SEO and Accessibility

Why is SEO so important? SEO (Search Engine Optimization) is about (your website) being found by as many users as possible.

Why is accessibility so important? Accessibility is about being available to as many users as possible. Not only that, but now, it is required by Ontario law to have your website be accessible up to WCAG 2.0.

> *Note*
>
> To read more about WCAG 2.1, see: https://www.w3.org/WAI/WCAG21/quickref/
>
> This quick reference has a comprehensive listing of best practices to make your website accessible.

In order to see how you can optimize for SEO, you first need to know what search engines look for:

- Content
- Performance
- Links
- Usability

First and foremost is content. Content is king. Search engines look at your content to determine whether or not your page is relevant to the search. This is also why your important content should be closer to the top.

Faster websites also rank higher. This is why it is important to watch your image sizes and to make sure your CSS and Javascript files are not larger than they need to be. (You should consider minifying your CSS and Javascript files for your production sites. This doesn't need to be done for development because minifying makes code very hard to read and edit because of stripped-out line breaks and extraneous spaces.

Search engines also look to see how many links are pointing to your webpage. If your content is good, more links will reference your page which is good. This makes your webpage look more authoritative.

Usability also plays a factor. How easy is your website to use? Think of search engines as users of a website. The easier it is for it to crawl your website, the higher your page ranking.

Looking at the above, there are a few things we can do to ensure better SEO. Luckily, there is a lot of overlap with SEO and accessibility. The more accessible your website, the better your SEO.

Page Layout

As mentioned above, content is KING so the higher up the page the important content is, the better. In your HTML, this means that you should place your main content higher than your sidebar content. (This is why in previous examples, I have put the main container first before the left and right sidebar HTML.)

This also includes the content above the fold (the fold is the cut-off point in the browser window below which the page is out of view). The more content you have above the fold, the higher your page ranking. Google penalizes pages with mostly ads above the fold.

From an accessibility standpoint, this makes it easier for screen reader users to reach your main content. To be more accessible to keyboard users, you should also add a "Skip to main content" link which appears when tabbing.

To add a "skip to main content" simply add a link which points to the main ID, then hide this link via CSS using absolute positioning. When the link is in "focus" (:focus), make it appear.

So, in normal circumstances, when the link is hidden:

```
#skip-link {
  position: absolute;
  left: -10000px;
}
```

When the link is in focus:

```
#skip-link:focus {
  position: relative;
  left: 0; /* or some other location where desired */
}
```

To summarize how to ensure better SEO and accessibility via page layout:

- **Place the main content in your HTML nearer to the top than your sidebar content.** Sidebar content is not as important as the main content.
- **Make sure you have *some* content above the fold.** The fold is the boundary beyond which the page is hidden. (You need to scroll to view beyond the fold.)
- **Use a "skip to main content" link.** This is also very helpful for accessibility to keyboard users.

HTML Semantics

Because content is important, the better you can describe your content and why it is important the better it is for SEO. Why? Because that means that search engines can more easily find which content is good and relevant.

You can think of a search engine like a screen reader or disabled user. When a search engine crawls a page, it is going through links and text. The key word here is TEXT. This is why it is important that you use the alt attribute for images and the title attribute for links. (The title attribute is the tooltip text which appears when you hover over a link.) Don't abuse these attributes to try to get better page rankings, though. If you just keep putting in irrelevant keywords in the alt and title attributes in order to get better page rankings, you may end up getting penalized.

This whole idea of describing your content is also why it is very important to use HTML semantic tags where valid and to use headings properly. Not only is it good for accessibility, but it is also good for search engines.

Here are some things you can do to ensure good accessibility and SEO:

- **Make sure your HTML is valid HTML.** Valid code makes it easier for screen readers, browsers, and search engines to correctly interpret your page. Search engines may also stop crawling or may be unable to crawl invalid pages. Also, don't just assume that your code is good because it validates. The validator does not catch everything (e.g. a form not wrapped in <form> will not be caught).
- **Use semantic tags where needed to describe your content** (as opposed to generic tags such as). This helps screen readers and search engines find relevant content.
    - One common use-case scenario is to use a as a clickable element. This is **awful** for accessibility. Why not use an <a> (with **href**) or <button>? Although you may have added Javascript for the interactive behaviour, to add the element to the tab order, you would also need to add `tabindex="0"`. Why add extra "fixes" when you could just use an element which is semantically used for clickable items?
- **Make sure you don't have empty headings.** Empty headings make no sense and are invalid. Also make sure that your headings are descriptive.
- **Nest your heading levels properly.** This is more to help with interpreting page structure.
- **Each page should have only one H1.** The page title of the main is usually best chosen as H1 because this is the most relevant title for the page (not the site name). Although HTML5 allows for multiple H1 tags per page, it is still better to have only one H1 for accessibility purposes. (Previously, this was also an issue for SEO, but search algorithms no longer have issues with multiple H1 elements.)
- **Use labels for form elements and link them properly via ID.** This helps users and search engines to determine what the form element is for.
- **Use the alt attribute for images.** Vision-impaired users who may be using screen readers and search engines cannot read non-text content, so it is important to have **descriptive text** for images. This helps search engines to build relevancy. Images without **alt** text is invalid HTML.

> *What about unimportant images?*
>
> **If you have purely decorative images which do not matter if they're not read, you should still have an alt attribute but make the value empty. Additionally, you should add aria-hidden="true" to tell screen readers to ignore the element.** This will make sure your screen reader users will not hear that there's an image, but have an empty description.
>
> **Remember**: This is only for **unimportant** content!

- **Use the title attribute for links.** Again, this goes with adding more description which helps out both users and search engines. This is important for links with vague text. Generally, it is best if your link text already indicates what the link is for (e.g. "Read more about accessibility" versus "Click here to read more"). If your link text is descriptive you may not need the title attribute.
- **Use descriptive link text as opposed to "click here."** "Click here" doesn't really give a good idea of where the link will lead.
- **Use the lang attribute to identify the language of the content.** If you're entire page is in English, use lang="en" (notice that the value uses the ISO 2-letter language code). Identifying the language helps screen readers pronounce the content properly. For example, you may have a French quote in an English page. For that French quote, you can set the lang attribute to "fr".

Page Design and Code

When it comes to page design, you will need to take into account both usability and accessibility. Even if certain measures do not have a direct result on SEO, usability and accessibility will lead to more users which would indirectly affect SEO.

Some things to consider:

- **Don't design using colour only to convey meaning.** For example, do not use green text to convey "correct" things and red text to convey "incorrect" things without any description (e.g. "Correct: blah blah blah"). Colour blind users will not be able to see some colours.
- **Make sure you have enough contrast between background and foreground colours.** This is so that vision-impaired users can more easily read your text. The accessibility standard includes contrast ratios which should be met.
- **Search forms should have a button.** This is more for usability. Some users look for or expect a button. To have a more intuitive search experience, use a button.
- **If you are only using small snippets of simple scripts, think about using vanilla Javascript as opposed to jQuery.** This is more to do with page load times than anything else. If you only need one jQuery function, you don't need to load the whole library. Just use plain Javascript to keep the page load size down. This is better for SEO.
- **Watch your CSS size.** Media queries add to your CSS size, so be sure that you aren't using any unneeded code. You may also think about compressing or minifying your CSS for your production sites.
- **Your page should be navigable by keyboard.** Make sure you can tab through your page and use forms via keyboard. If you're using widgets which are not the standard HTML form controls, you need to make sure you can still interact with the widgets via keyboard. This may require additional Javascript to make things work nicely (e.g. if you are toggling a modal window open, make sure you move the focus to the opened window, while also storing the link/element which had the focus last so that you can restore the focus when the window is closed). Also, add focus styling using the :focus pseudo-class.
- **Use responsive design.** It may seem to be a given but sometimes this is overlooked. Google now penalizes any site which is not responsive.

Linking

You should be sure that you can reach every page from your home page. (This **doesn't** mean to put a link to every page on your home page.) If a user can find every page, so can a search engine. You should consider using a "breadcrumb" trail. This allows users to know where they are in the page. This is good for usability and SEO.

More Reading

To read more about SEO and accessibility:

- http://www.readbelowthefold.com/web-accessibility/13-ways-the-w3cs-accessibility-guidelines-also-help-seo.html
- http://webaim.org/blog/web-accessibility-and-seo/

- https://m3.material.io/foundations/accessible-design/overview (Google's Material Design accessibility guidelines but there are some good explanations)
- https://m2.material.io/design/usability/accessibility.html (older Material Design guidelines but there are good examples here)

Some Tools

There are some tools you can use to help you build accessible pages.

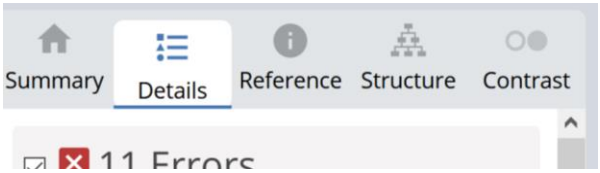
1. WAVE toolbar
2. WebAIM color contrast checker
3. NoCoffee vision simulator (browser extension available for Firefox and Chrome)
4. ChromeVox (Google Chrome extension)
5. Firefox developer tools (there's an Accessibility tab)
6. Chrome developer tools (Lighthouse tab)

WAVE Toolbar (http://wave.webaim.org)

This is a toolbar for your browser (available for Firefox and Chrome). It shows accessibility errors and warnings on your page. Go to the URL above and download the appropriate toolbar for your browser and install it.

Try out the toolbar:

1. After you have installed the toolbar, open your browser and make sure the WAVE toolbar is showing.
2. Go to any webpage.
3. Click on the Details tab to view all the errors, features and warnings.



4. You'll notice that now the page has a bunch of little icons all over the page. If you hover over one icon, you can view more information.
5. Click on the various tabs to see the different reports.

You can use the WAVE toolbar on your local files as well.

Using the Chrome WAVE Extension with local files

If you are using Chrome, you need to **change the permissions to allow for use on files**. In Chrome, right-click the WAVE toolbar icon next to the address bar and go to "Manage Extensions". Turn on the setting to "Allow access to file URLs".

WebAIM Color Contrast Checker (http://webaim.org/resources/contrastchecker/)

This tool allows you to check whether or not there is enough contrast between your foreground and background colour. This is good for accessibility to ensure that users with vision impairment can read your content. There is also a contrast checker included in the WAVE toolbar.

NoCoffee Vision Simulator

This is a browser extension available for both Firefox and Chrome. It allows you to view how your page will be seen by users with various vision impairments.

ChromeVox

This is a screen reader only for Google Chrome. You can use it to hear how your page will be read out. To make better use of this tool, look in the extension's options to view all of the keyboard shortcuts (the shortcuts are essential to help you navigate the page).

Firefox Developer Tools

The Accessibility tab in Firefox's Developer Tools is pretty powerful but may not be the easiest to grasp at first glance. You can read an introduction about the feature here: https://developer.mozilla.org/en-US/docs/Tools/Accessibility_inspector

Chrome Developer Tools

You can Inspect your page then, on the *Lighthouse* tab, run a report.

> Note
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> Beyond the above tools, every phone/mobile device also has a built-in screen reader (it may be called something like "voice over") as part of its accessibility tools.
>
> It can be a little difficult to get used to the way you would interact with the screen with the screen reader enabled because you cannot tap in the usual way. Typically, the way it works is that **when you initially tap or drag your finger over an interactive element, the phone will read out what the item is** (which is why it is important that you always have hidden text for icons and other image-only items). **To select, rather than the usual single-tap, a double-tap is used.** You can't use a single tap to select because the single tap will only result in the element being read out.
>
> If you do not use proper interactive elements or have proper text (i.e. all that semantics stuff I'm so strict about) or make sure added interactivity is properly supported (e.g. by adding a non-standard interactive element to the tab index), parts of your page may be unusable for mobile device users using the voice over tool.

Try: Try navigating your own assignment 1 page using the keyboard and screen. Were there any issues? If there were (beyond styling issues), there may be semantic HTML issues. This is why semantics are so important. HTML in and of itself is not inherently inaccessible. We, as developers, usually are the ones who build in inaccessible content.