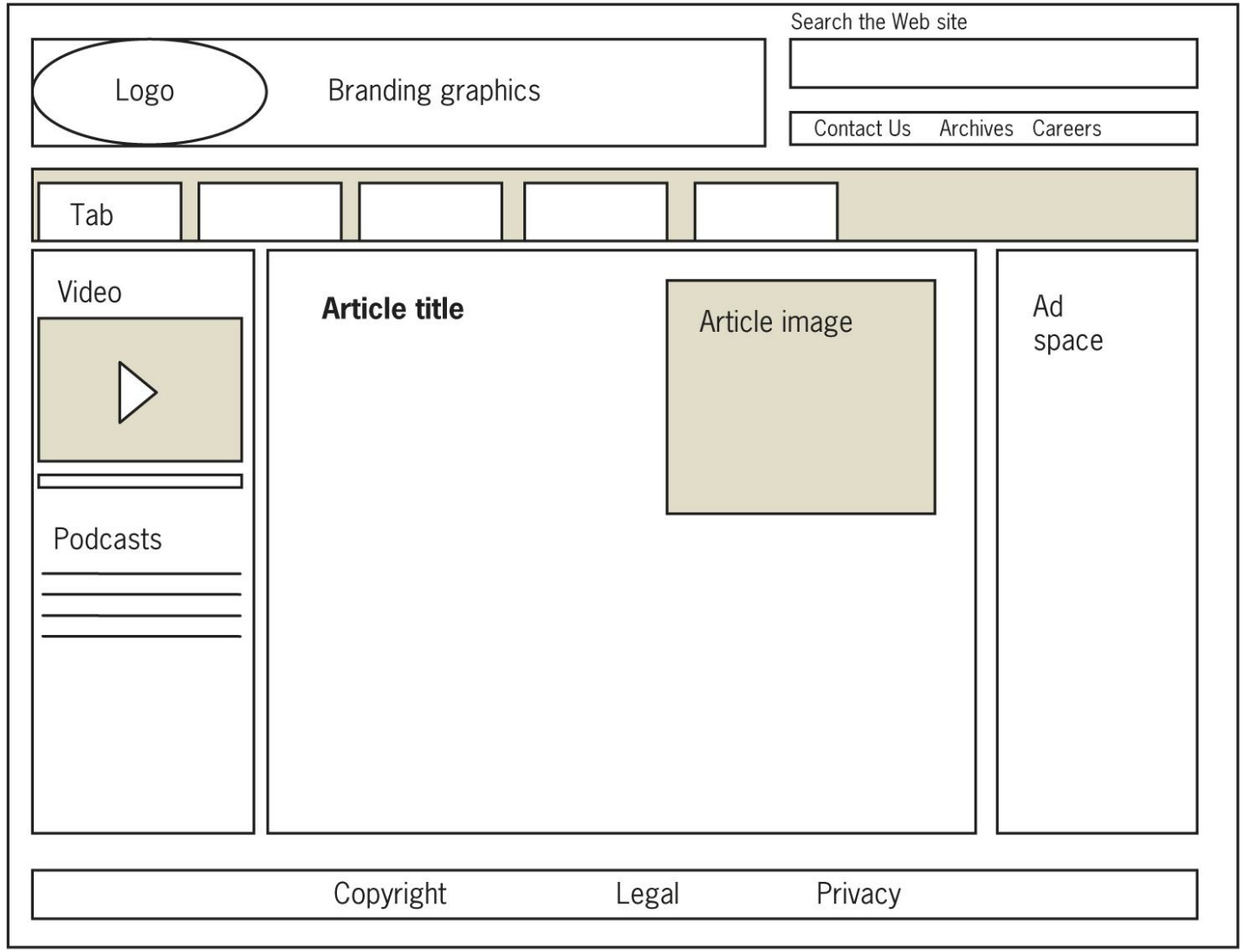


Figure 3-3 Sample wireframe for page layout

Influences of Technology on Design

- Browsers

  Till 2010, Internet Explorer was the dominant browser and now_____

  <http://www.w3schools.com/browsers/browsers_stats.asp>

- User screen sizes

  95% of users are using a display with 1024x768 pixels or more and a color depth Newer computers use 24 or 32 bits display hardware, and are able to display 16,777,216 different colours.

  <http://www.w3schools.com/browsers/browsers_stats.asp>

Anatomy of a website

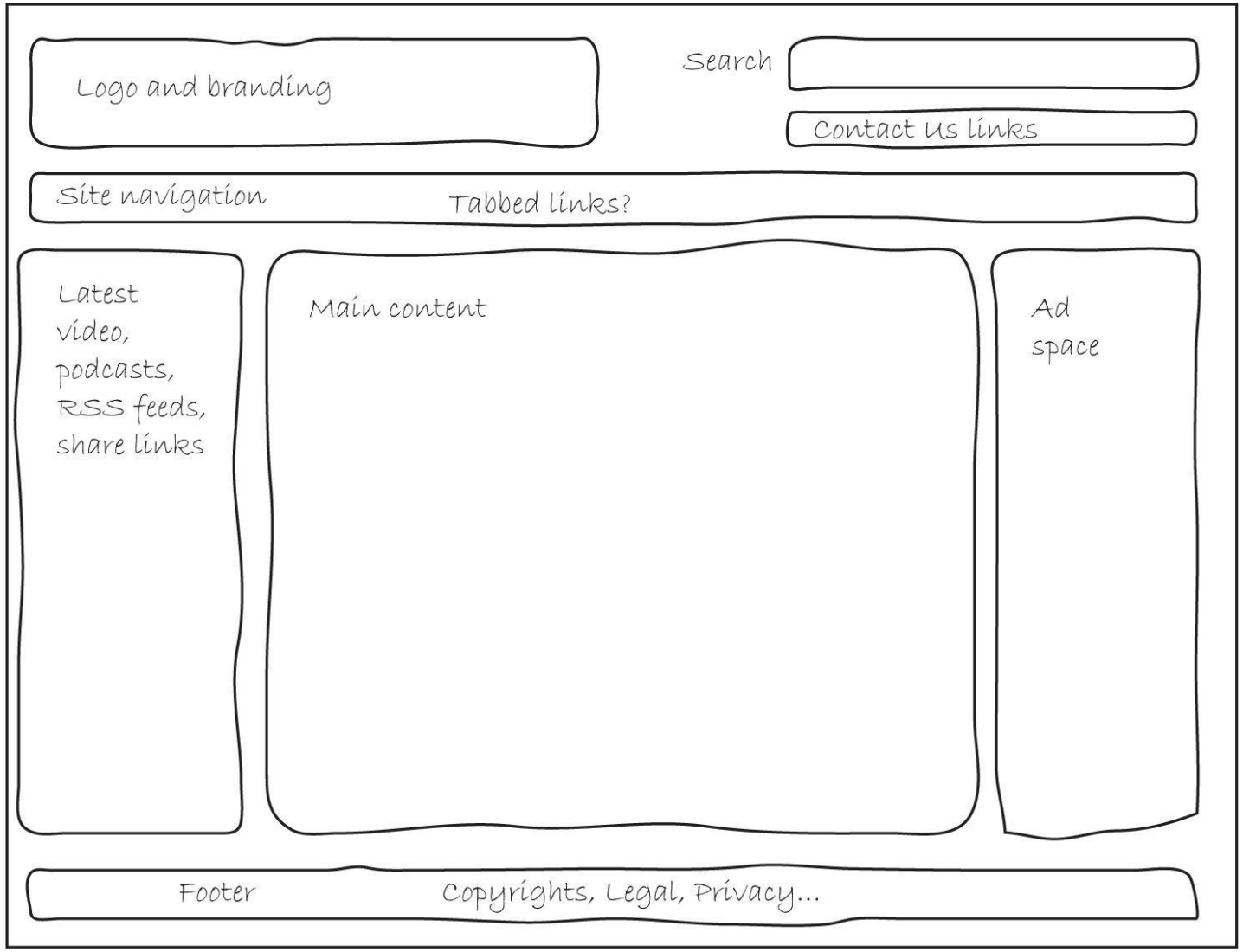


Figure 3-2 Web page mockup

- Container
- Logo
- Navigation
- Content
- Footer
- Whitespace

Layout and Composition

- Design information to be easy to read and legible
- Break text into reasonable segments
- Provide contrasting colors that are easy on the eye
- Use plenty of white space
- Readers have different online reading habits
- Include plenty of headings
- Control the width of your text

Balance

Figure 2-15 Clear presentation and easy access

Creating a Unified Site Design

- Plan the unifying themes and structure for your site
- Communicate a visual theme with your design choices

Consider more than each page

a) Plan smooth transitions

b) Use a grid to provide visual structure

c) Include active white space

2

Unity

Plan Smooth Transitions

- Plan to create a unified look
- Reinforce identifying elements
- Consistency and repetition create smooth transitions
- Place navigation elements in the same position on each page
- Use the same navigation graphics throughout the site

Use a Grid to Provide Visual Structure

- The structure of a Web page is imposed by the grid
- The grid is a conceptual layout device
- The grid aligns your content into columns and rows
- Impose a grid to provide visual consistency
- You can break out of the grid to provide variety and highlight information
- The grid provides page margins and gutters between elements

Grid Theory

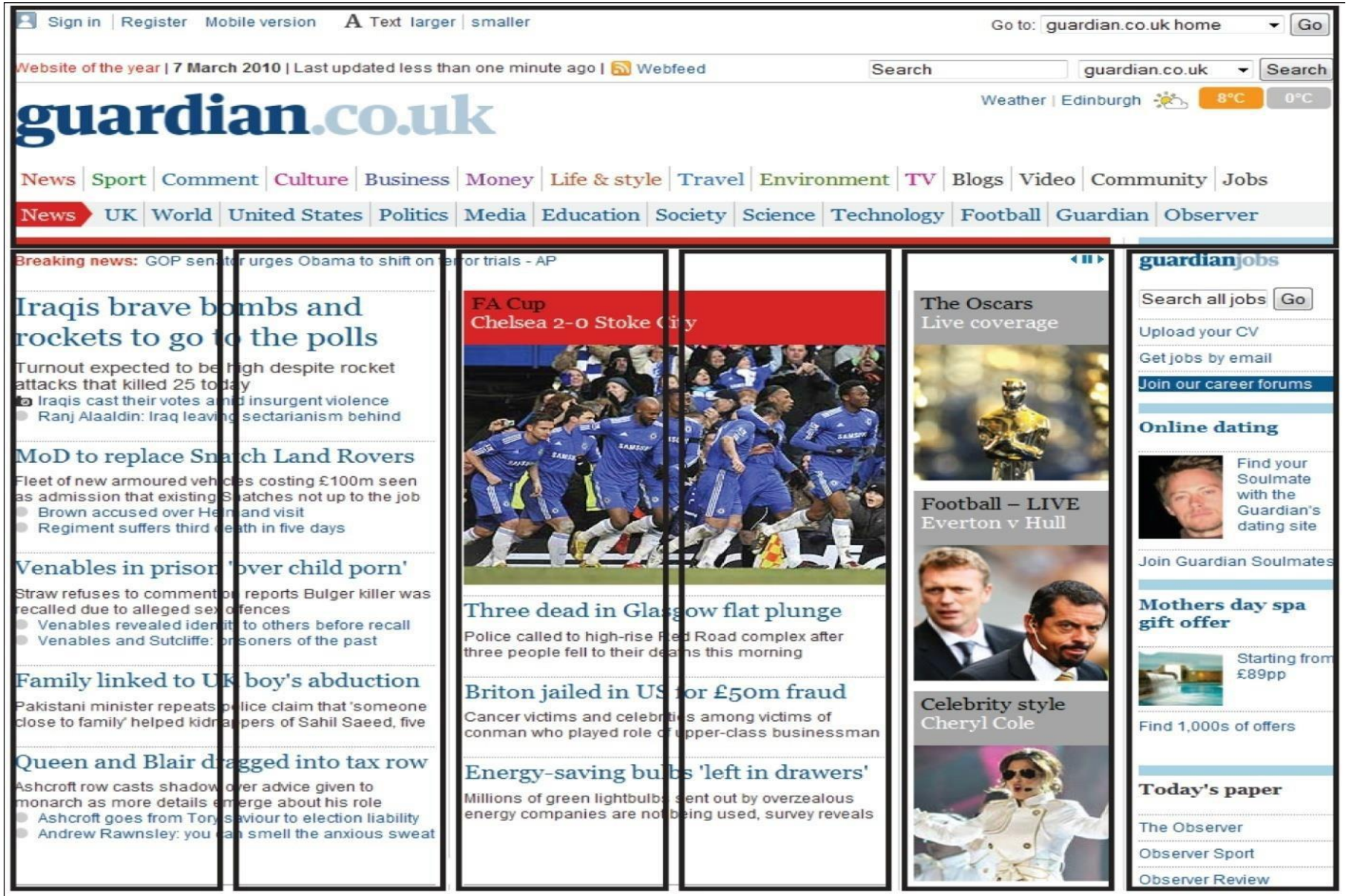


Figure 2-20 Grid provides visual structure

Use Active White Space

- White spaces are the blank areas of the page
- Use white space deliberately
- Good use of white space guides the reader

White space that is used deliberately is called active white space

- Passive white space is the result of mismatched shapes
- Plenty of active white space reduces clutter and clarifies organization

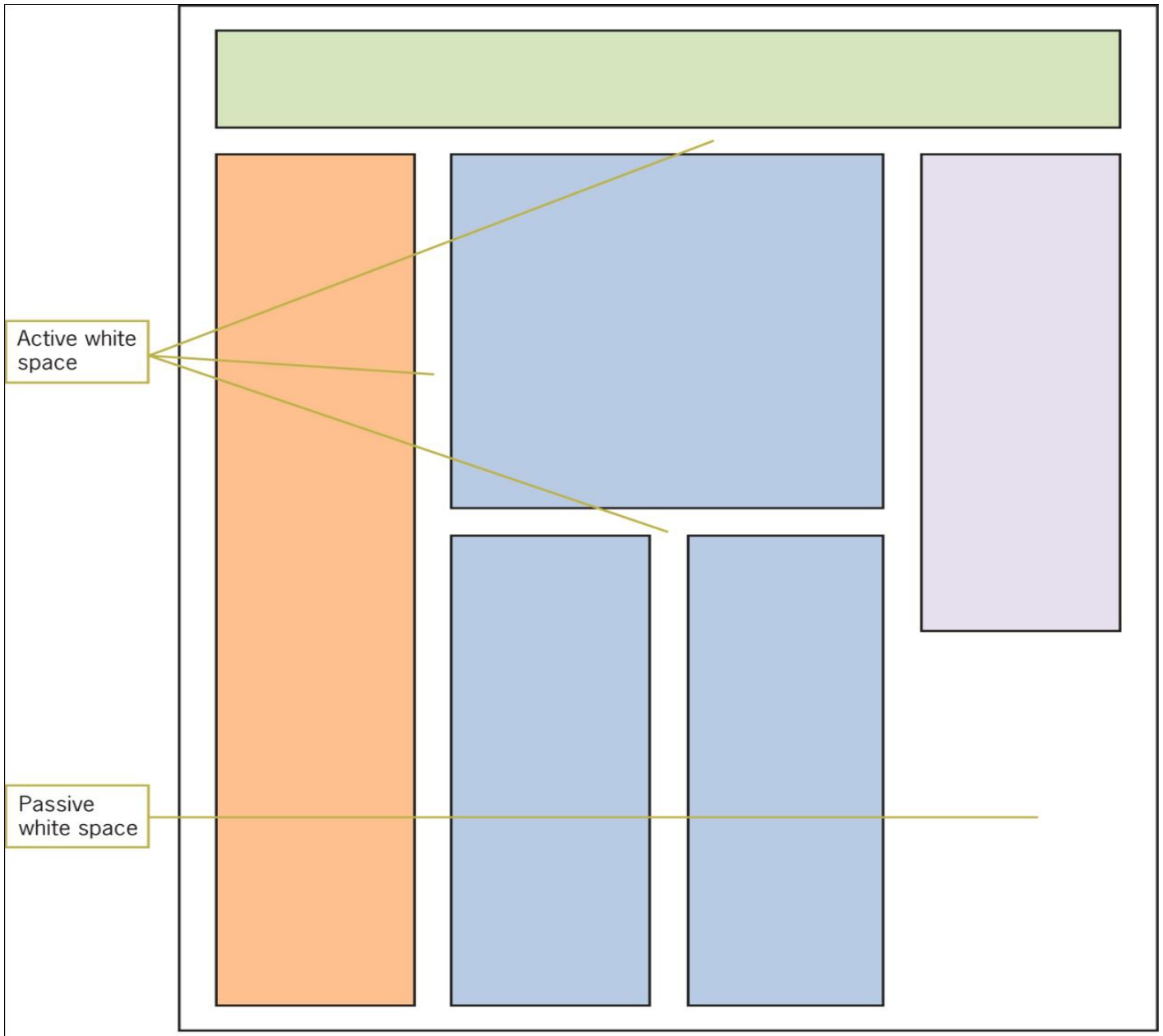


Figure 2-21 Areas of active and passive white space

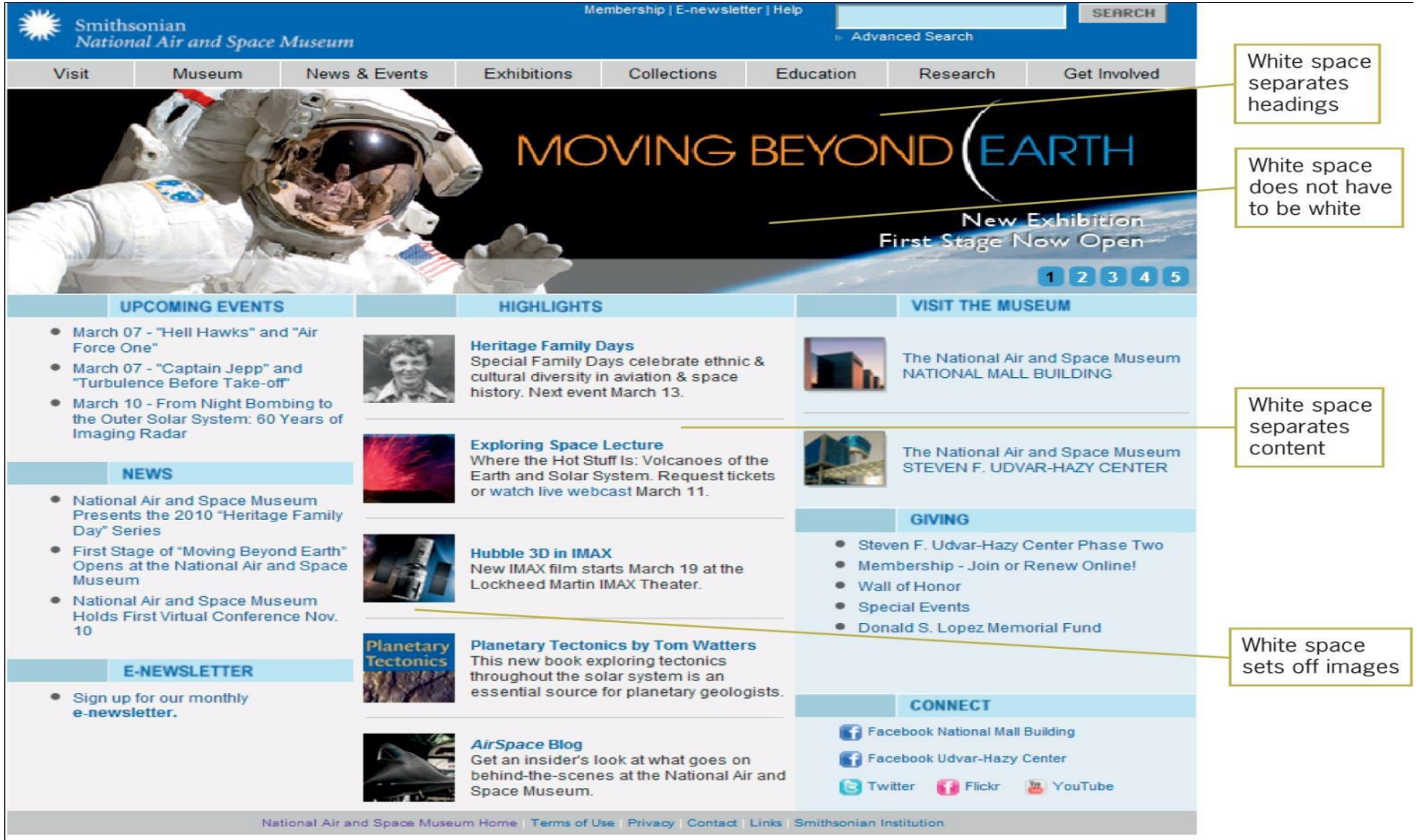


Figure 2-22 Active white space enhances legibility

Designing for the User

- Keep your design efforts centered solely on your user
- Find out what users expect from your site
- If you can, survey them with an online form
- Create a profile of your average user
- What do users want when they get to your site?

Design for Interaction

- Think about how the user wants to interact with your information
- Design for your content type
- Decide whether the user is likely to read or scan
- Design pages for reading or scanning based on the content type

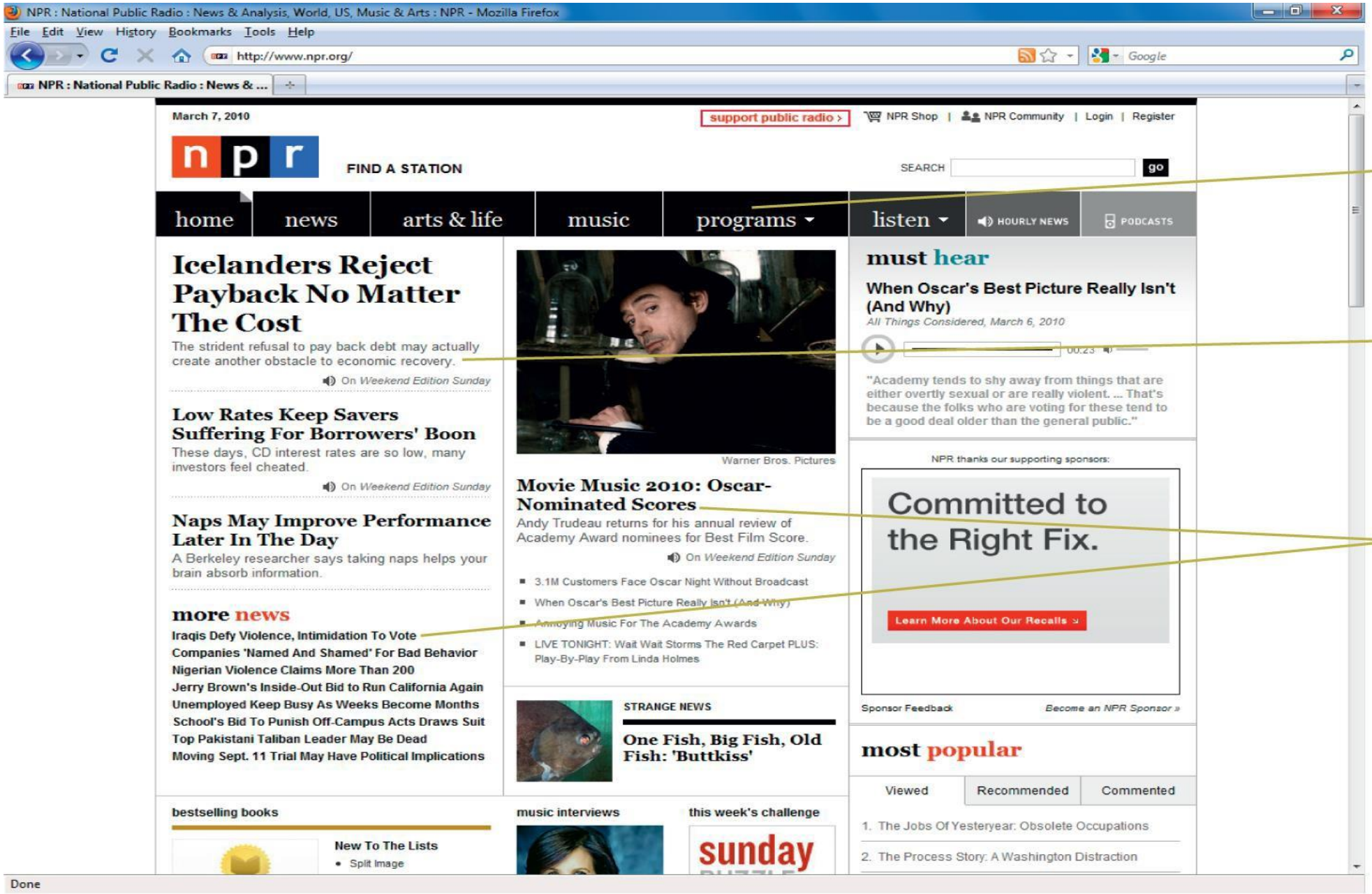


Figure 2-26 Page designed for scanning

Design for Location

- The user can traverse a page in a variety of ways
- Consider the different ways your user could be viewing your Web pages

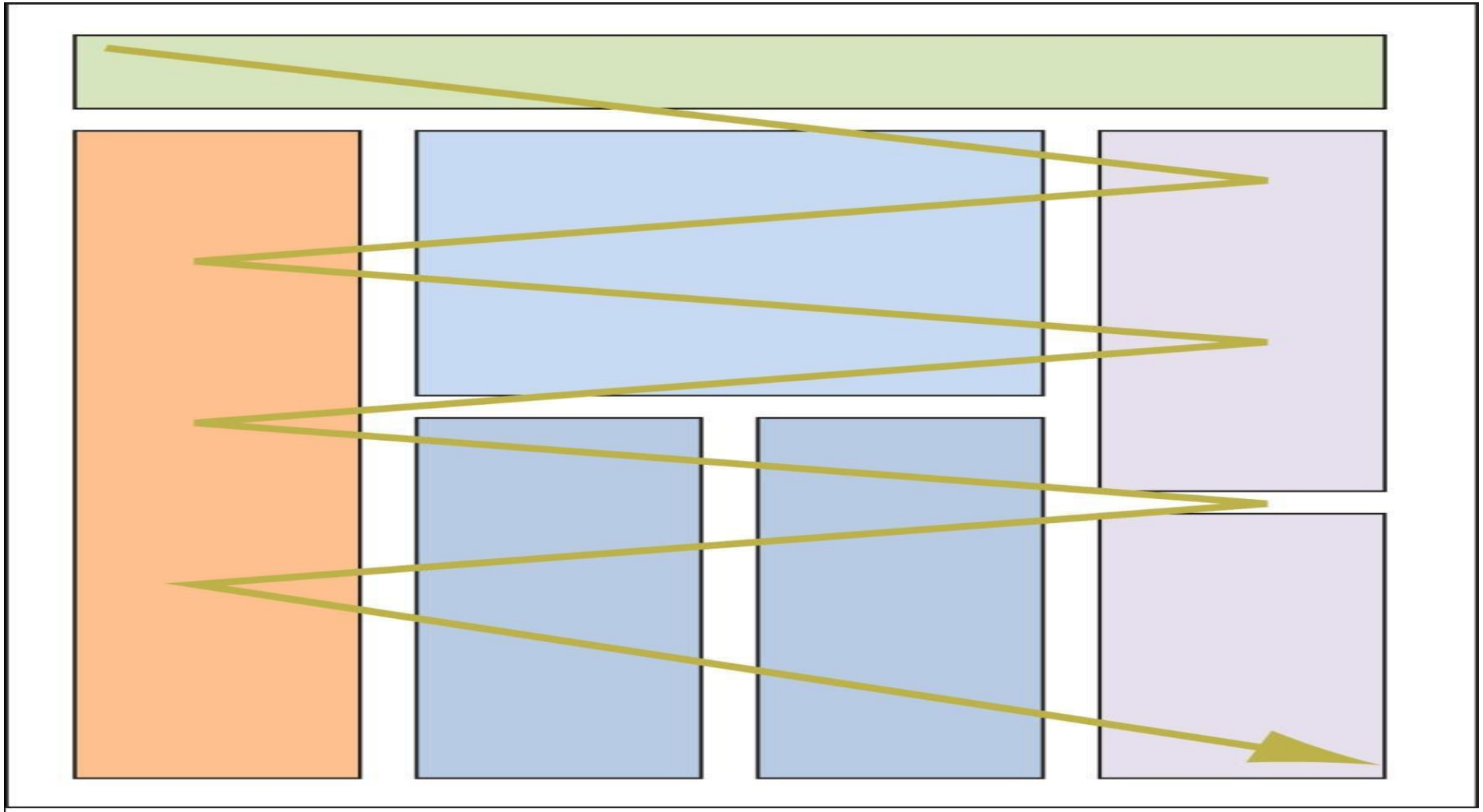


Figure 2-28 Paper-based reading pattern

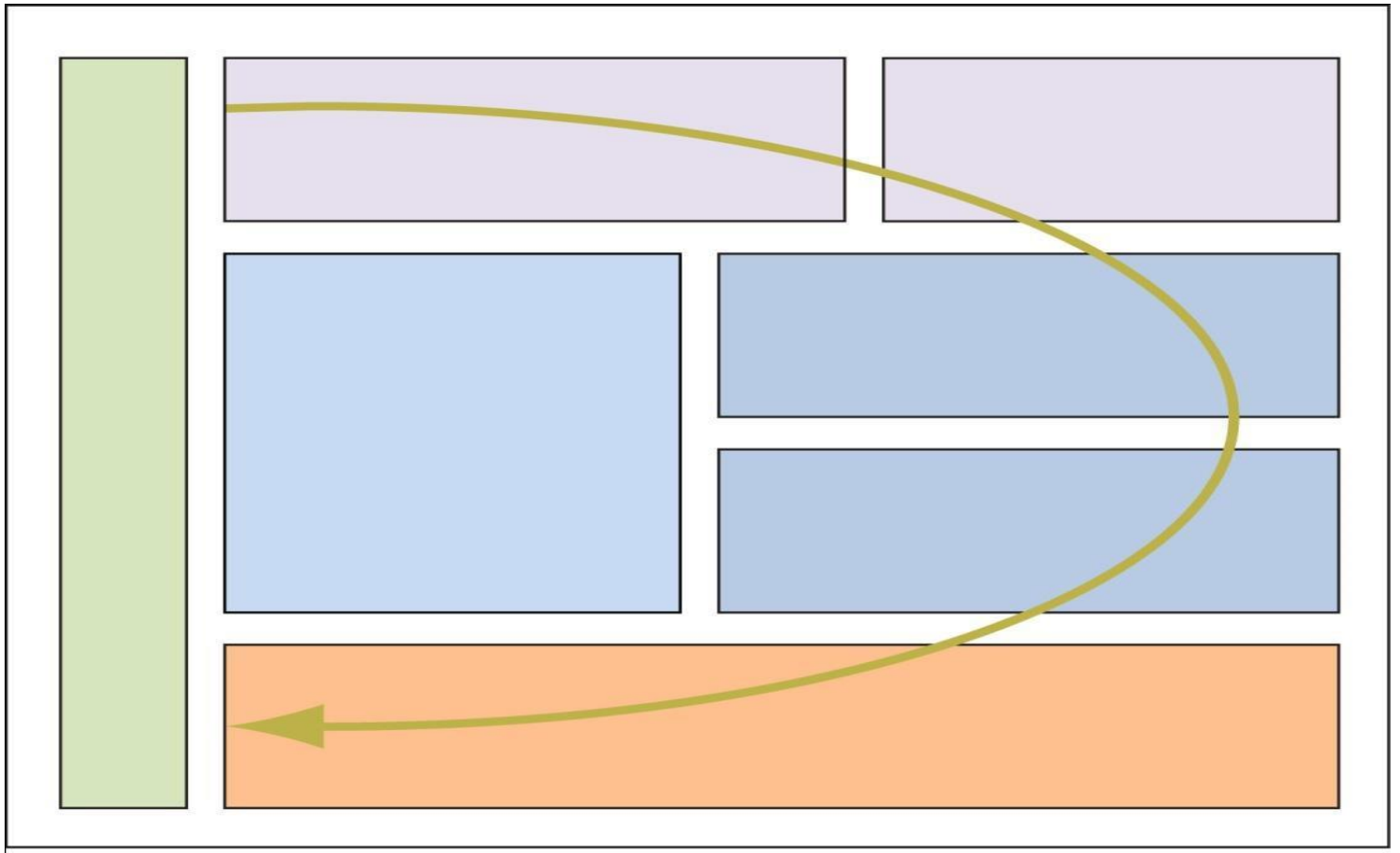


Figure 2-29 Landscape-based viewing pattern

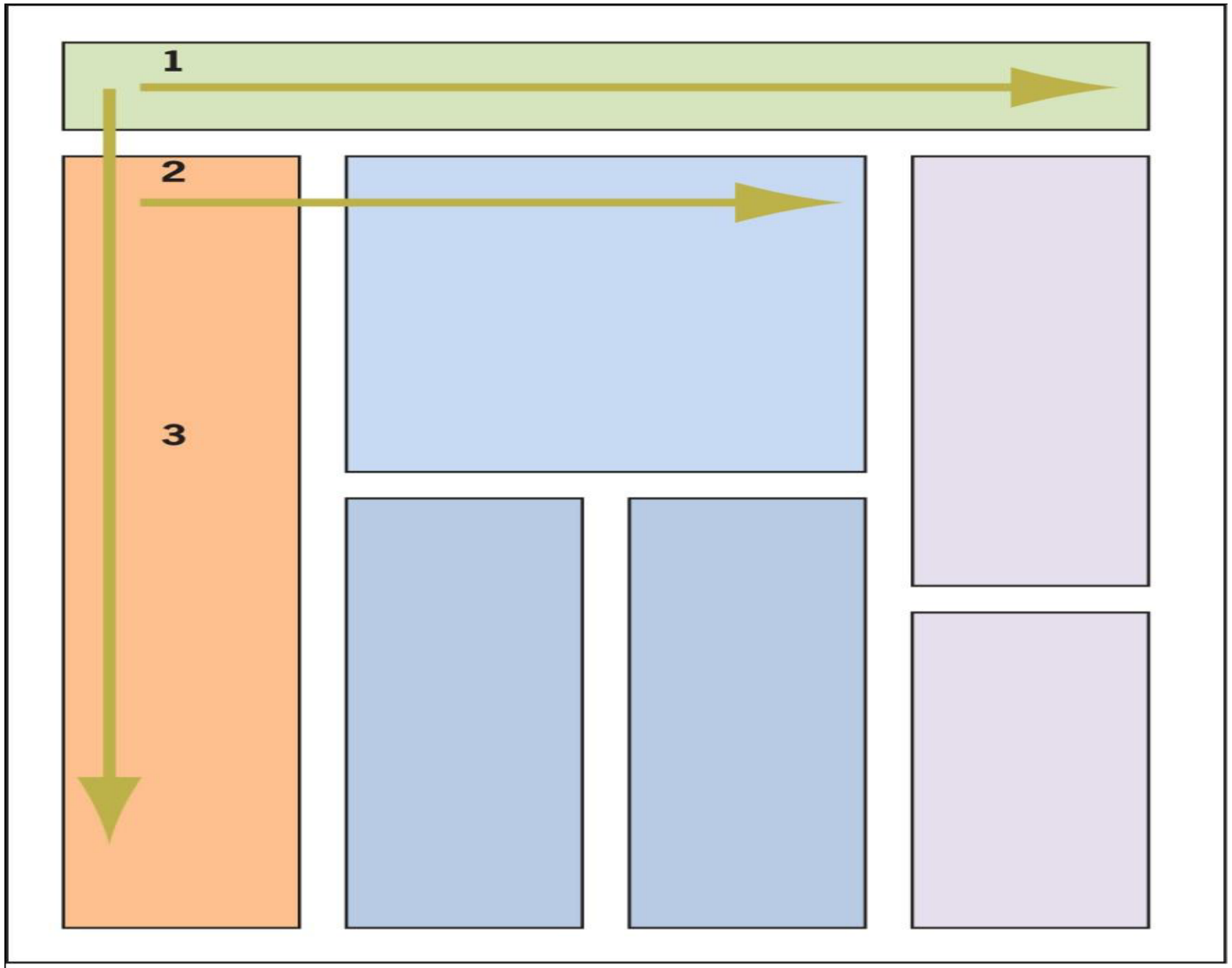


Figure 2-30 F-based viewing pattern

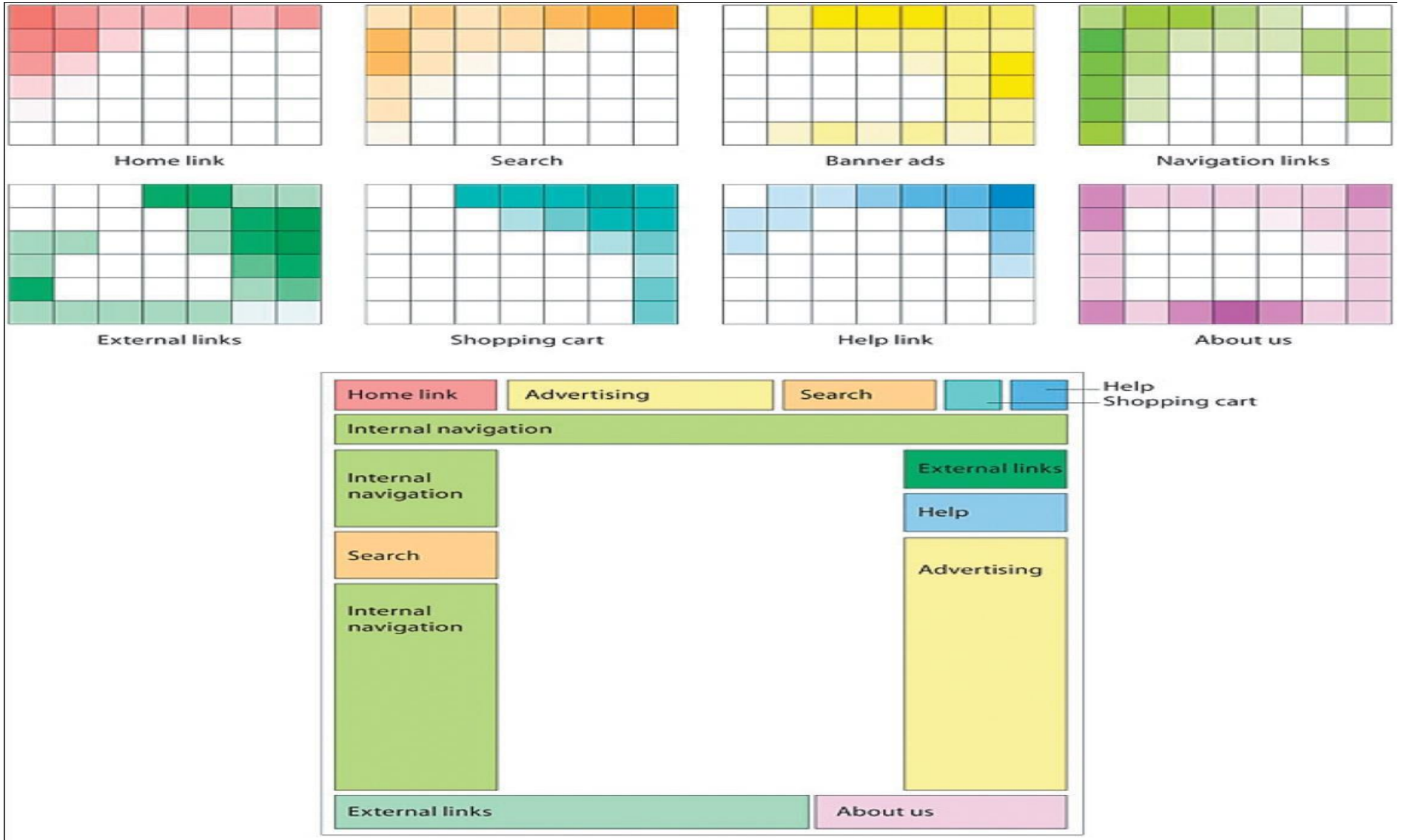


Figure 2-31 User expectations of Web page element locations
(Source: Courtesy of Patrick J. Lynch and Sarah Horton)

Design for the Screen

- The computer display is very different from print-based media; the display is landscape-oriented for desktop, portrait and landscape for mobile apps etc.
- Know what expectations your user might have about your navigation and content
- Users have come to expect common elements of a Web page in certain locations

Keep a Flat Hierarchy

- Do not make users navigate through too many layers of information
- Includes section on topic-level navigation pages
- Create content sections organized logically by theme
- Follow the three clicks rule; a user of a **website** should be able to find any information with no more than **three** mouse **clicks**.
- Use consistent navigation
- Consider providing a site map

Use Hypertext Linking Effectively

- You determine where users can go on your Web site
- Let users move from page to page or section to section as they please
- Use contextual linking
- Avoid the use of “click here”
- Provide plenty of navigation options

How Much Content Is Too Much?

- Don’t overcrowd your pages with information
- Be conscious of the cognitive load of the user
- Carefully divide content into smaller sections
- Present content in a structured manner
- Provide plenty of navigation cues.

Reformat Content for Online Presentation

- Cannot post print documents directly online
- Text length, font, and content length do not transfer well
- Re-design paper content for online display

Designing for Accessibility

- Your audience includes users who have physical challenges;
- Design your pages to be accessible to users with disabilities or technological barriers
- Common accessibility features can be unobtrusive additions to your site
- Developing accessible content naturally leads to creating good design
- Follow W3 Accessibility Initiative guidelines at www.w3.org/WAI/ .

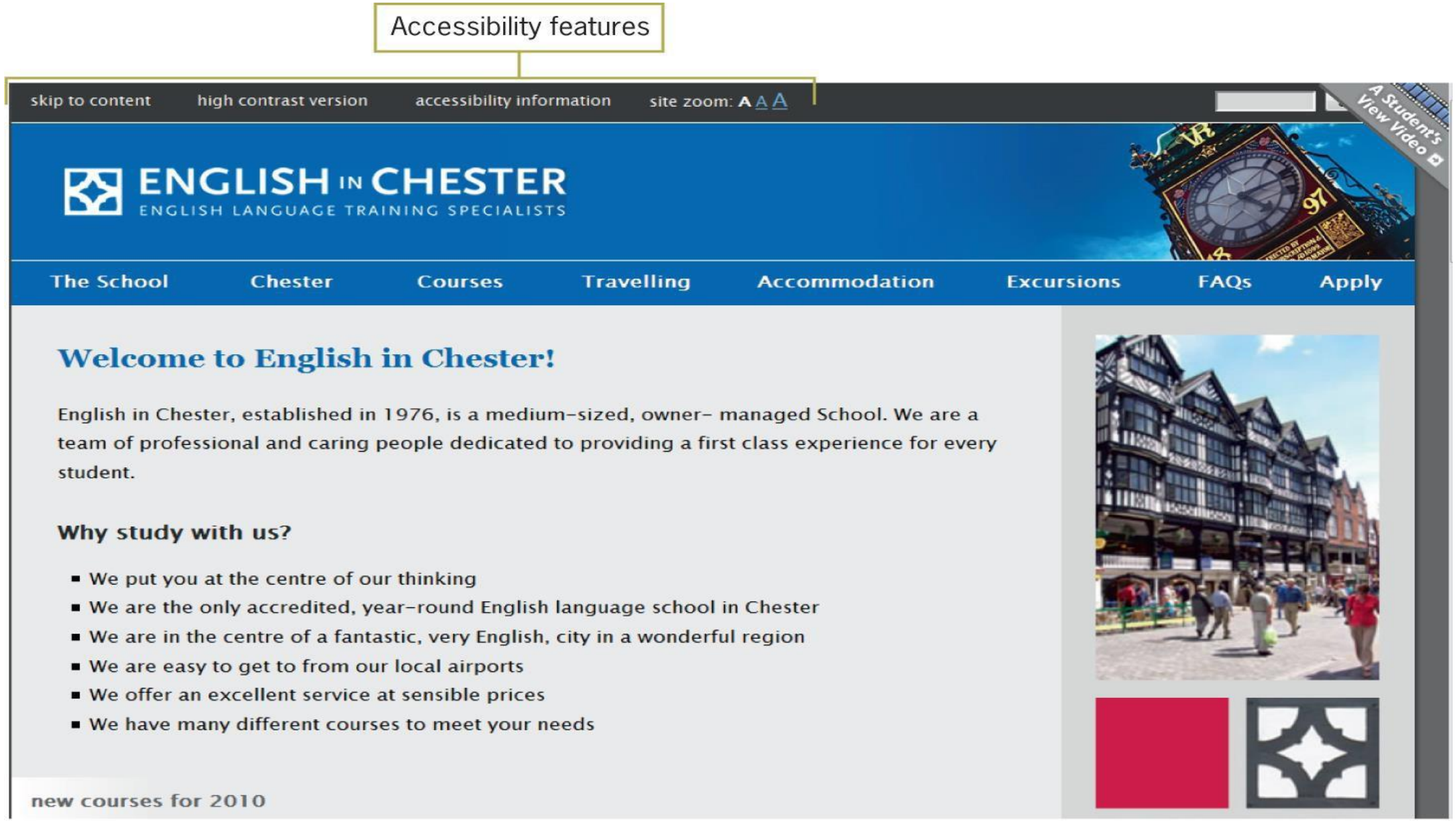


Figure 2-37 English in Chester Web site accessibility features

Summary

- Craft an appropriate look and feel;
- Make a design portable;
- Plan for easy access to your information;
- Design a unified look for your site;
- Use active white space;
- Know your audience;
- Leverage hypertext linking;
- Design text for online display;
- Test your work continually as you build;
- Build accessibility from the start.

Understanding the Web Site Development

- You need a good project plan;
- Larger projects need a project manager;
- Adopt a development framework; and
- The project life cycle encompasses the entire project from start to finish.

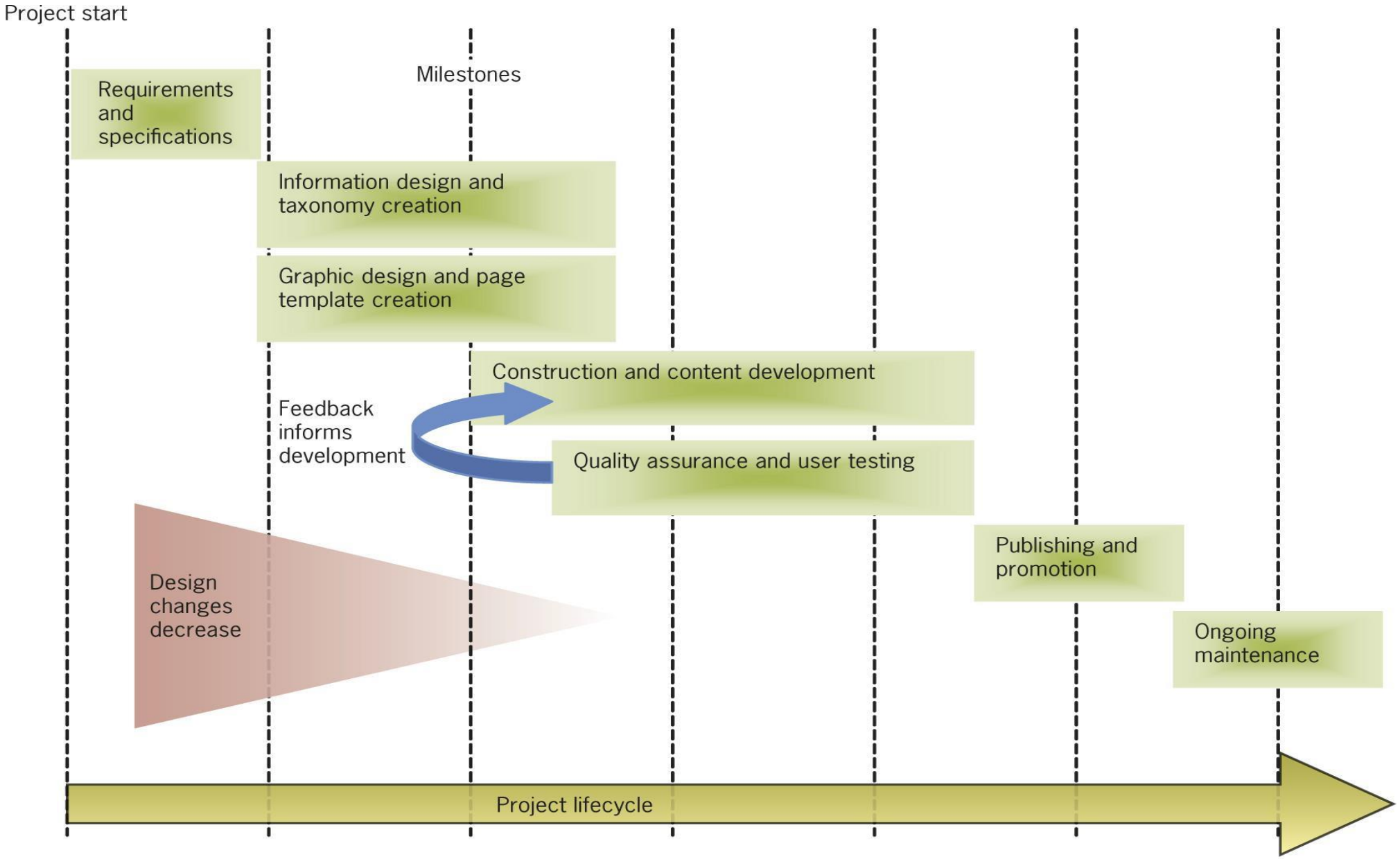


Figure 3-1 Web development project lifecycle

Requirements and Specification

- The client presents the requirements for the site
- Requirements are the list of customer needs
- The project team breaks the requirements down to tasks
- The team prepares a project specification that contains:
  - Page layout sketches
  - Audience definition
  - Technical requirements

Information Design and Taxonomy Creation

- User analysis guides the design of site content
- Goal is to create meaningful content navigation
- Taxonomy is a classification and naming of contents in a hierarchy
  - The taxonomy of the site structures, the topic hierarchy and navigation

Creating a Site Specification

- Who is the client for the site?
- Can you write a two- or three-paragraph mission statement that briefly states the site's goals?
- What do you envision as the goal of the site?
- What do you (or your company or organization) hope to gain from creating and maintaining a Web site?
- What are the requirements for the Web site?

Creating a Site Specification

- Are the requirements feasible?
- How will you judge the success of the site?
- Who is the target audience?
- What are the limiting technical factors?
- What is the budget?
- Is this a new site or an upgrade?

Identifying the Content Goal

- Examine closely what type of site you are building
- Your objectives and your users' objectives may be quite different
- Adopt your users' perspective
- Think about the type of content you're presenting and look to the Web for examples of how best to present it

Identifying the Content Goal

- Types of Web sites:
  - Billboard
  - Publishing
  - Portal
  - Special interest
  - Blog
  - Social networking

Identifying the Content Goal

- Wikis
- RSS
- Virtual gallery
- E-commerce, catalog, online shopping
- Product support
- Intranet/Extranet

Analyzing Your Audience

Produce an audience definition:

- What is it that users want when they come to your site?
- How can you attract them and entice them to return for repeat visits?
- What type of computer and connection speed do your typical visitors have?

Analyzing Your Audience

- Who are the typical members of your audience?
  - Are they male or female?
- What level of education do they have?
  - What is their reading and vocabulary level?
  - What level of technical aptitude do they have?
- Why do people come to your site?
  - Do they want information?
  - Do they want to download files?
  - Are they looking for links to other Web sites?

Using Web Analytics

- Web analytics are statistics gathered by Web servers
- Reporting tools can analyze the statistics
- You can track user activity on your Web site
- You can see where your visitors come from and which pages they like the best

Identifying Technology Issues and Accessibility Constraints

- Think about where users are located and what their technology level might be
- Test in different environments and with different technologies
- Consider the physical capabilities of your users

Identifying Technology Issues and Accessibility Constraints

- You can identify accessibility constraints
- Review the WCAG 2.0 and section 508 guidelines
- In new sites, plan for accessibility
- In existing sites, assess the current accessibility
- Look to other real-life accessibility implementations

Creating a Site Storyboard

- ❑ Plan your site by creating a storyboard flowchart
- ❑ The flowchart shows structure logic and taxonomy
- ❑ This is an important planning step
- ❑ You can visualize and refine your site design

Organizing Information Structure

- ❑ Think about your users' information needs
- ❑ How should your information design map look?
- ❑ Review the following sample structures and adapt them to information needs

Linear Structure

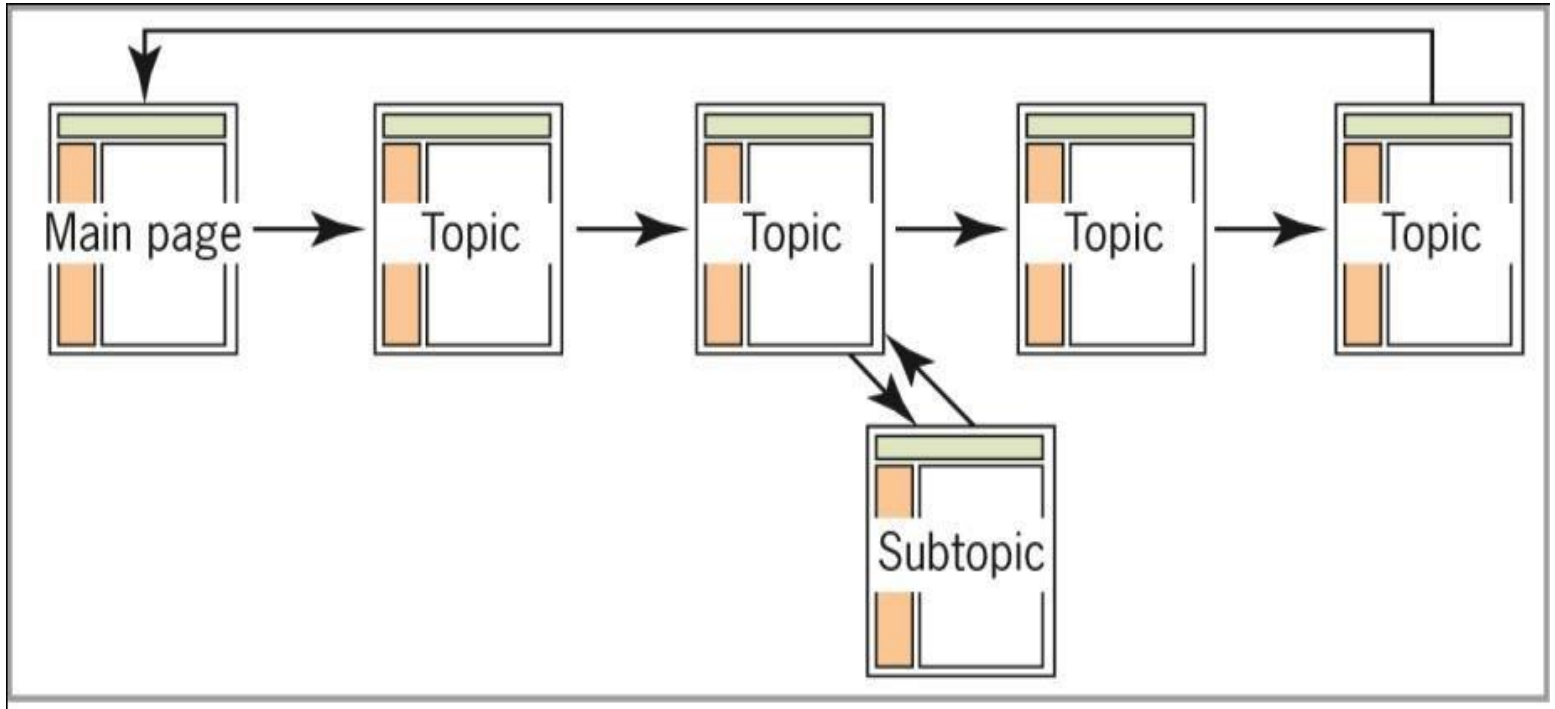


Figure 3-11 Linear information structure

Web Site Structure

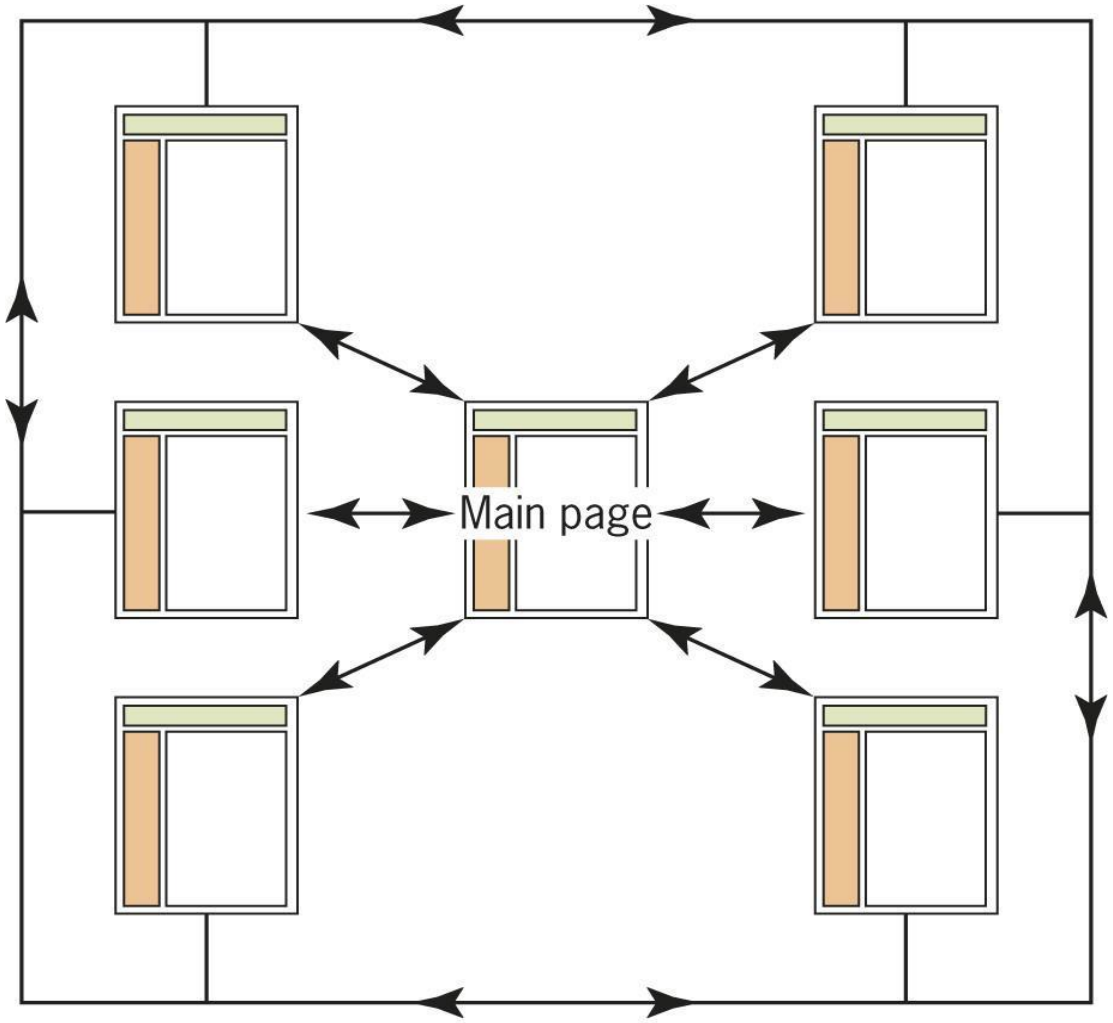


Figure 3-13 Web structure

Hierarchical Structure

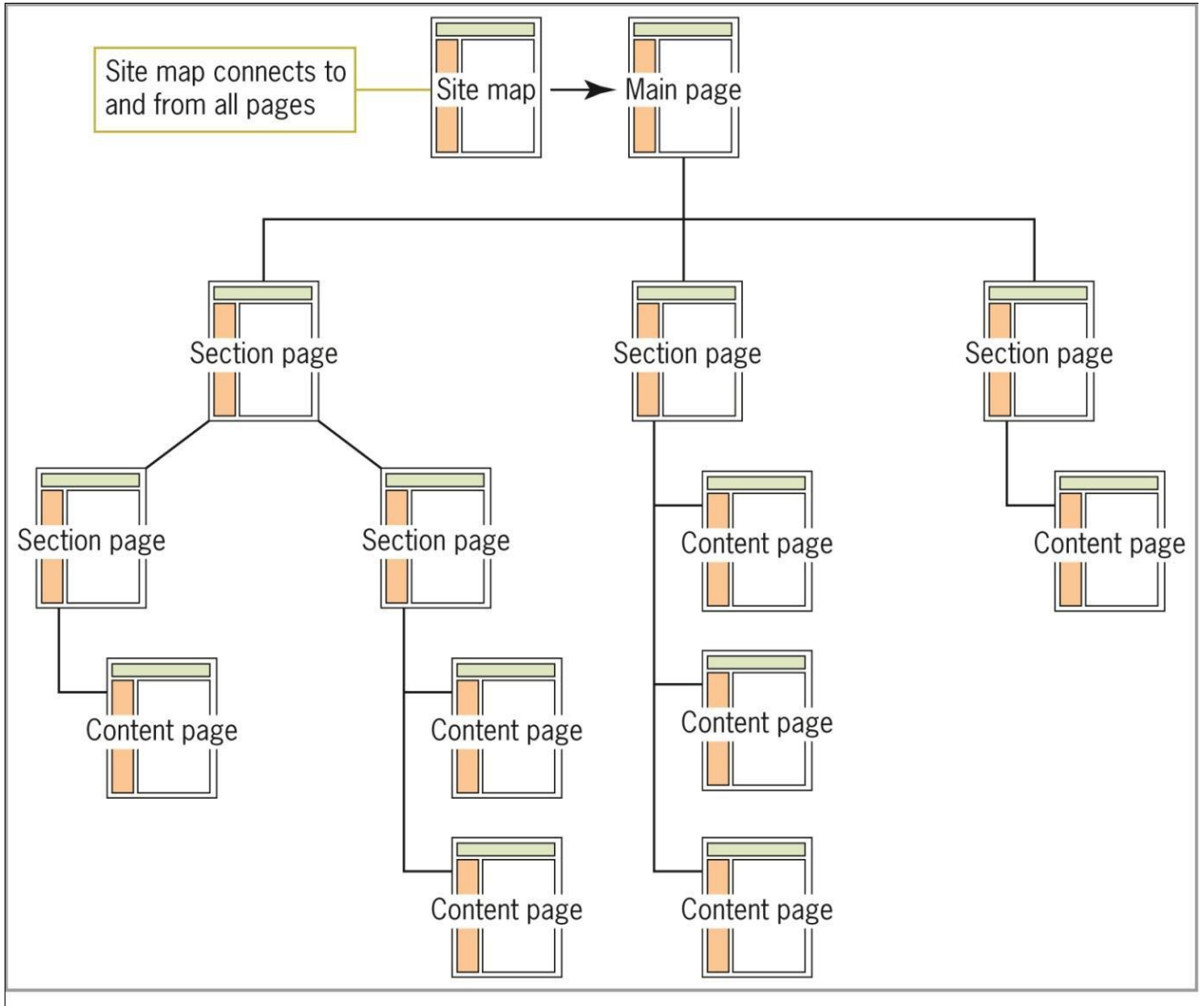
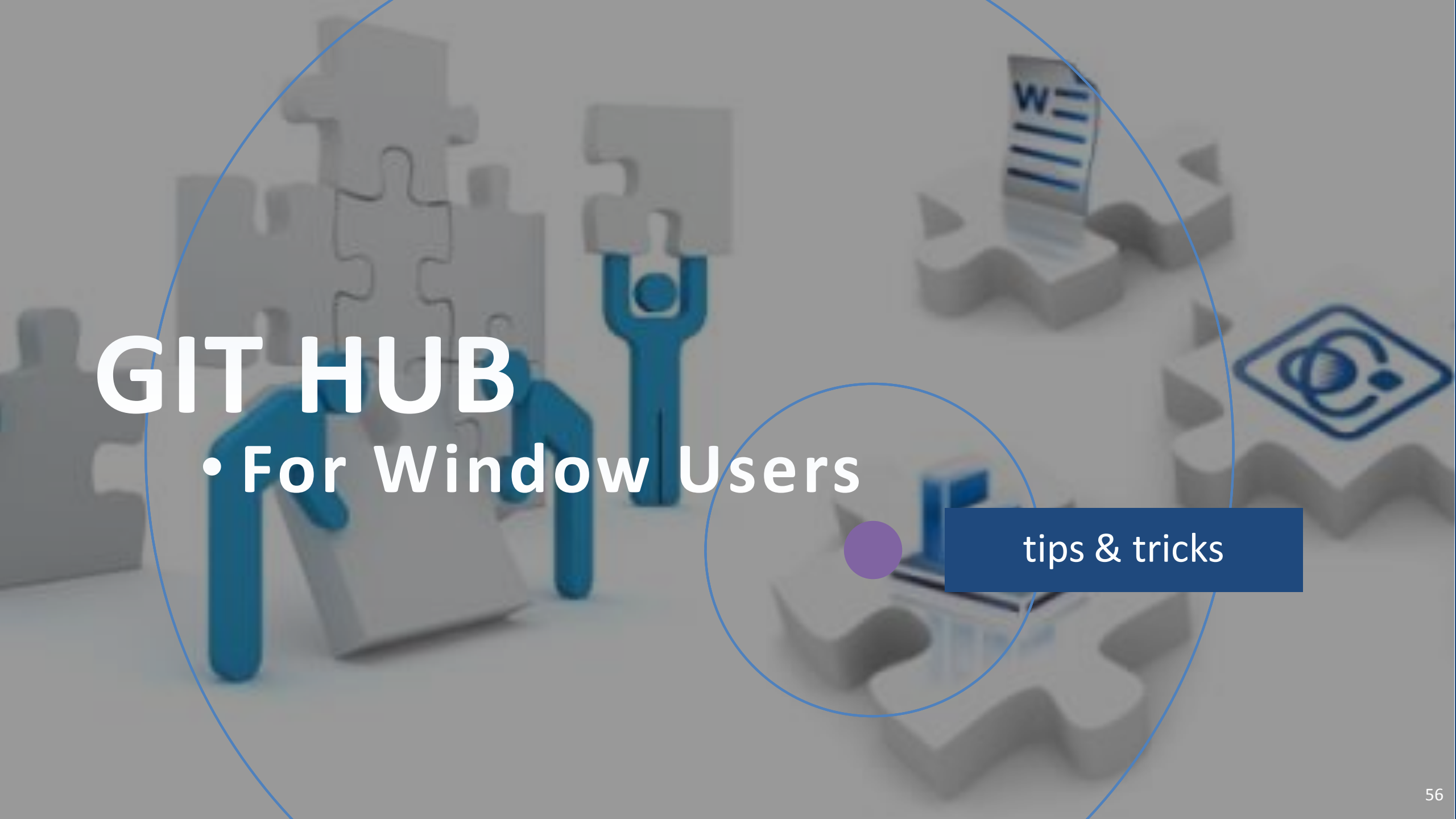


Figure 3-14 Hierarchical structure

Summary - I

- A successful Web site is the result of careful planning
- Become familiar with the Web development lifecycle
- Start with pencil and paper
- Write a site specification document
- Identify the content goal
- Analyze your audience
- An effective site is a team effort



GIT HUB

- For Window Users

tips & tricks

What is version control?

1. It is a system that keeps record of your code changes.
2. Allows you to undo or revert to any of your previous code state.
3. Allows for team environment and collaborative development.
4. Keeps track of who made the changes and when.

Quick Guide to GitHub

- Make an account
- Create repository in GitHub
- On your machine make a folder or use an existing folder.
- From your machine command line:
  - Use command: **git clone** <path of repository you created on GitHub>
  - Create file in the folder you created
  - Use **git add** <filename>
  - Then see the status using **git status**
  - If you see that your file is there, in red
  - Use **git commit** –m “any message”
  - Then use git status again to see that your file should be visible in green.
  - To send it to your online GitHub, use **git push** and file name
  - To download a file from the github, use **git pull** command.

```
3/11/2017  04:21 PM    <DIR>          .
3/11/2017  04:21 PM    <DIR>          ..
7/09/2017  01:23 PM    <DIR>          A2
3/11/2017  04:21 PM    <DIR>          hello-world
3/11/2017  04:20 PM    <DIR>          Test
```

```
C:\Users\aatiq\Desktop\A2\Test>git add First.html
```

```
C:\Users\aatiq\Desktop\A2\Test>git status
```

```
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   First.html
```

```
C:\Users\aatiq\Desktop\A2\Test>git commit -m "I added a grocery file"
[master f3f138e] I added a grocery file
 1 file changed, 8 insertions(+)
 create mode 100644 First.html
```

```
C:\Users\aatiq\Desktop\A2\Test>git push
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 339 bytes | 169.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/ArzooAtiq/Test
   869080b..f3f138e  master -> master
```

```
C:\Users\aatiq\Desktop\A2\Test>git pull
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/ArzooAtiq/Test
   f3f138e..0620bb7  master     -> origin/master
Auto-merging First.html
CONFLICT (content): Merge conflict in First.html
Automatic merge failed; fix conflicts and then commit the result.
```

Useful HTML Elements

- <section>
-
-

- It is used for giving structure to HTML pages.
- Divides the web page into different divisions.
- Why? It is helpful in formatting and layout designs separation.
- Syntax:
  -
    <h3>This is a heading</h3>
    This is a paragraph.

  - In HTML5 there is a <header> element, as well as a <nav>, <footer> and a couple other new elements that replace these div tags.

Quick Guide

- The new **section** element defines a part of a website with related content. It should not be used as a generic container element or for pure styling purposes. In that case rather use a simple div.
- An **article** defines an independent piece of content which should be able to stand alone and still make sense.
- A **header** defines a header for a document or a section.
- A **footer** is used for defining the footer of a document or a section.
- A **nav** defines a set of navigation links which should be the main navigation of your website.
- An **aside** defines a section with secondary content. If an aside is placed within an article the content should be related to that specific article. If it is placed outside an article the content should be related to the site as whole.

<section> Element

- The <section> element and the elements we have covered in the last five pages are examples of what are known as **semantic HTML.**
- **Semantic HTML is the use of HTML markup to reinforce the semantics, or meaning, of the information in webpages rather than merely to define its presentation. (wiki)**

When to use?

- If all you want to do is have something look different use a div tag (a generic *container*) and CSS styles.
- If you want a particular part of a page separated from the rest of the page due to the information in it - its "content", use section elements (a generic *section*). Use the section element if there is what W3C calls a "semantic" distinction.
- All these new tags: header, nav, article, footer, aside and section are as a group called *section* elements

element

- The HTML element is a generic inline container for phrasing content, which does not inherently represent anything.
- It can be used to group elements for styling purposes (using the class or id attributes), or because they share attribute values, such as lang.
- It should be used only when no other semantic element is appropriate. is very much like a element, but is a block-level element whereas a is an inline element.

Block-level elements vs Inline elements

- A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).
- An inline element does not start on a new line and only takes up as much width as necessary.
- https://www.w3schools.com/html/html_blocks.asp