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Using Inspector and Responsive WebDesign

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Why Chrome?

- You can use any other browser, we selected chrome because runs on both Macintosh and Windows computers, so it is neutral between those two operating systems. And it is the most popular browser on the web, according to W3School's browser use statistics.

Developer Tools

- All browsers have tools to help developers understand **how their HTML, CSS, and Javascript code is being interpreted** by the browser.
- Today, you will become familiar with Chrome's developer tools, most importantly the Inspect Element window.
- In future, we will also talk about how to use the Console to debug Javascript applications

Developer Tools

You can access the Elements window in several ways; choose one that you are comfortable with.

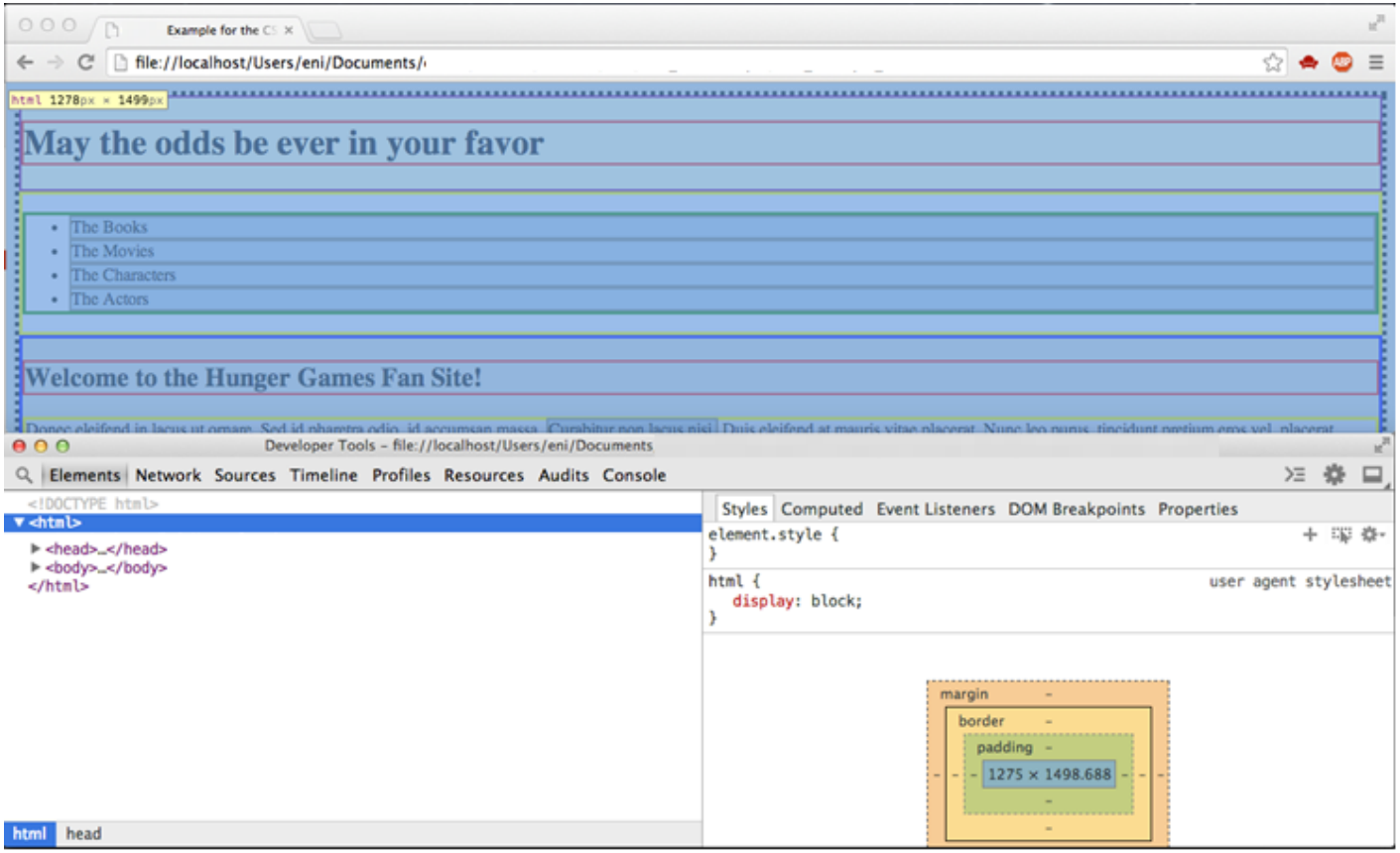
- Using the mouse (or trackpad): right-click and choose Inspect Element on the drop-down menu.

- Using the menu: View | Developer | Developer Tools
- Using the keyboard:
    - Mac: Cmd + Opt + I
    - Windows: Ctrl + Shift + I

Note that that's the letter I, as in Inspector.

Developer Tools

A new window will open at the bottom of your current web page. This window is usually docked in this position, but you can use the docking icon to dock/undock it from the main window. The following figure shows the complete screenshot of a web page and the developer tools at the bottom.



The Elements window and the Web page

The first thing to notice in the Elements window is that it is divided in two panes.

On the left side we see a tree representation of the nested structure of the HTML document (similar to that of folders and files in programs such as Finder (Mac) or Windows Explorer).

On the right side there is a series of tabs, opened on Styles, showing what styles are applied to the selected element and how the browser has calculated the box that contains the element.

The Elements window and the Web page

By selecting an element in the tree representation and hovering the mouse over it, one can see how the corresponding area in the Web page is highlighted in blue, also showing a little yellow box with the width x height dimensions of the element's content box.

In the example, we notice in the upper part that the whole document is highlighted, because we have selected the <html> element (in the Elements window)

Spend a few minutes navigating the document tree and highlighting different tags, to see the corresponding box on the Web page.

Usability

- Usability isn't an easy thing to master.
- There's no magical formula that you can follow to make your site user-friendly.
- There are, however, some guidelines that will make your site much easier for your users.
- These rules are based off of user interface design (such as interactive applications), but can easily be adapted to websites.

Schneiderman's Eight Golden Rules of Usability

- **Strive for Consistency** - Keep your design consistent across pages. Users will be confused if your website follows one design pattern on one pages and another design pattern on another page. Keep your navigation bar, the way your links look, your text size, etc. consistent.

- **Cater to Universal Usability** - Your website should be easy for people of all ability levels to use.

Schneiderman's Eight Golden Rules of Usability

- **Offer Informative feedback** - If your website has interactive elements, such as form submission or an AJAX back-end, make sure to inform the user what your interface is doing. Has the form been submitted? Has the information been saved successfully? If you were the user, what would you like to know?

- **Design Dialogs to yield closure** - This rule is more important for user interfaces than for more static sites, but still applies in situations like in Rule #3.

Schneiderman's Eight Golden Rules of Usability

- **Prevent Errors** - This is one of the hardest to master. It involves stepping through the process that users take to achieve tasks on your website, and thinking about where on your site users might become confused. User testing can help illuminate some of these problems.
- **Permit easy reversal of actions** - Don't let a user get lost on your website. Make it easy for them to get back to whatever page they came from.

Schneiderman's Eight Golden Rules of Usability

- **Support internal locus of control** - This rule is similar to Rule #6. Make sure your users always know where on your website they are located. A map of the sequence of clicks taken to reach their current page (i.e. "*About/Our Story/The Beginning*"), or "breadcrumbs", are helpful in achieving this.

Schneiderman's Eight Golden Rules of Usability

- **Reduce short term memory** - Don't make your users remember information from page to page. If your site has a page that requires users to use information from another page, put all of the information together instead of making your user jump back and forth between pages.

More Usability Suggestions

- **Make sure you don't have broken links!**
- **Make the most important information easiest to find**
- **Provide a hierarchy of information** - Use headers, lists, and breaks to make information easier to find and read.

More Usability Suggestions

- **Use White Space** - One of the most common web design follies is to try to fit as much information on a page as possible. In fact, the opposite should be true. More white, or blank, space looks better and makes sites easier to read.

- And last but not least, **test for usability** - You become so intimately familiar with your site in the process of making it that you might miss problem areas for users simply because they seem obvious to you. Often you won't know about usability issues until your test subjects find them for you.

People are predictable

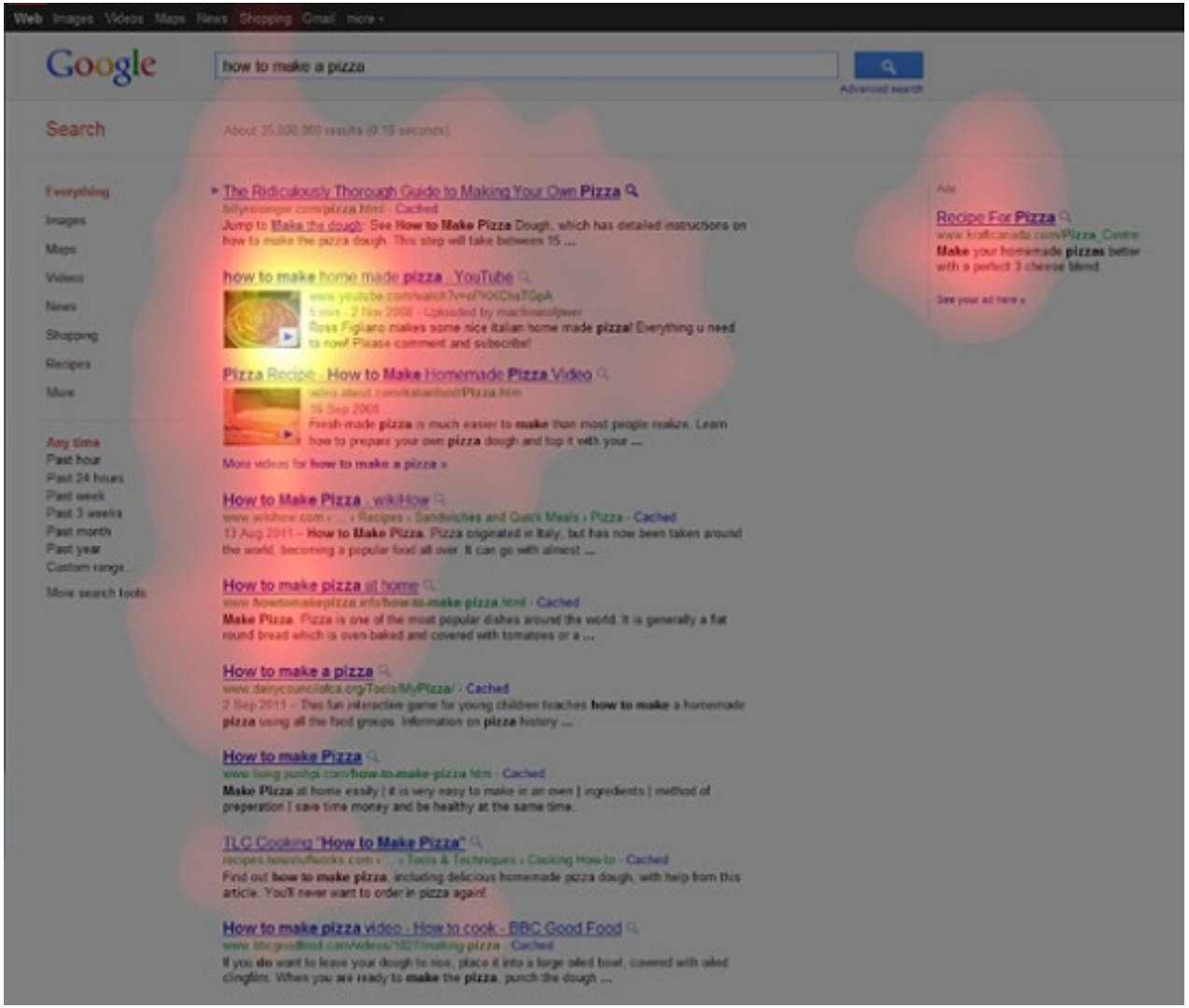
Eye tracking studies (shown bellow) conducted by Jacob Nielsen show that users read in an F-shape, the first two paragraphs are the most important, and sub-headings and lists stand out from paragraph text.

The F-pattern can break

Make a list of the concrete goals your website visitors will be trying to accomplish on your website.

Visuals Matter

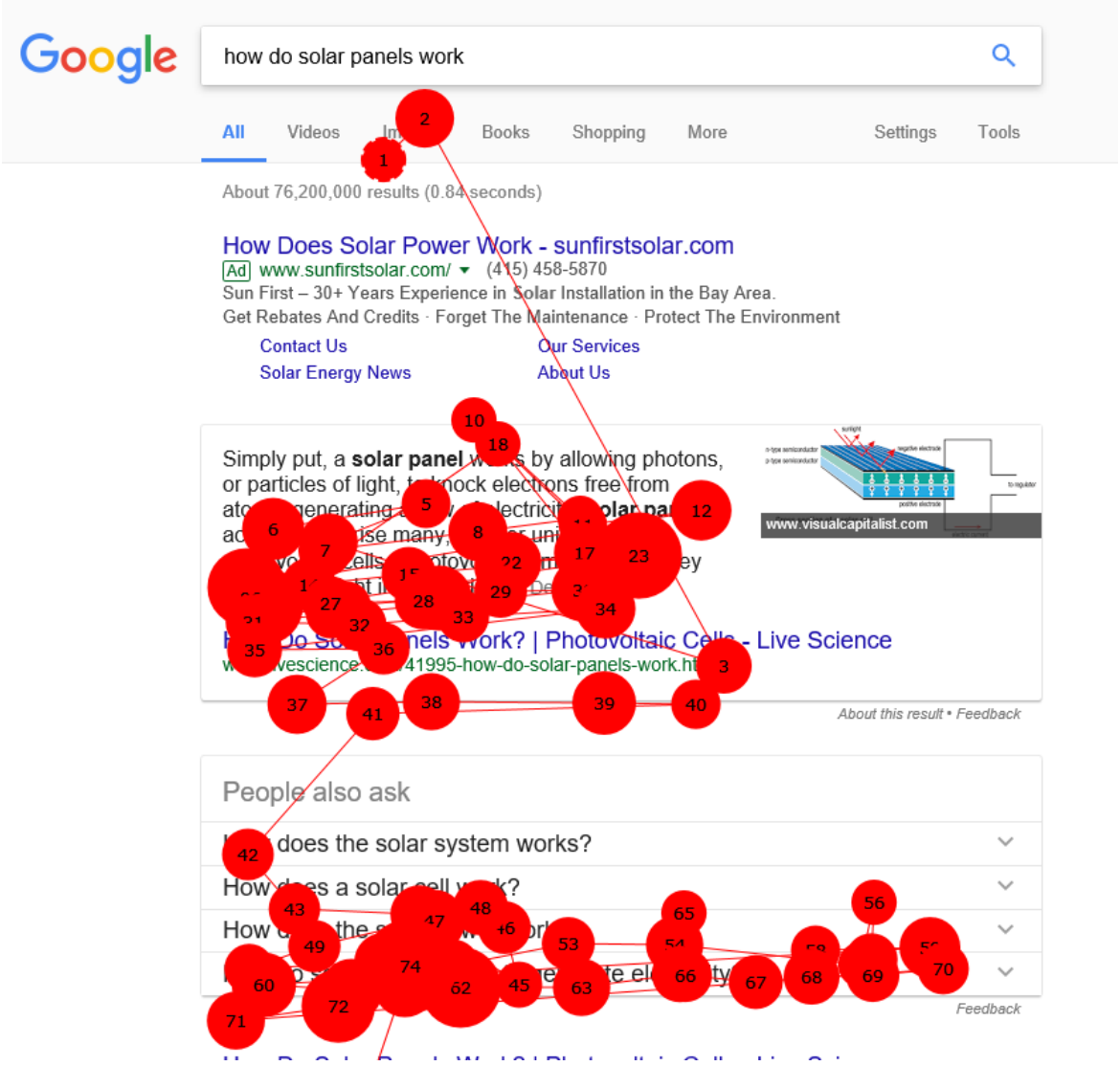
People care about what comes first, and if there's a visually engaging element – it'll win.



People ignore ads

Banner blindness

Another study by Nielson and Norman



Being different might cost you

- Blue has remained the standard color for links – the color has become an intuitive call to action for people
- People try to find things in a way that they are used to
- People have grown accustomed to certain patterns
- Staying true to established conventions is the best way to ensure that your website is usable

Usability Testing

One of the most important things about usability testing is to inform the test subject that you are testing the system not them, and that any confusion or issues they have is valuable information to you.

Your usability test won't be effective if the test subject is nervous because they feel they are being judged on how well they use your site!

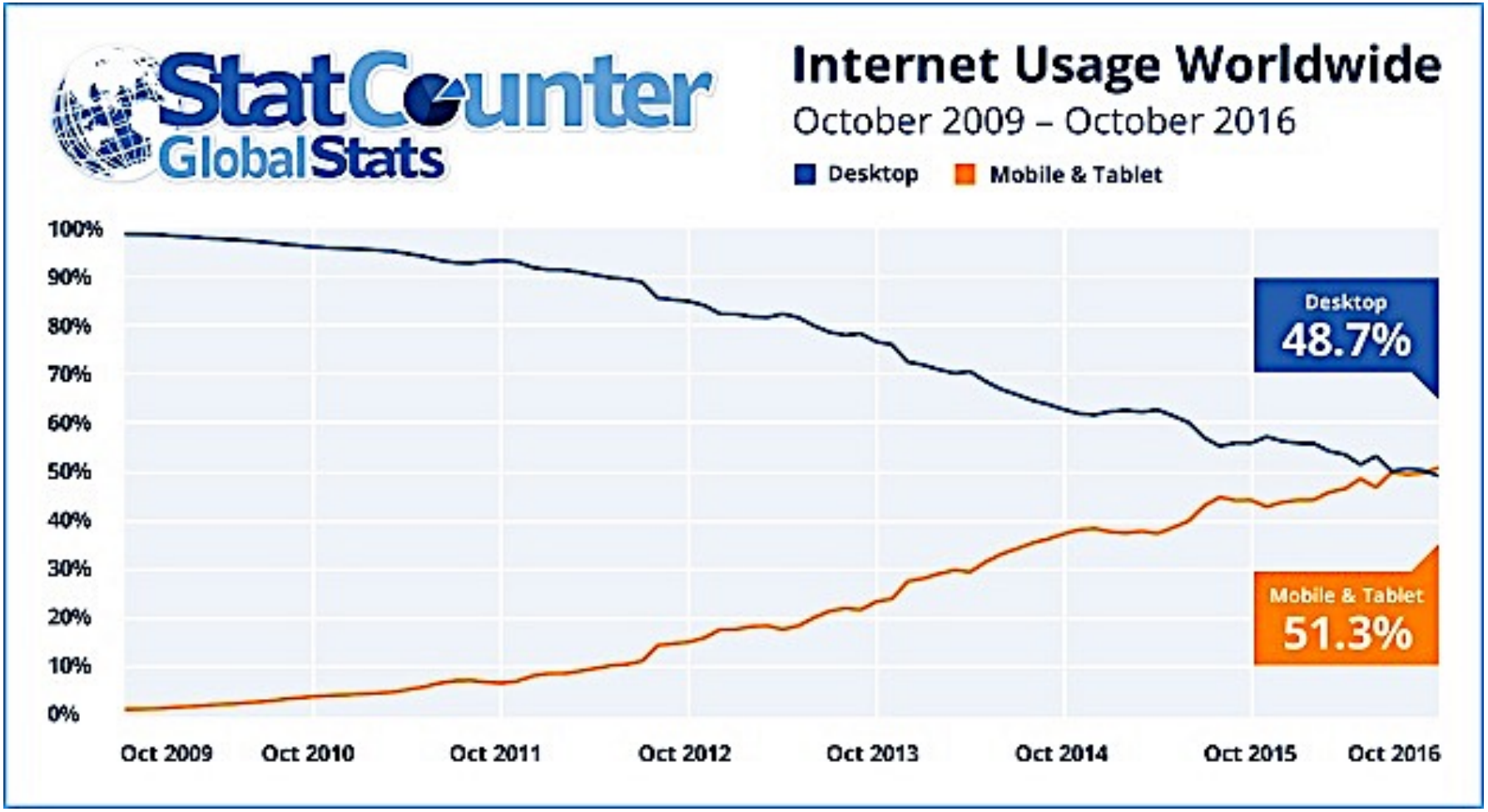
What is Responsive Web Design?

- Responsive web design is certainly one of those things that falls under the umbrella of usability, but is so important that it deserves its own section.
- Making a website "responsive" means *designing your website so that it is adaptable and accessible to users on any device*.

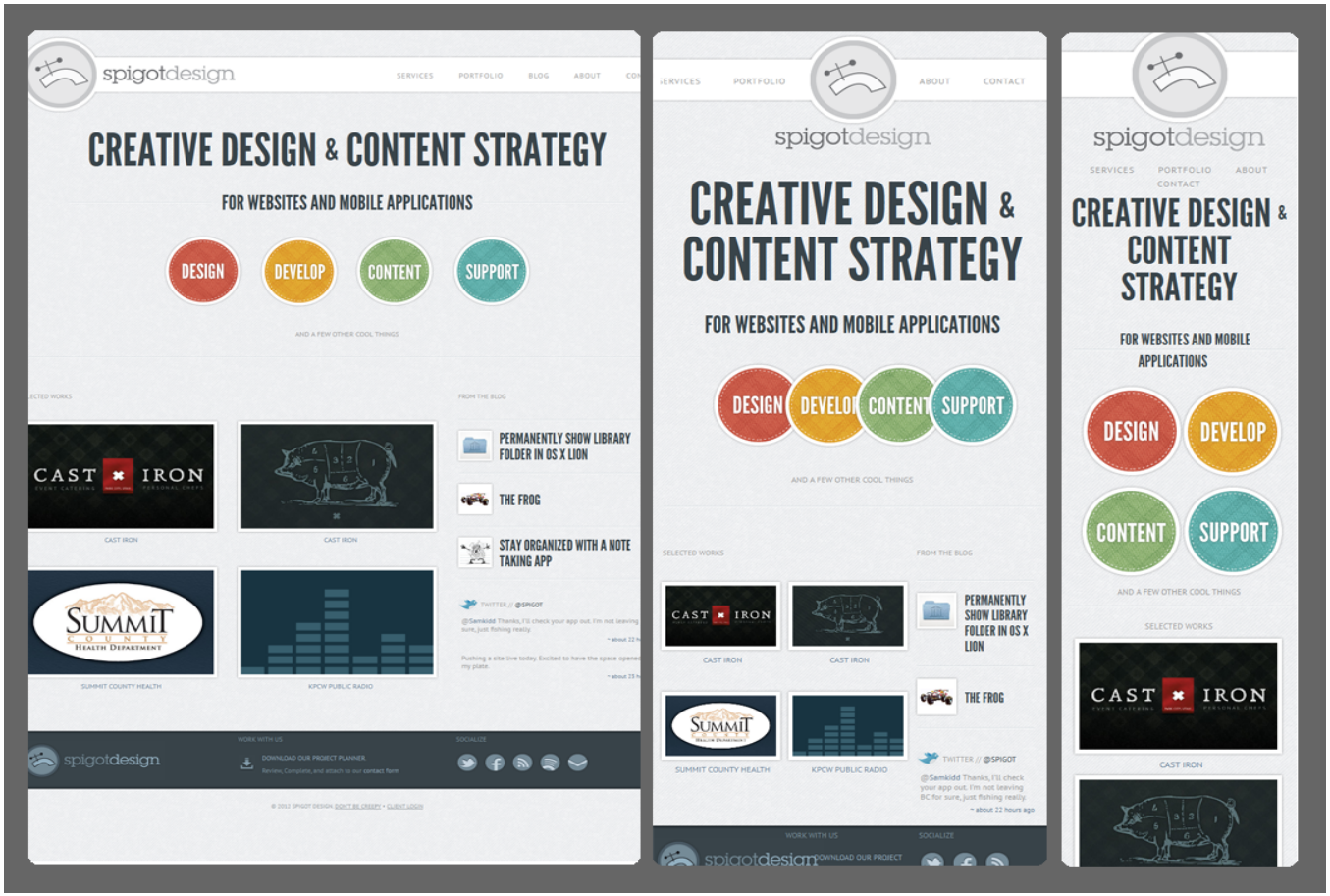
What is Responsive Web Design?

- Think of the multitude of devices out there today: computers with large-screen monitors, big laptops, small laptops, tablets, e-readers, phones, and many more.
- If users from any of these devices cannot get the information or achieve the tasks they need, your website loses a lot of effectiveness.

The growth of mobile phone use in accessing the Web.



The spigotdesign.com site, is designed to be responsive. Try visiting the site and re-sizing your browser. The following image shows what the site looks like on a computer, tablet, and a mobile phone.



- Elements have been adjusted in size, moved, and even taken away entirely to adapt for different screen sizes.
- There are really no hard-and-fast rules for making a website responsive. Much of the process of responsive web design involves designing for big screens, testing for different screen widths, and then adjusting your site accordingly.
- There are, however, some helpful guidelines for designing for smaller screens.

Guidelines for Designing For Smaller Screens (Tablets, E-Readers, Phones, etc.)

- **Resize your content to fit on the screen.** - If your content does not fit horizontally, stack it vertically, since there is often more vertical space than horizontal space on these types of devices.

- **Remove non-essential content** - There is some content that users simply may not need when they are browsing on-the-go. Do not be afraid to remove it if it is taking up valuable screen space.

Guidelines for Designing For Smaller Screens (Tablets, E-Readers, Phones, etc.)

- **Increase font size for legibility** - It's already difficult to read on mobile devices. Increase the font size to make your site easier to read.

- **Make your links and buttons recognizable and clickable** - On touchscreen devices, users are using their fingers to click on links instead of a mouse or trackpad, which can be much less accurate. Increase the size of your buttons and links to account for this.

Guidelines for Designing For Smaller Screens (Tablets, E-Readers, Phones, etc.)

- **Whitespace is still important** - Resist the urge to fill the screen space since there is so little of it. As with before, this blank space is still important for the overall readability of your site. Increase your margins and padding, if need be

How do you adapt for responsiveness?

- In order to adapt your website to different screen widths, you first must determine your screen's width, then apply certain rules to your screen under those circumstances.
- This is done with a media query.
- A media query is like an if statement: if your screen is within a certain range, then apply the CSS rules.

Exercise 1

Read the CSS code below and try to guess what will happen to the div elements of class colorblock, if you resize the page

```
.colorblock {
    width: 100%;
    max-width: 850px;
    height: 30px;
    background-color: red;
  }

  @media screen and (max-width: 700px) {
    .colorblock {
      background-color: blue;
    }}

  @media screen and (max-width: 500px) {
    .colorblock {
      background-color: green;
    } }
```

Example

- Notice that:

1. The media queries comes after the original CSS definition. This is so that the later rules can overwrite the previous ones.
2. Only the rule in question (in this case, the background color) is changed. All the other original rules still apply.

Example

- In the example above, 700px and 500px become special numbers.
- These are called *breakpoints*, since they are screen widths where things on the page change.
- In general, it is good to have as few breakpoints as possible - it can be confusing if things are constantly changing when you resize your screen, and difficult to maintain.
- There is a lot of debate in the web design world about the best breakpoints for your media queries, but, generally, safe bets are 768px and 480px, the screen widths of an iPad and an iPhone.

Other Responsive Fixes

- The div itself is responsive and resizes along with the screen.
- This is because we gave it a 100% width and a max-width of the largest pixel size we want our element to be.
- This is a great trick for making images responsive.
- Percentage widths are one of your biggest tools in making a site responsive; instead of fixed-pixel widths, use percentages of the screen size.

Other Responsive Fixes

- Remove things using display: none
- Set inner elements to be percentage widths of outer elements (for example, four blocks in a row on the page to each have 25% width, adding up to 100% width in total)
- Load lower image resolutions as narrower screen widths
- Arrange things vertically instead of horizontally, by switching from display: inline or display: inline-block to display: block

Note

- `display: inline-block` is a useful CSS rule. It allows elements to act as block elements in terms of size and containing other elements, but is treated like an inline element for display purposes, allowing it to line up side-by-side with other inline elements.

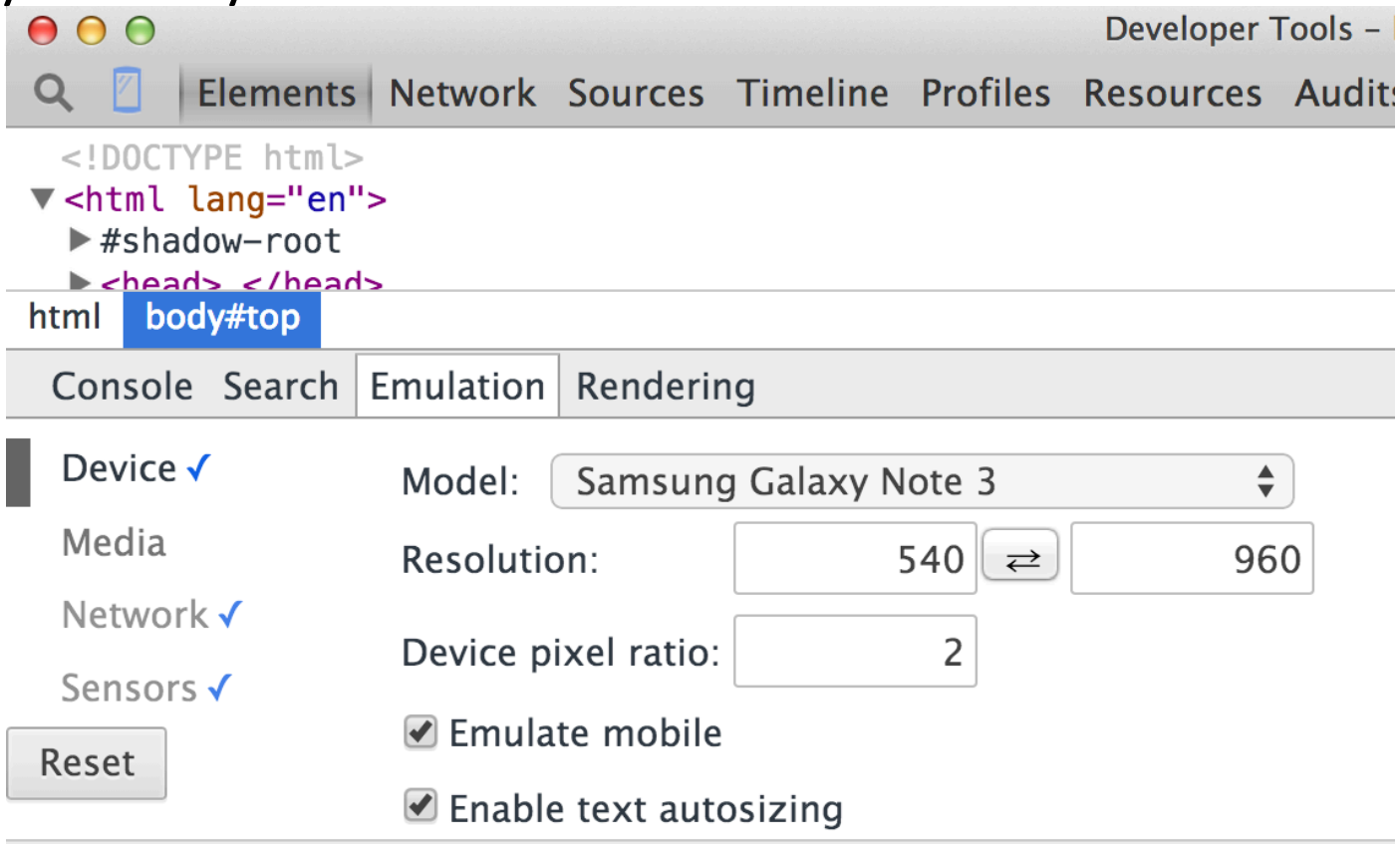
Besides that, just try things! You'll never know what works until you spend some time finding out what doesn't first.

Example: Let's Adapt a Page to be Responsive

- Start with this non-responsive page and use media queries to make it adaptive to smaller screens.
- Your solution may look something like this page

Testing

- Google Chrome Developer Tools allow you to emulate the screens of many devices so that you can check how your website will look like in such devices. To get to this emulation mode, once you open Inspect Element, toggle the Emulation button (on the left side of Inspect Element tab name). Then you can use the drop-down menu to choose any device you'd like to test.



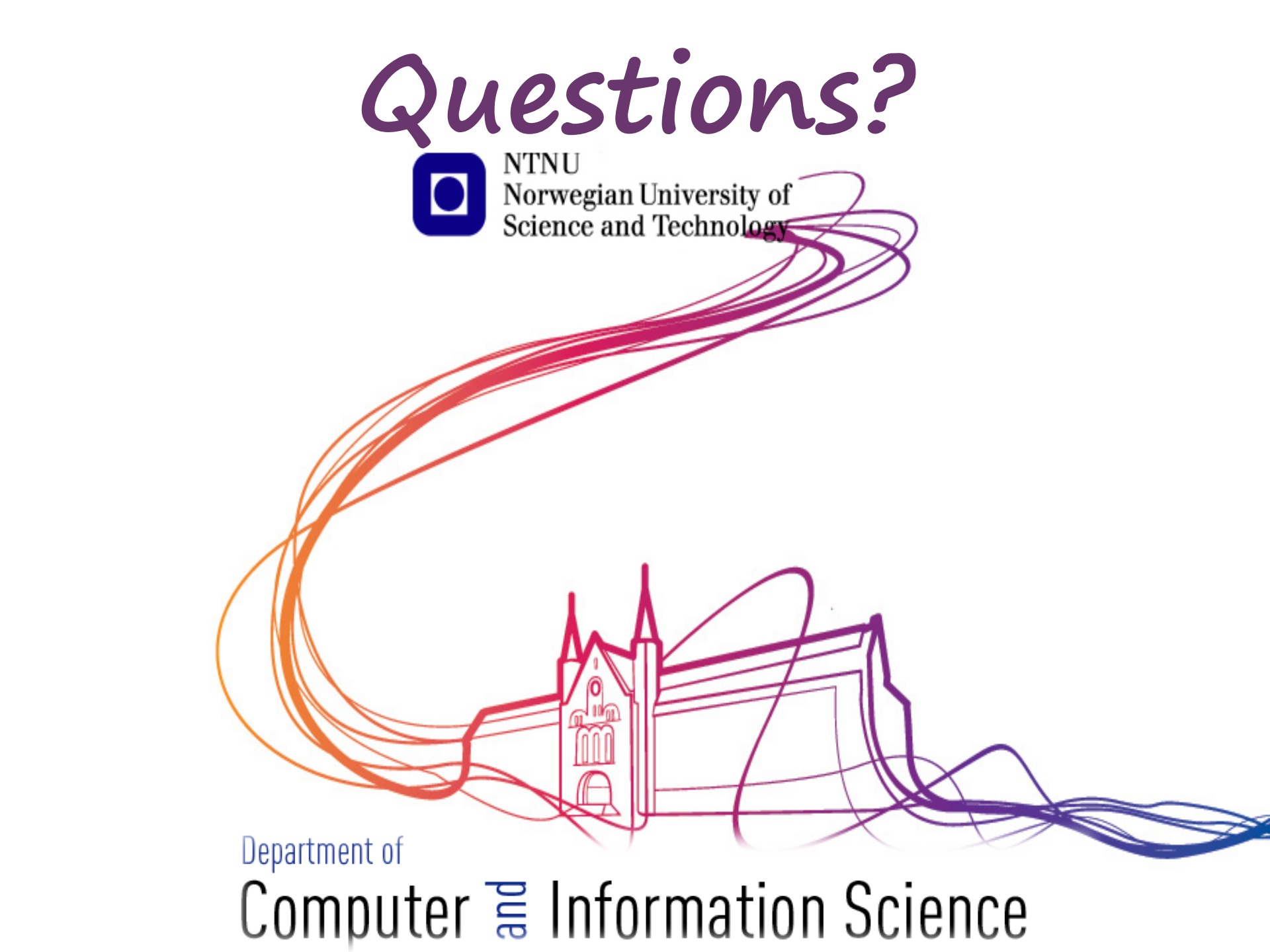
More Resources

- There are tons of frameworks on the Web that make creating responsive websites easy.
- Most of these are built on something called a *fluid grid*, which, in most cases, takes care of the responsiveness for you.
- One of my favorites, and an industry standard, is Bootstrap, a framework built by two software developers at Twitter.
- If you plan on continuing in web design after this class, or if you're just interested, check it out.

Further Reading

- This article from Smashing Magazine has a more in-depth description of media queries, especially in designing for mobile.
- This article from Treehouse provides a good overview of the what, why, and how of responsive web design

Questions?



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