Responsive and Adaptive Designs

- Confusing Terminology
- "Responsive" can be an umbrella term for both
- Both about page effective at different screen sizes
- Neither denies nor requires "gutters"
    - Some designs don't go full width
    - Essentially a max width
    - Has empty/background "gutters" on sides
    - **http://examplecat.com/** over 700px wide

Responsive Design

- A page that uses available size
- Content wraps as needed
- HTML is naturally responsive!
    - But we can mess it up with styling
    - Important to regularly check

Adaptive Design

- Changing layout at certain breakpoints
- Not automatic
    - Uses media queries for screensize
- Allows for good use of space
    - Not just wrapped use of space

How?

TL;DR: Media queries

- CSS operates off of 2+ options for layout
    - Based on viewport dimensions
    - Can reorder elements in layout
    - Can collapse menus/sections
- May target:
    - Mobile/Desktop
    - Mobile/tablet/desktop
    - Landscape/portrait(s)/desktop/widescreen
    - Or just where it content benefits

Grey Area (Gray Area?)

Is this Responsive or Adaptive?

- media queries to how many items shown
- flexbox/grid to vary items/row w/o media query

Read multiple results for "Responsive vs Adaptive"

- Will get different answers
- Doesn't really matter
  - What we call it doesn't impact users
- I'll call those "Adaptive"

Simple example

Page:

- header
- menu
- content
- footer

Desktop size:

- Vertical to left of main content

Mobile size:

- Horizontal menu across top of main content

Sample HTML

```html
<header class="header"> <h1>Kitten Co.</h1> </header>
<nav class="primary-nav">
  <ul class="menu">
    <li><a href="#">Play</a></li>
    <li><a href="#">Eat</a></li>
    <li><a href="#">Sleep</a></li>
    <li><a href="#">Blerp</a></li>
  </ul>
</nav>
<main class="main">
  <p>
      Ipsum nemo iste vel lorem officiis dicta!
      Tenetur amet dolor ratione quas excepturi. Libero
      recusandae excepturi perspiciatis
  </p>
  <p>Lorem ipsum repellendus magni soluta libero.
  Accusamus mollitia molestias temporibus</p>
</main>
<footer class="footer">
  Gifts of catnip are accepted
</footer>
```

Media Queries

```css
@media (min-width: 1000px) { /* at least this width */
    /* CSS Rules here */
}

@media (max-width: 1000px) { /* below this width */
}

@media (min-width: 600px) and (max-width: 1000px) {
    /* a middle size */
}

@media (600px <= width <= 1000px ) {
    /* Newer range syntax (confirm age on caniuse.com) */

@media (width > 760px) {
    /* Also newer range syntax - as of May 2023 for Safari*/
}
```

But how do we test mobile?

Not perfect, but helpful

DevTools has many preset mobile options

- Why doesn't the mobile work?!
- Desktop resizing does!

Mobile Cheats

- Layout viewport
    - Media query checks!
- Visual viewport
    - Allows for zoom and pan

Most mobile devices render as if a larger size

- then zoom out

Override with

```
<meta name="viewport" content="width=device-width">
```

Don't stay in mobile mode!

I'm not sure why many students do this

- Use mobile mode to test mobile sizes
- Use normal (desktop) mode normally
- Turn the mode on and off
    - Not just "on" once and forever

Summary - Responsive

- HTML is naturally **responsive**
    - Content uses available space
    - Height as needed
    - Wraps as needed
- Devs can mess it up with fixed sizes
    - Including text size assumptions
- Remember your specific screen isn't "normal"
    - There is no "normal" screen size
- Remember users may have different text sizes

Summary - Adaptive

- **Adaptive** sites change **layout**
    - At different viewport **breakpoints**
    - Often shift horizontal layout to vertical
    - Often collapse menus/sections
- Implement with **media queries**
    - Often the min-width/max-width

Summary - Setting Meta viewport

- Mobile often render with different viewport size
    - Then visually zooms in
- Can cause disconnect with media queries
- Override with:

```
<meta name="viewport" content="width=device-width">
```

- Easy to forget!
- Esp. if you don't use mobile view in DevTools
- Remember to do on assignments!