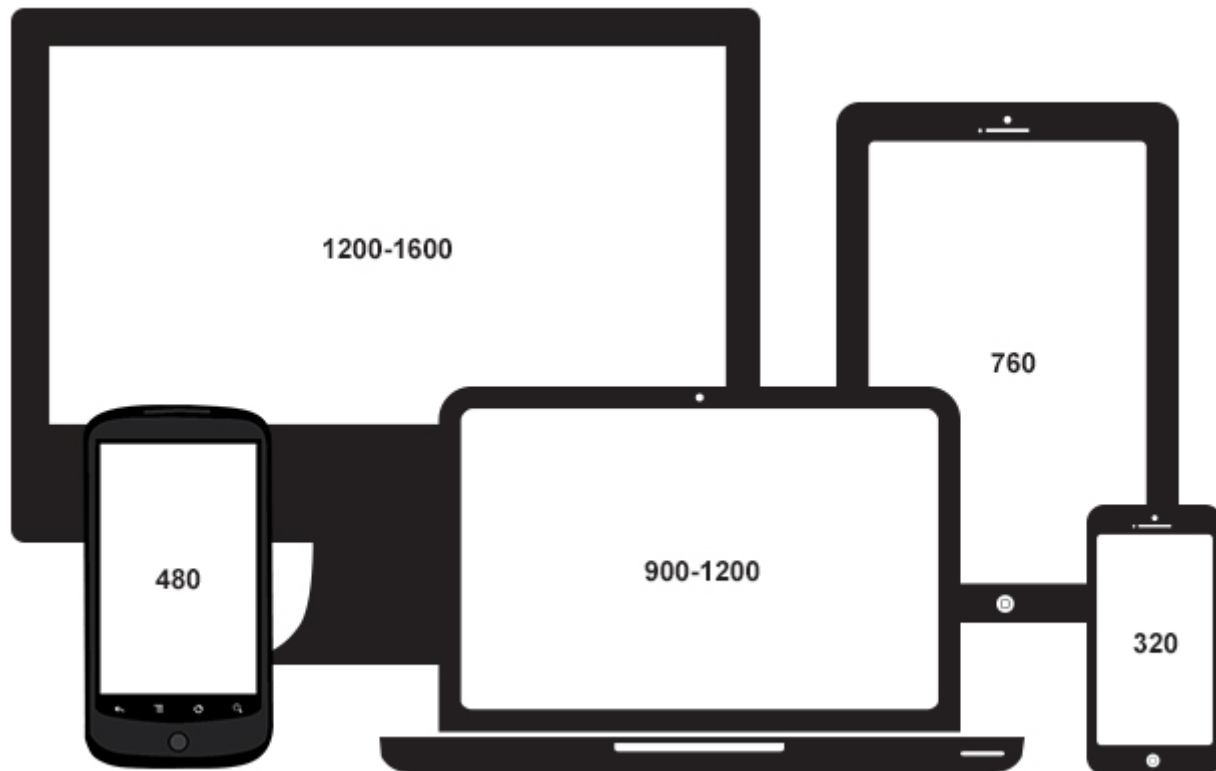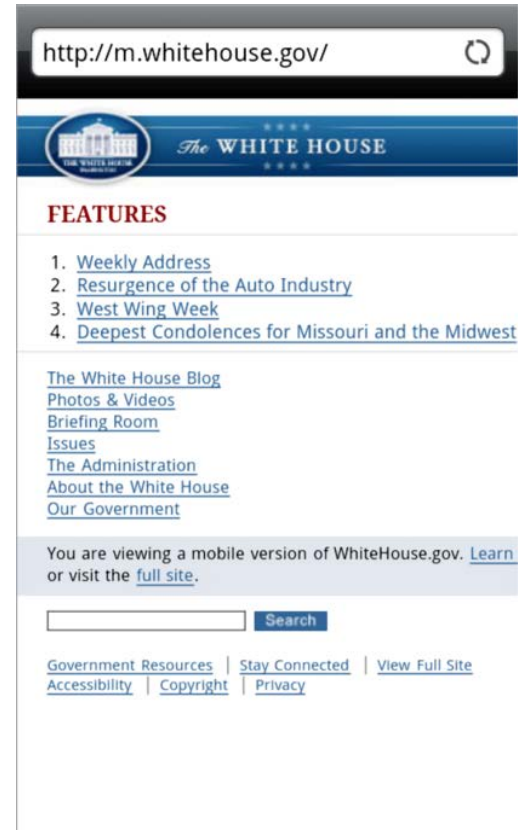# Mobile Design Considerations
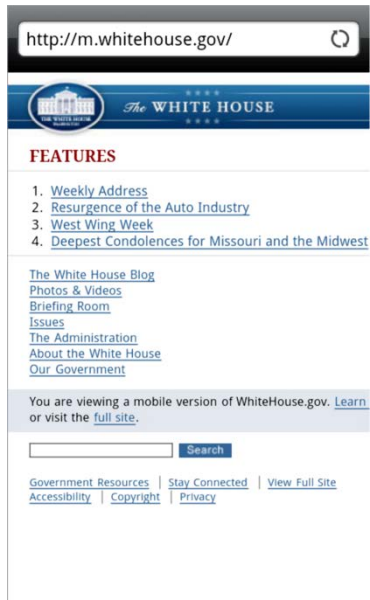
Mobile Web Limitations

- Small Screen Size

- Low bandwidth

- Awkward controls

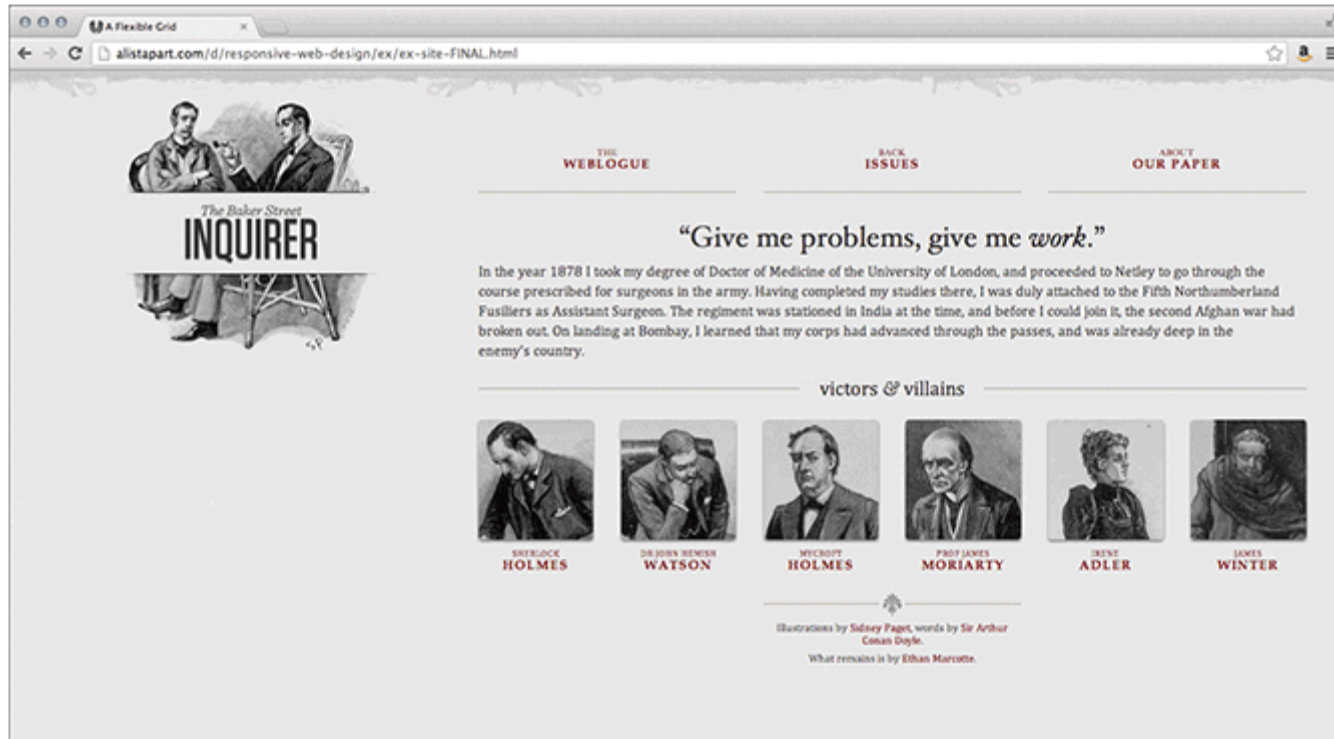- Limited processor and memory

- Lack of Adobe Flash support

Mobile Web Design Best Practices
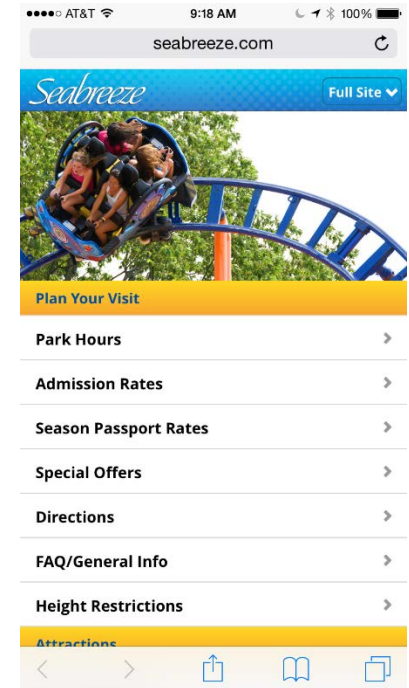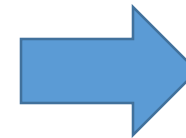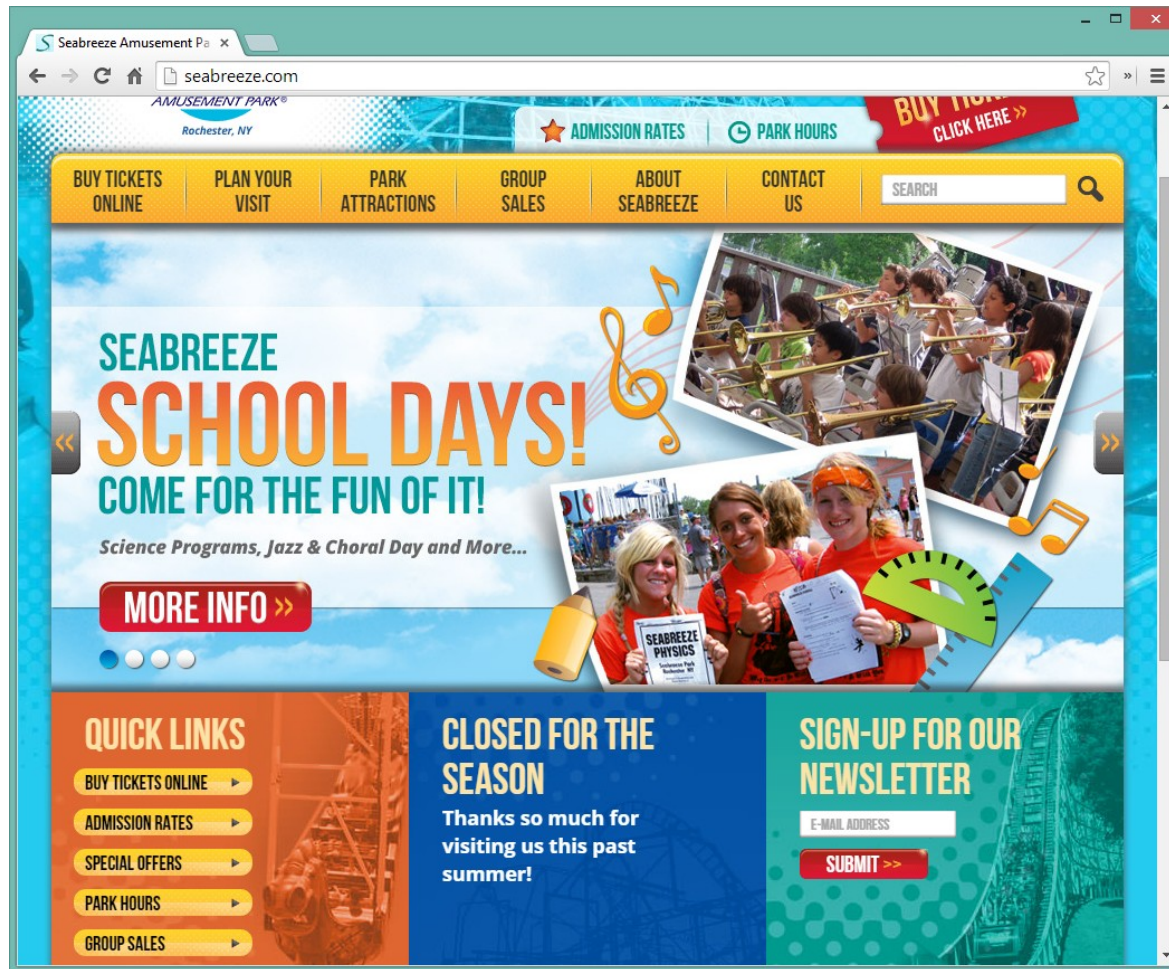

- Recommended by the W3C
  - http://www.w3.org/TR/mobile-bp
  - http://www.w3.org/2007/02/mwbp_flip_cards.html

  - 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
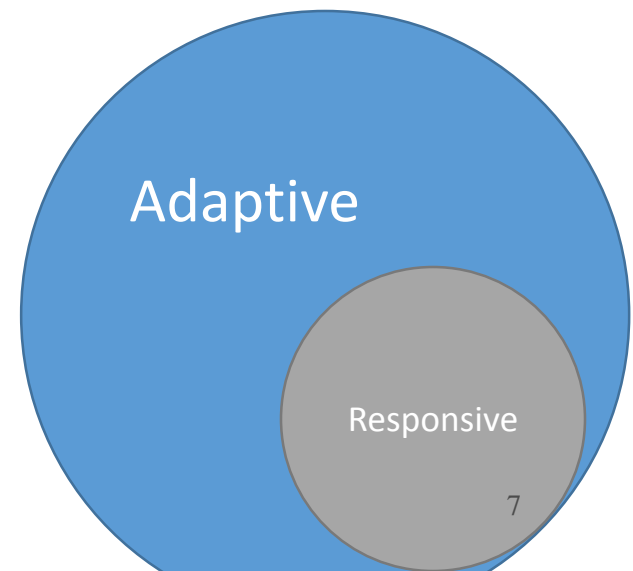
Responsive

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-size 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.
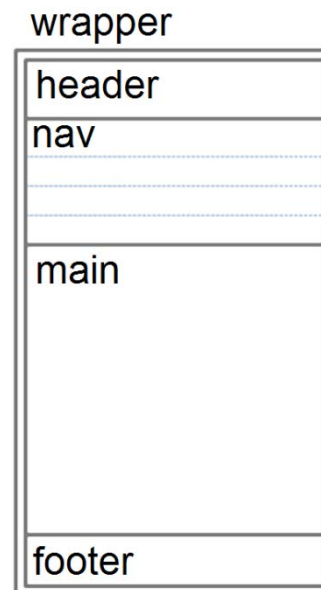
Optimize Navigation for Mobile Use

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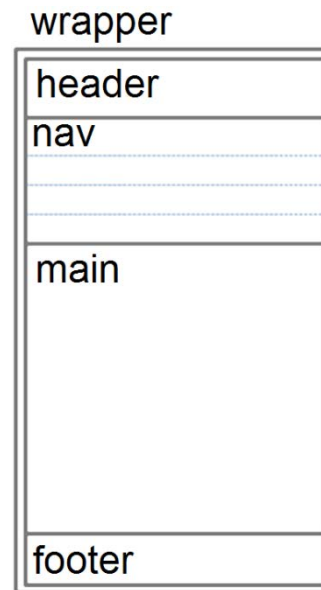
Optimize Graphics for Mobile Use

- 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.
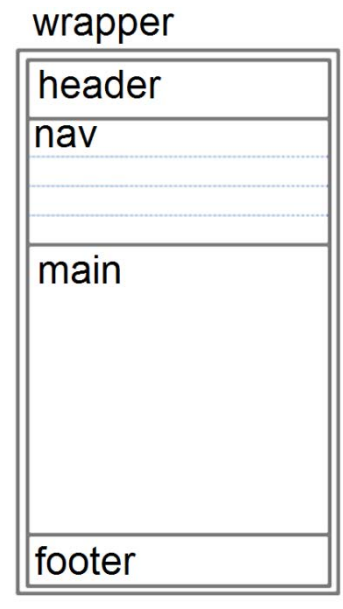
- Configure good contrast between text and background colors

- Use common font typefaces

- Configure font size with em units or percentages

- Use a short, descriptive page title
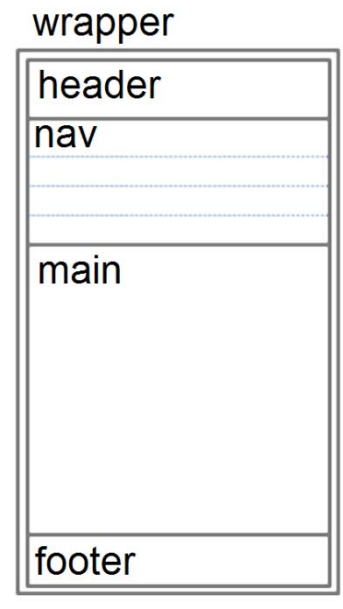
Remember: images can scale; text stays the same size
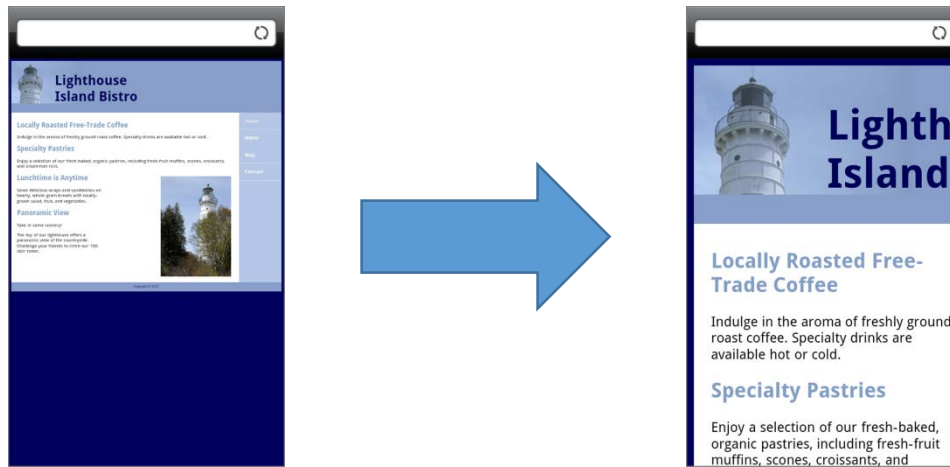
Techniques

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">
```


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Flexible Images in HTML

Desktop Browser · **Tablet Display Width** · **Smartphone Display Width**

- In the HTML:
    remove height and width attributes

- In the CSS:
```
img { max-width: 100%; }
```
    and/or
```
img {width: 100%; }
```

Note: this technique works on any HTML element, not just images. Tables too.

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Media Queries

- Rather than looking for a type of device a media query looks at the capability of the device, and you can use them to check for all kinds of things.
  - width and height (of the browser window)
  - device width and height
  - orientation – for example is a phone in landscape or portrait mode?
  - resolution
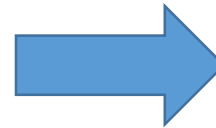
Media Queries (continued)

- 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">
```

- Example within CSS

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

}
```


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