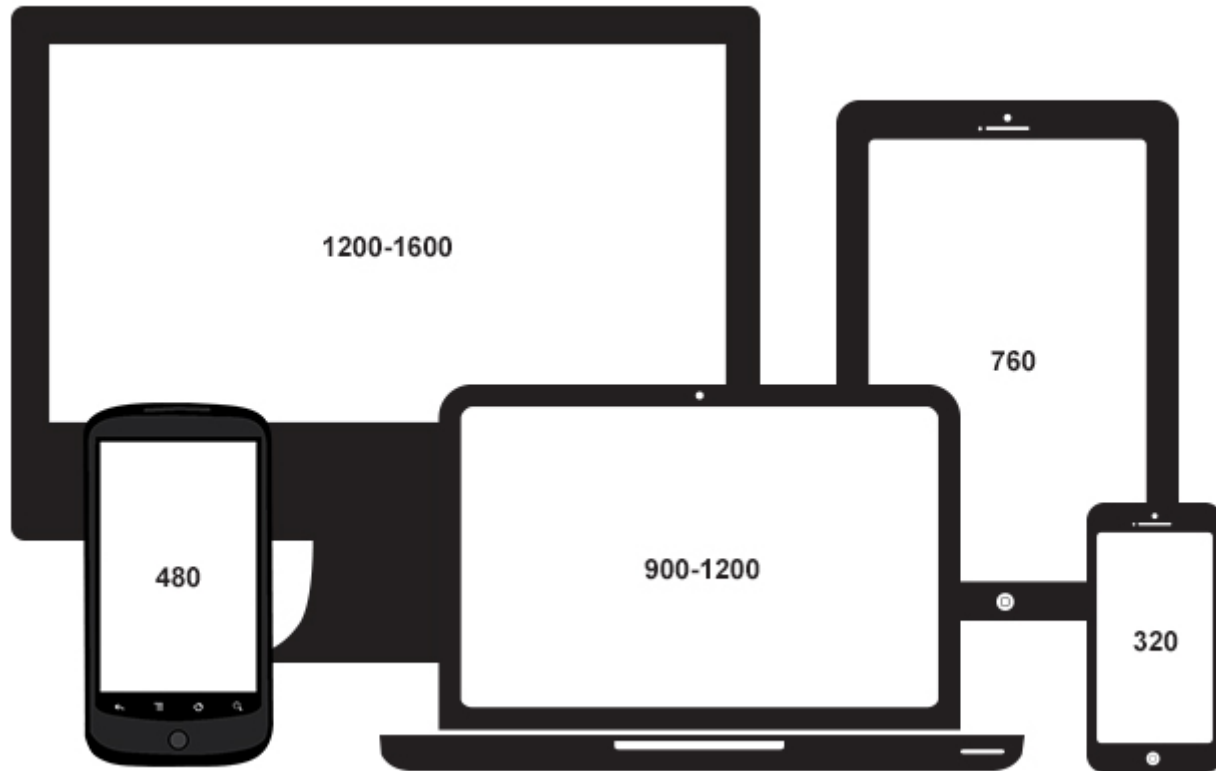
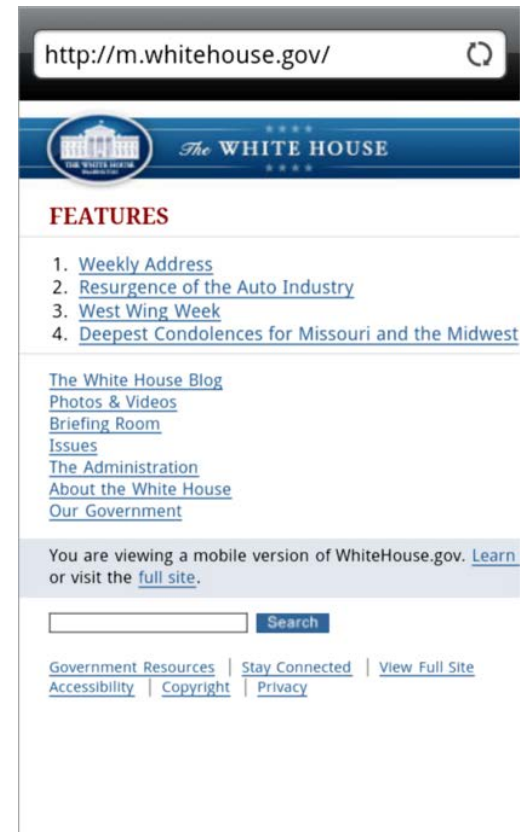


Mobile Design Considerations

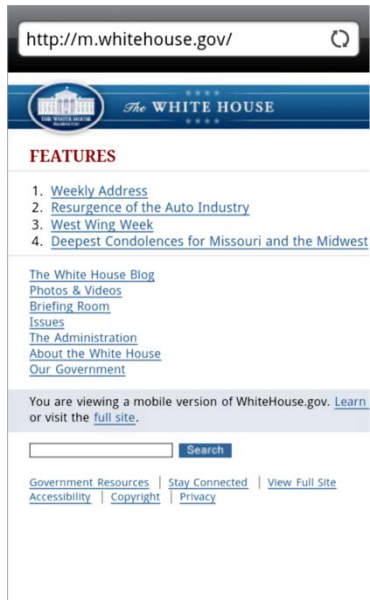


Mobile Web Limitations

- Small Screen Size
- Low bandwidth
- Awkward controls
- Limited processor and memory
- Lack of Adobe Flash support



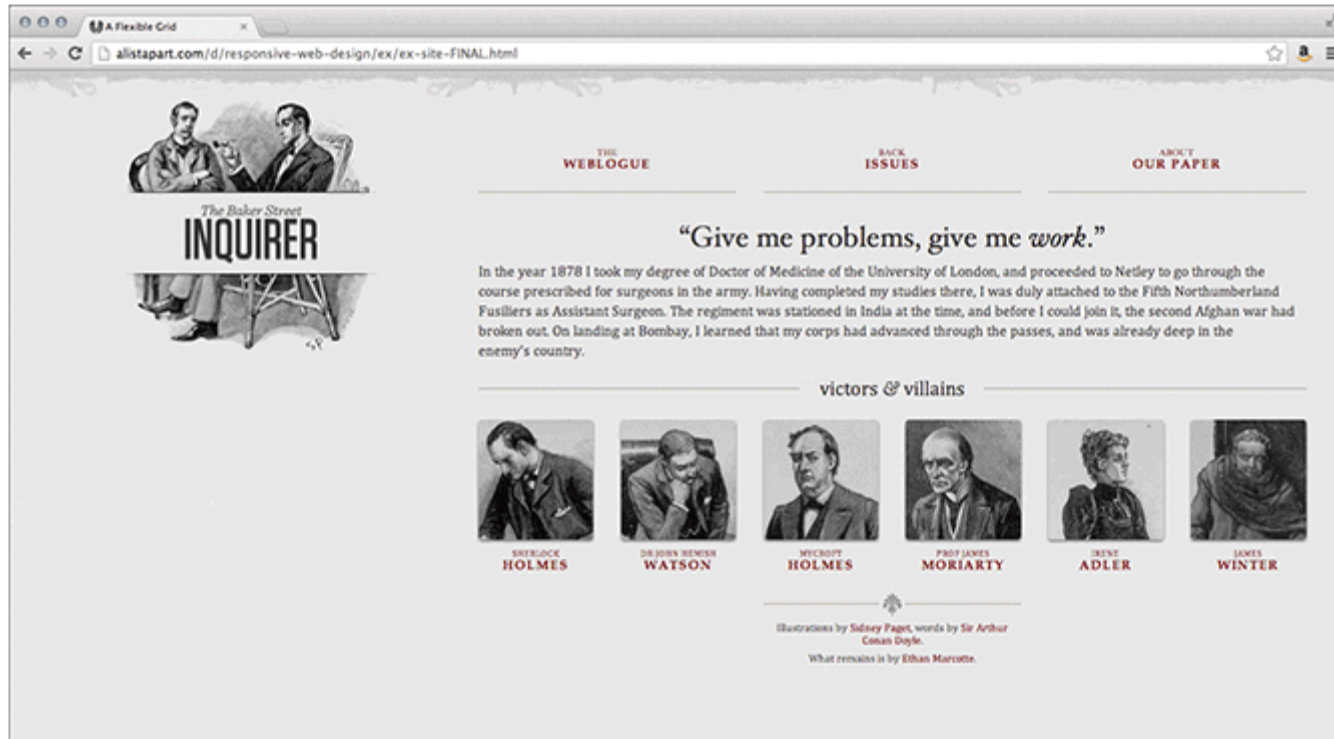
Mobile Web Design Best Practices



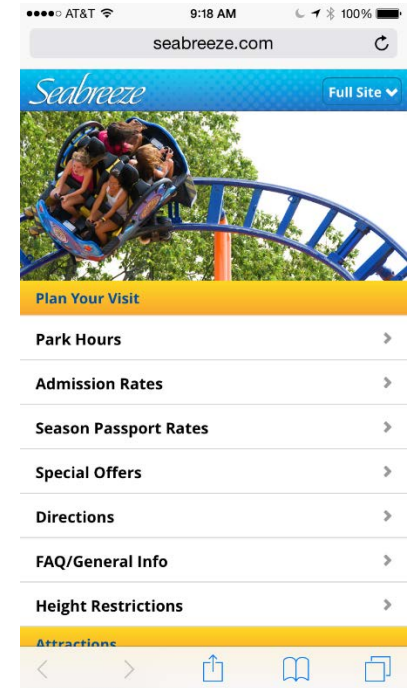
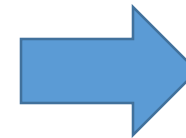
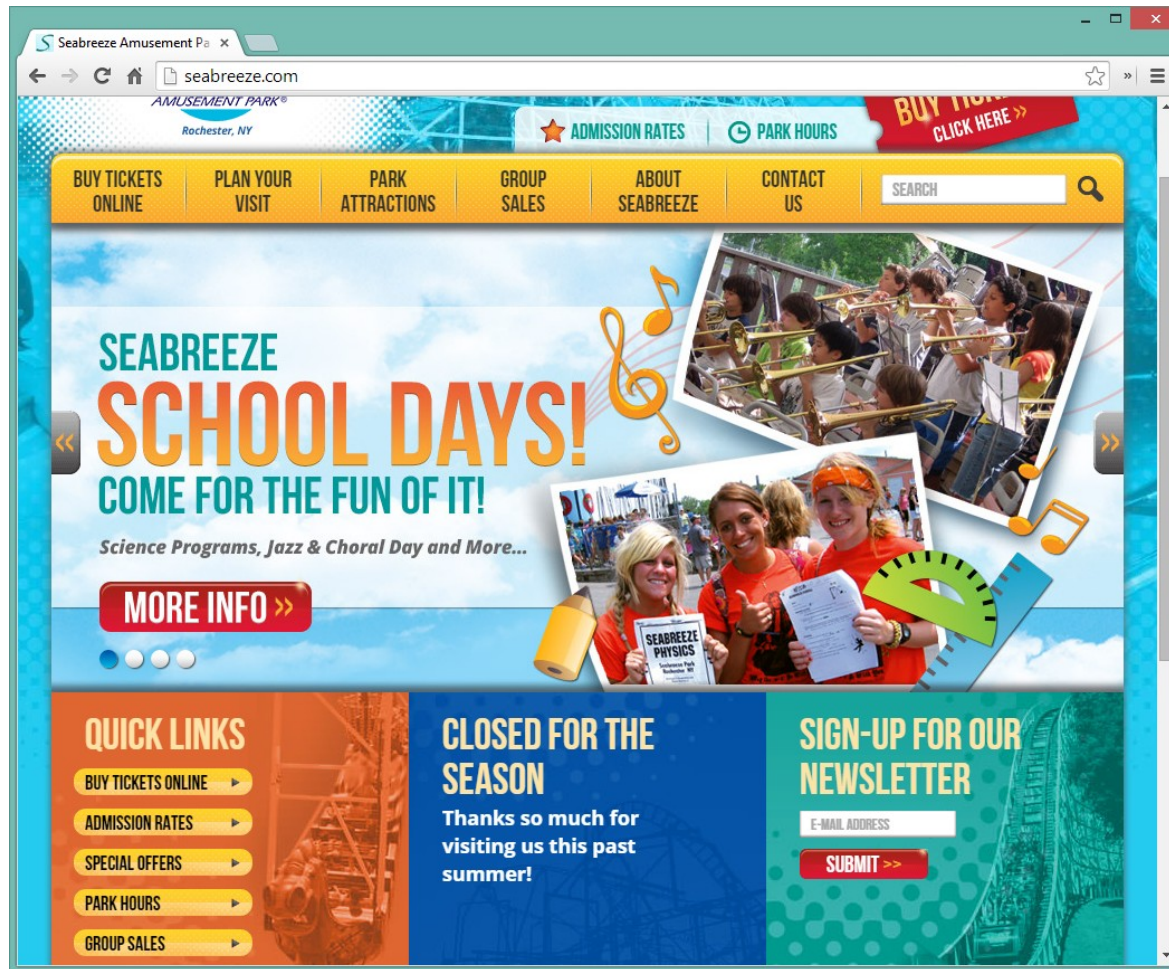
- Recommended by the W3C
 - <http://www.w3.org/TR/mobile-bp>
 - http://www.w3.org/2007/02/mwbp_flip_cards.html
- Optimize for Mobile Use...
- Layout
- Navigation
- Graphics
- Text

Adaptive and Responsive

Responsive

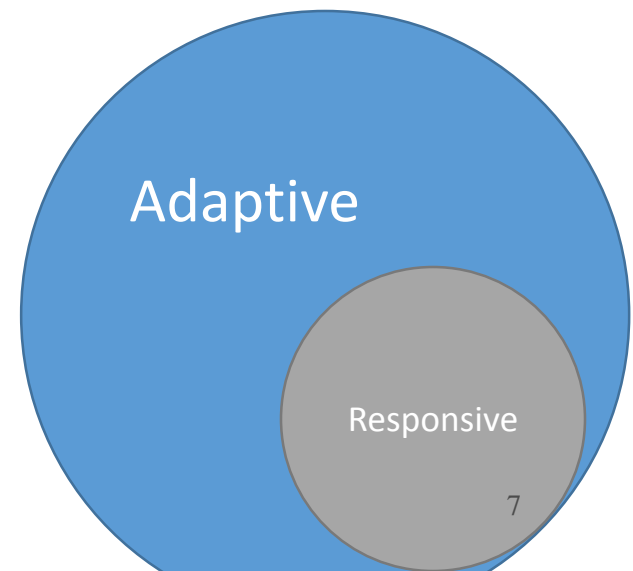


Adaptive



Adaptive and Responsive

- Responsive: "responds" to changes in the client device (including the web browser) to alter the presentation
 - When the user re-sizes the web browser
 - When the user rotates the hand-held device
- Adaptive: reconfigures the content's presentation based on the current parameters of the device
 - Adaptive will swap in/out content and layout based on the capabilities of the device
 - Responsivness is a form of Adaptive behavior



Adaptive and Responsive (cont'd)

- Responsive Web Design

- The most common One Web approach - typically, client-side
- Proportional-based size values modify the presentation of a website based on the width and height of the browser's viewport.
 - In CSS: width, height ...using percentages or "em" or "rem" units

- Adaptive Web Design

- Client-Side Adaptive

- Determine how to layout a webpage on the device, in real-time
 - Takes advantage of device capabilities (e.g. Retina Display)
 - Uses client-side technologies: typically CSS "media queries"; sometimes JavaScript

- Server-Side Adaptive

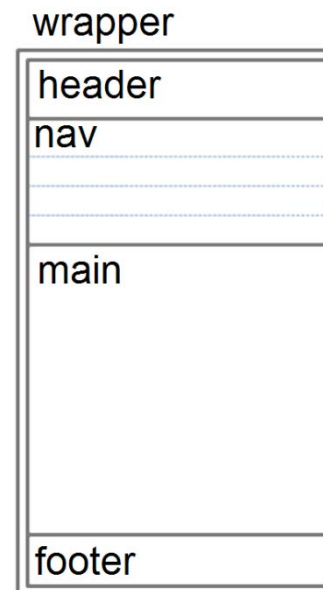
- Determine how to layout a webpage on the server, based on the HTTP request
 - Customized templates for various device-types; optimized content that loads faster
 - Requires deep configurations of the server and a lot of server-side scripts

Best Practices

Layout, Navigation, Graphics, Text

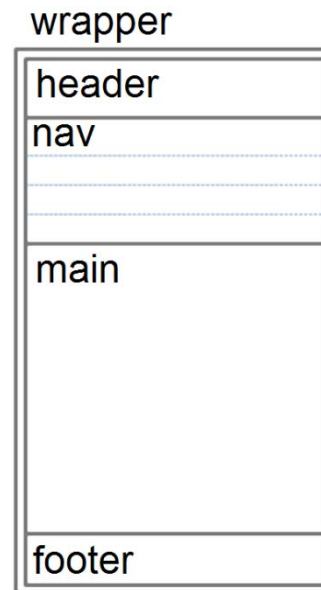
Optimize Layout for Mobile Use

- 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.



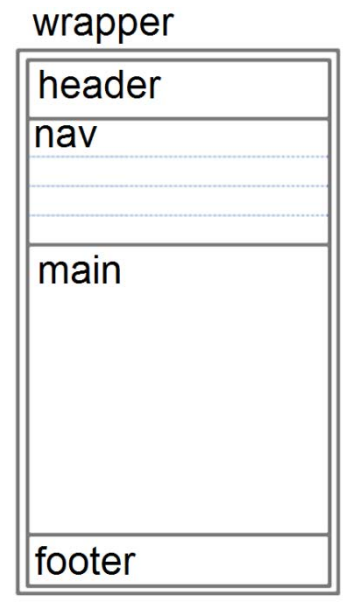
Optimize Navigation for Mobile Use

- Provide minimal navigation near the top of the page
- Provide consistent navigation
- Avoid hyperlinks that open files in new windows or pop-up windows



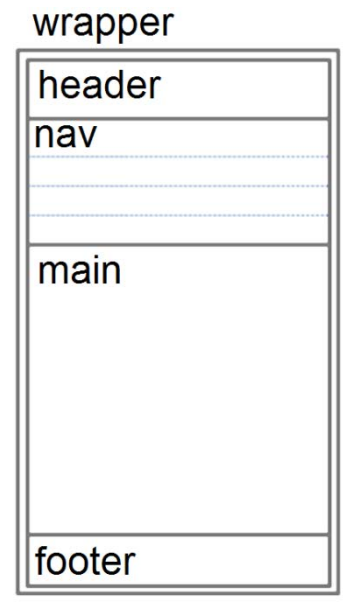
Optimize Graphics for Mobile Use

- 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
- 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



Remember: images can scale; text stays the same size

Techniques

Mobile Design Activities

Three techniques:

- Add viewport meta tag
- Scale images and tables as necessary
- Use media queries to UNDO desktop layouts

Goals:

- No horizontal scroll bars
- Elements fit their containers
- Content is usable (readable & clickable/tappable)

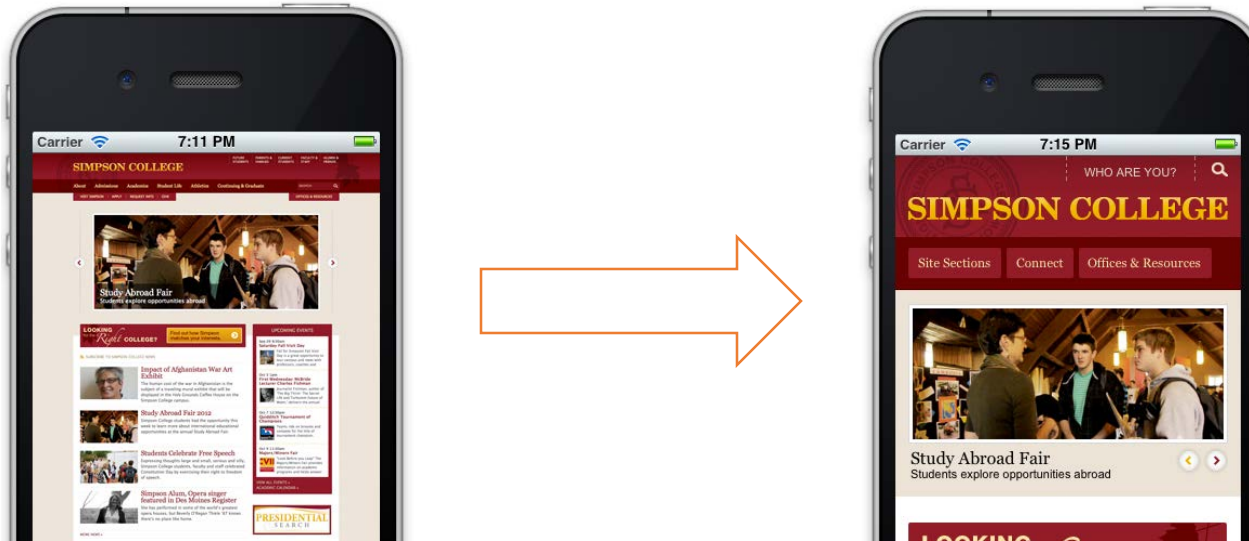
Viewport Meta Tag

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

The fix...

- Viewport Meta Tag
- Created as an Apple extension to configure display on mobile devices
- Configures width and initial scale of browser viewport
- Insert, in the <head>...

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



Flexible Images in HTML

Desktop Browser



Tablet
Display Width



Smartphone
Display Width



- In the HTML:
 remove height and width attributes
- In the CSS:
 and/or

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="max-device-width: 480px">
```

- Examples within CSS

```
@media (max-width: 768px) {
    //CSS here
}
@media (max-width: 480px) {
    //CSS here
}
```



Reference:

https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Media_queries