# TechAccessOK 2016
# Shawn Henry
# Session Materials

# 1
# Understanding Accessibility

## Intro

Shawn

http://www.uiaccess.com/profile.html

Carl, Glenda

https://www.youtube.com/watch?v=OFrSnILrOrw

It's not about your ability or disability,
it's about the ***design***!

## think about accessibility differently

Video: A world made for disabilities, European Disability Forum (EDF)

## Accessibility is:

accessibility is **not** primarily about…

- × Checklists
- × Evaluation tool results
- × Conforming to standards

accessibility is about **people**!

Accessibility is about
designing your products
so that **more people**
can use them **effectively**
in **more situations**.

*(= business case)*

## Example: curb cuts

accessibility is about
all sorts of
**people**
in all sorts of
**situations**

**better usability for everyone**
including people *without* disabilities

### More info

- Web Accessibility Perspectives: Explore the Impact and Benefits for Everyone ***(videos)***
  https://www.w3.org/WAI/perspectives/
- Web Accessibility Business Case
  www.w3.org/WAI/bcase/
- "Web Accessibility is Smart Business" Presentation
  https://www.w3.org/WAI/presentations/bcase/
- Web Content Accessibility and Mobile Web: Making a Website Accessible Both for People with Disabilities and for Mobile Devices
  www.w3.org/WAI/mobile/overlap
- Web Accessibility and Older People: Meeting the Needs of Ageing Web Users
  https://www.w3.org/WAI/older-users/
- Teach Digital Inclusion
  http://www.uiaccess.com/teachDI.html

## People with disabilities

### Disabilities

- Auditory
- Cognitive
- Neurological
- Physical
- Speech
- Visual
  - Blind
  - Low vision

### Causes

- Congenital condition (born with it)
- Disease
  Illness
  Accident
- _____

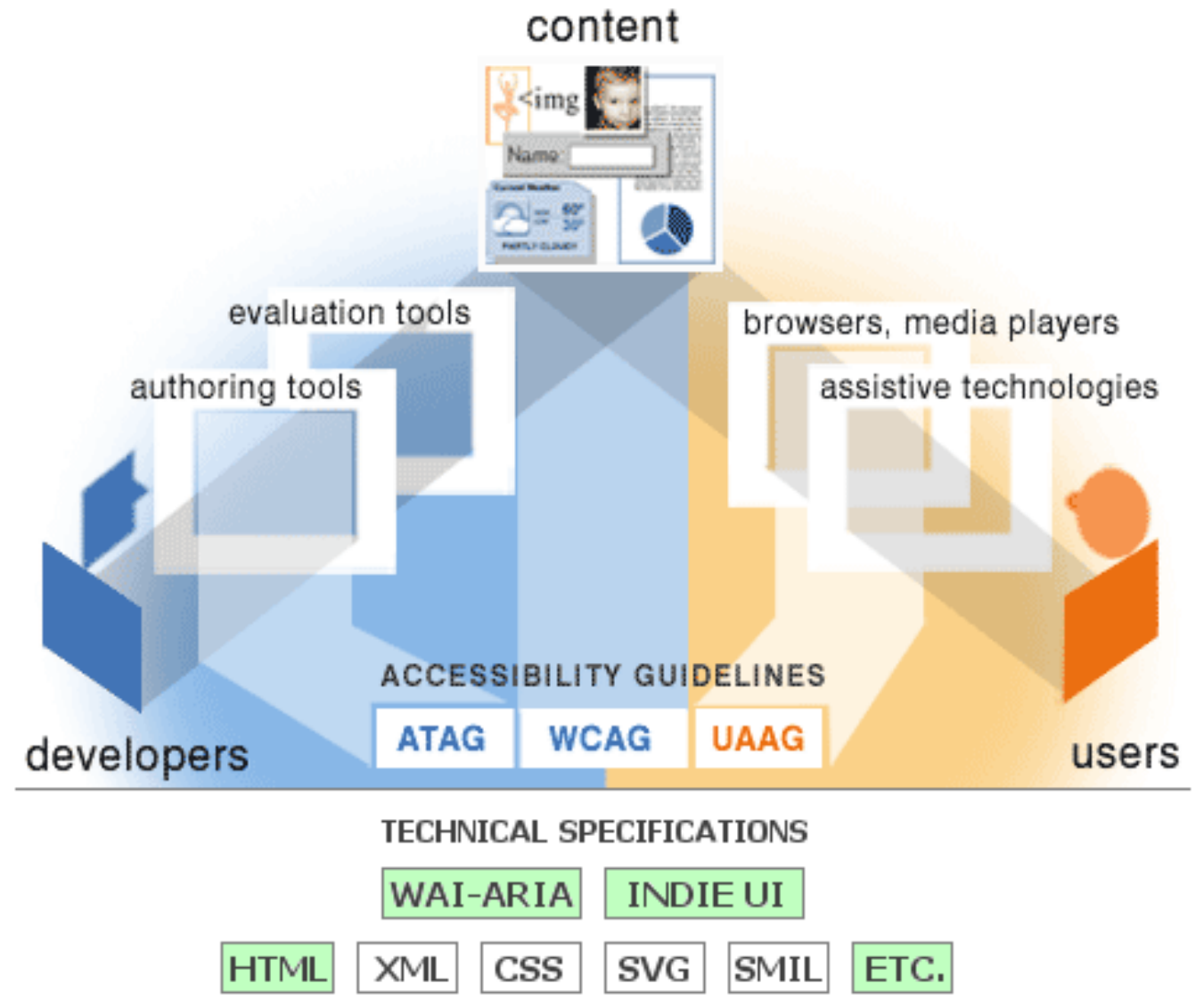
## Disabilities and Web Use

- Onset and course
  - Congenital, acquired
  - Static, progressive
  - Temporary, permanent
  - Degree of severity
  - Single, multiple
- Assistive technologies
- Adaptive strategies

## More info: Learning about people

- How People with Disabilities Use the Web (W3C WAI)
  www.w3.org/WAI/intro/people-use-web/
- Web Accessibility and Older People: Meeting the Needs of Ageing Web Users (W3C WAI)
  www.w3.org/WAI/older-users/
- Videos of People with Disabilities Using ICT (uiAccess.com)
  www.uiaccess.com/accessucd/resources_videos.html

# Components of Web Accessibility




Essential Components of Web Accessibility
www.w3.org/WAI/intro/components

## Standards, Regulations, Policies

- WCAG 2.0 = ISO/IEC 40500:2012
- Section 508
- ADA
- Other U.S. and international policies …

WAI Resources on Web Accessibility Policy Resources
https://www.w3.org/WAI/policy-res

# 2
# Accessibility Principles

("POUR" acronym)

## ▪ Perceivable information and user interface

- Text alternatives for non-text content
- Captions and other alternatives for multimedia
- Content can be presented in different ways
- Content is easier to see and hear

## ▪ Operable user interface and navigation

- Functionality is available from a keyboard
- Users have enough time to read and use the content
- Content does not cause seizures
- Users can easily navigate, find content, and determine where they are

## ▪ Understandable information and user interface

- Text is readable and understandable
- Content appears and operates in predictable ways
- Users are helped to avoid and correct mistakes

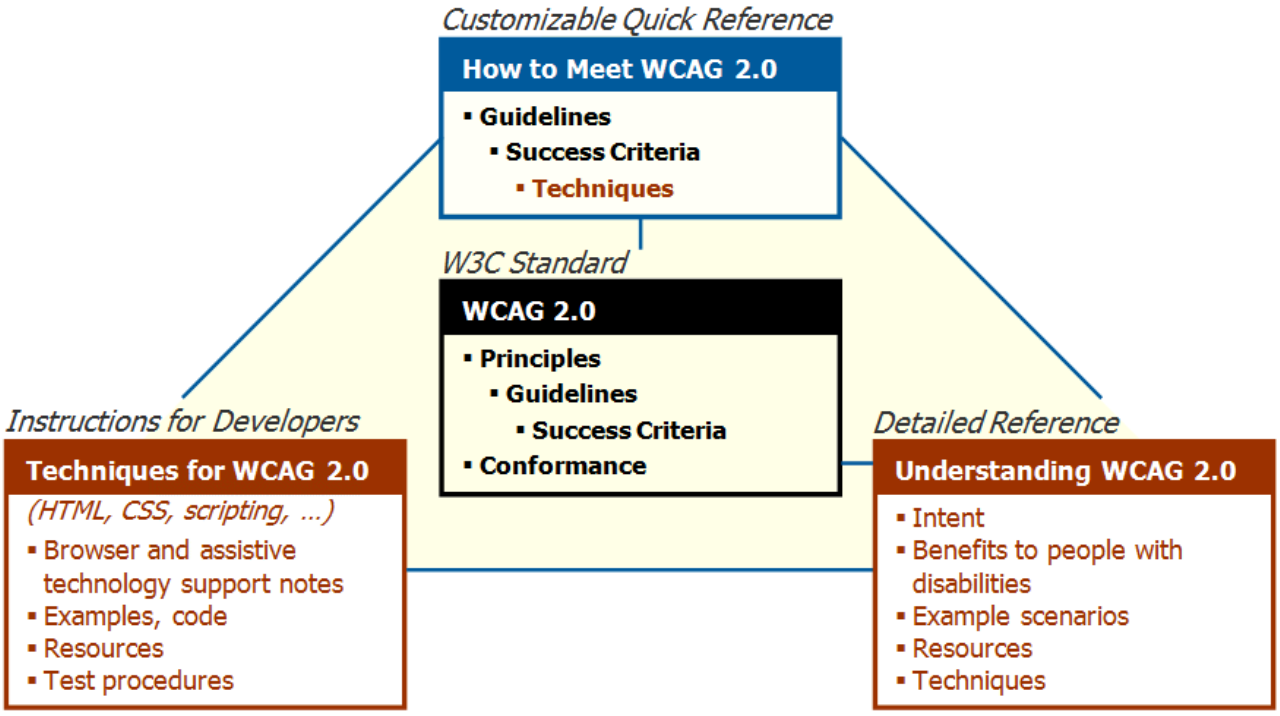
## ▪ Robust content and reliable interpretation

- Content is compatible with current and future user tools

https://www.w3.org/WAI/intro/people-use-web/principles

# 3 Making it Happen

## Using WCAG




**More about Using WCAG**

- Web Content Accessibility Guidelines (WCAG) Overview
  www.w3.org/WAI/intro/wcag
- The WCAG 2.0 Documents
  www.w3.org/WAI/intro/wcag20
- How to Meet WCAG 2.0 - Customizable Quick Reference ("checklist")
  https://www.w3.org/WAI/WCAG20/quickref/

For fun - WCAG 2.0 the music video:

- WCAG 2.0 Theme Song Web Content Accessibility Guidelines – Disability
  www.youtube.com/watch?v=gtuna2AWvqk

# Integrating Throughout Your Project and Organization

Do it early!

Involving users early in web projects results in better products for users, more efficient development, and other benefits to project stakeholders.

## Incorporating into Process

Analysis:

- Requirements gathering
- User analysis
- Task analysis

Design:

- Guidelines
- Tools

Evaluation:

- Design walkthroughs
- Heuristic evaluation
- Usability testing

**More on Integrating...**

- Improving the Accessibility of Your Website
  www.w3.org/WAI/impl/improving
- Planning and Managing Web Accessibility
  www.w3.org/WAI/impl/
- Involving Users in Web Projects for Better, Easier Accessibility
  www.w3.org/WAI/users/involving
- Just Ask: Integrating Accessibility Throughout Design
  www.uiAccess.com/JustAsk/

# Evaluating Web Accessibility

Spell check analogy:

- "tool" - instrument used by a craftsman or laborer at his work (Webster)
- Tool can identify potential errors, knowledgeable human must assess
- False positives and false negatives

Web Accessibility Evaluation Tools Need People

www.uiaccess.com/evaltools.html

**Easy Checks - A First Review of Web Accessibility**

- Provides simple steps to help assess if a web page addresses accessibility. Helps you assess the accessibility of a web page. With these simple steps, you can get an idea whether or not accessibility is addressed in even the most basic way. These checks cover just a few accessibility issues and are designed to be quick and easy, rather than definitive. A web page could seem to pass these checks, yet still have accessibility barriers. More robust evaluation is needed to evaluate all issues comprehensively.

**WCAG-EM Overview: Website Accessibility Conformance Evaluation Methodology**

- Introduces WCAG-EM, an approach for determining how well a website conforms to Web Content Accessibility Guidelines (WCAG) 2.0.
- **WCAG-EM Report Tool:** Website Accessibility Evaluation Report Generator
  - Helps you generate website accessibility evaluation reports according to WCAG-EM.

**Involving Users in Web Accessibility Evaluation**

- Provides guidance on including people with disabilities ("users") in accessibility evaluation throughout Web development.

**Web Accessibility Evaluation Tools List Search**

- Provides a comprehensive list of web accessibility evaluation tools that is searchable and sortable.

**More about Evaluation**

Accessibility Evaluation Resources *(includes links to all above)*

www.w3.org/WAI/eval/

# Perspectives

## Tim Berners-Lee

W3C Director and inventor of the World Wide Web

"The power of the Web is in its **universality**.
Access by everyone *regardless of disability* **is an essential aspect**."

## Accessibility – W3C

https://www.w3.org/standards/webdesign/accessibility

The Web is fundamentally designed to work for all people, whatever their hardware, software, language, culture, location, or physical or mental ability. When the Web meets this goal, it is accessible to people with a diverse range of hearing, movement, sight, and cognitive ability.

Thus **the impact of disability is radically changed on the Web because the Web removes barriers** to communication and interaction that many people face in the physical world. However, when websites, web technologies, or web tools are badly designed, they can create barriers that exclude people from using the Web.

## Accessibility is an "act of enlightened self-interest"

**More...**

- Web Accessibility Perspectives: Explore the Impact and Benefits for Everyone ***(videos)***
  https://www.w3.org/WAI/perspectives/
- Accessibility – W3C ***(general introduction)***
  https://www.w3.org/standards/webdesign/accessibility
- BAD, the Before-After Demo
  https://www.w3.org/WAI/demos/bad/
  The Before and After Demonstration (BAD) from W3C WAI shows an inaccessible website and a retrofitted version of this same website with the accessibility barriers fixed.
  The BAD pages have annotations that are notes on what is accessible and not accessible in the demo pages. To turn on annotations, click "Show Annotations" in the yellow box near the top, middle of the page; then click a number and a box title Note... will open with the explanation.

Web Accessibility Tutorials - Guidance on how to create websites that meet WCAG
https://www.w3.org/WAI/tutorials/

Tips for Getting Started with Web Accessibility

https://www.w3.org/WAI/gettingstarted/tips/

- Designing for Web Accessibility: Tips for user interface and visual design
- Writing for Web Accessibility: Tips for writing and presenting content
- Developing for Web Accessibility: Tips for markup and coding

The home page:

W3C Web Accessibility Initiative (WAI)
www.w3.org/WAI/

# 4
# Overall example: alt text

## Image Alternatives ("alt text")

Image text alternatives ("alt text") convey the purpose of an image, including pictures, illustrations, charts, etc. Text alternatives are used by people who cannot see the image. (For example, people who are blind and use screen readers can hear the alt text read out; and people who have turned off images to speed download or save bandwidth can see the alt text.)

 The text should be functional and provide an equivalent user experience, not necessarily describe the image. (For example, appropriate text alternative for a search button would be "search", not "magnifying glass".)

You don't usually see the alt text on a web page, it is in the web page markup (like this: <img src="pointer_to_image.png" alt="here's where the alternative text goes">).

Every image should include **alt** in the markup.

- If an image conveys information useful for interacting with or understanding the web page content, then it needs alternative text.
- If an image is just decorative and people don't need to know about the image, then it should have null alt (**alt=""**).

### Alt Text Activity

Write alt text for this image: 

### Alt Text Activity

Check the BAD inaccessible home page

www.w3.org/WAI/demos/bad/before/home

- Missing alt:
  - There are lots of images without alt text. (Many of these are just decorative and should have null alt text, per the Tips.)
  - The weather image of the cloud and sun is missing alt.
- Inappropriate alt text:
  - Near the top, left, see the long alt text starting with "Red dot with...". That description is way too detailed and includes unimportant information. The appropriate alt text in the accessible page is: "Citylights: your access to the city."
  - Near the bottom in the middle, see the image of text: "(1)269C-H-O-K-E". The alt is 123456789, which is not equivalent.
- Appropriate alt text:
  - Near the top, see the W3C image; the alt text is: "W3C logo".

### Alt Text Activity

Check out image alt text in your pages…

### Alt Text Activity

Skim through *The alt Decision Tree* at:
www.w3.org/WAI/tutorials/images/decision-tree/

Learn more about Image Alternatives ("alt text")

- **Images Tutorial**
  www.w3.org/WAI/tutorials/images/
- Image text alternatives ("alt text") in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#images
- Understanding 1.1.1 **Non-text Content:** All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed[...]. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/text-equiv-all
- Understanding 1.4.5 **Images of Text:** If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except [for customizable and essential images] (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-text-presentation
- Understanding 1.4.9 Images of Text (No Exception): Images of text are only used for pure decoration or where a particular presentation of text is essential to the information being conveyed (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-text-images

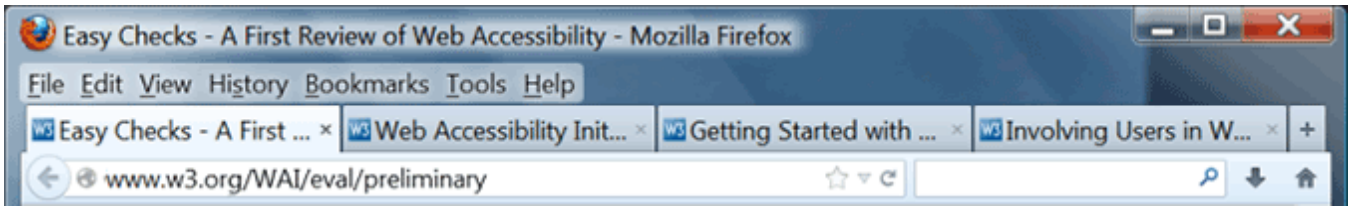
# 5
# Content Authoring

## Page Titles

Page titles are:

- shown in the window title bar in some browsers
- shown in browsers' tabs when there are multiple web pages open
- shown in search engine results
- used for browser bookmarks/favorites
- read by screen readers

The image below shows the page title Easy Checks - A First Review of Web Accessibility in the title bar, and the titles of 4 pages in the tabs. Note that in the tabs, only the first part of the page title is shown.




Good page titles are particularly important for orientation — to help people know where they are and move between pages open in their browser. The first thing screen readers say when the user goes to a different web page is the page title.

## Learn more about Page Titles

- Page Title in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#title
- Understanding 2.4.2 **Page Titled:** Web pages have titles that describe topic or purpose. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-title

### Page Title Activity

Start from https://www.w3.org/WAI/demos/bad/before/home.html

- In the navigation tabs at the top, right-mouse click on "News" and select "Open Link in New Tab"
- Right-mouse click on the each of the tabs ("Tickets", etc.) and select "Open Link in New Tab"
- Compare the page titles in the tabs to the words in the navigation.

Start from https://www.w3.org/WAI/demos/bad/after/home.html

- In the navigation tabs at the top, right-mouse click on "News" and select "Open Link in New Tab"
- Right-mouse click on the each of the tabs ("Tickets", etc.) and select "Open Link in New Tab"
- Compare the page titles in the tabs to the words in the navigation.

### Page Title Activity

Check out the page titles of the products you work on.

## Link Text

Demo: Click here

### Learn more about Link Text

- Understanding 2.4.4 **Link Purpose (In Context):** The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-refs
- Understanding SC 2.4.9 **Link Purpose (Link Only):** A mechanism is available to allow the purpose of each link to be identified from link text alone, except where the purpose of the link would be ambiguous to users in general. (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-link

## Forms (content authors)

- Form Instructions
- Placeholder text
- User Notifications

### Learn more about Forms

- **Forms Tutorial**
  www.w3.org/WAI/tutorials/forms/
- Understanding SC 3.3.2 **Labels or Instructions:** Labels or instructions are provided when content requires user input. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/minimize-error-cues
- Understanding SC 3.3.1 **Error Identification:** If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/minimize-error-identified
- Understanding SC 3.3.3 **Error Suggestion:** If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content. (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/minimize-error-suggestions

## Multimedia

*[at the end]*

## Page Structure

Content authors define headings, then they need to be properly marked-up — which is a later section…

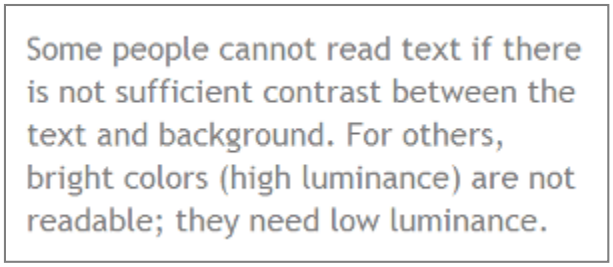
Learn more about Page Structure

*(In the later section :-)*

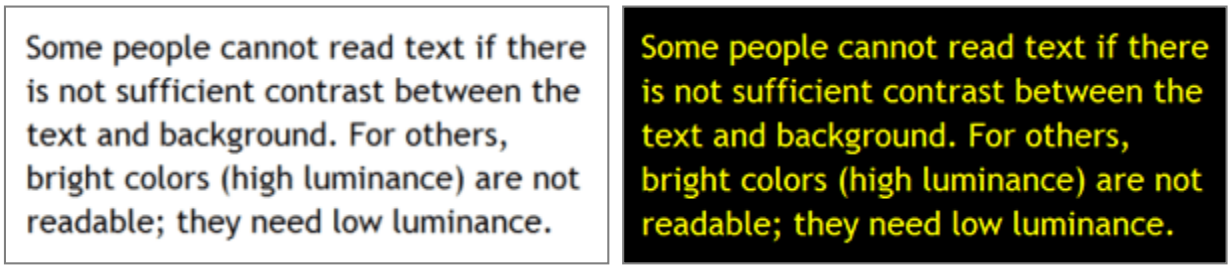
# 6
# Visual Design

## "Color" / Luminosity Contrast Ratio

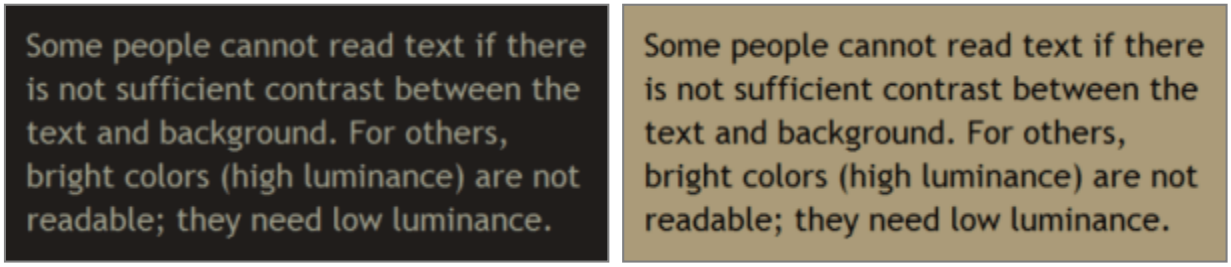
Some people cannot read text if there is not sufficient contrast between the text and background, for example, light gray text on a light background.



High contrast (for example, dark text on light background or bright text on dark background) is required by some people with visual impairments, including many older people who lose contrast sensitivity from ageing.




While some people need high contrast, for others — including some people with reading disabilities such as dyslexia — bright colors (high luminance) are not readable. They need low luminance.




Web browsers should allow people to change the color of text and background, and web pages need to work when people change colors.

*(side note: This accessibility requirement is sometimes called sufficient "color contrast"; however, that is incorrect — technically it's "luminance contrast".)*

## Learn more about Contrast Ratio

- Contrast ratio ("color contrast") in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#contrast
- Understanding SC 1.4.3 **Contrast (Minimum):** The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for the following:... (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-contrast
- Understanding SC 1.4.6 **Contrast (Enhanced):** The visual presentation of text and images of text has a contrast ratio of at least 7:1, except for the following: (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast7

# Color Coding

Some users have difficulty perceiving color. People with partial sight often experience limited color vision, and many older users do not see color well.

Examples of information conveyed by color differences: “required fields are red", “error is shown in red", and “Mary's sales are in red, Tom's are in blue". Examples of indications of an action include: using color to indicate that a link will open in a new window or that a database entry has been updated successfully. An example of prompting a response would be: using highlighting on form fields to indicate that a required field had been left blank.

Ensure that all users can access information that is conveyed by color differences.

### Color Coding Activity

Ideas for redundant coding for color…

Workshops highlighted in green are open.

**Tuesday, June 20**

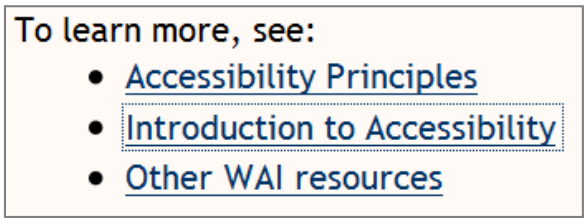
| Time | Tutorial | Cost |
|---|---|---|
| 8am-5pm | Web Accessibility: More People, More Situations, More Business. | $680 |
| 8am-5pm | Designing Usable E-Commerce Sites | $680 |
| 8am-noon | Designing Global Web Sites: Internationalization and Localization Issues | $340 |
| 1pm-5pm | Information Architecture and Usability Engineering | $340 |

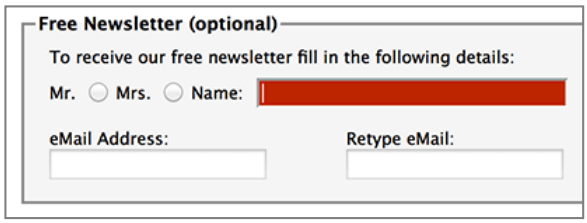
## Learn more about Color Coding

- Understanding SC 1.4.1 **Use of Color:** Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-without-color

## Focus Style

Visible keyboard focus could be a border or highlight, as shown below, that moves as you tab through the web page.




Generally, browser defaults for indicating focus are difficult to see, and content providers are encouraged to provide an enhanced visual focus style.

### Learn more about Focus Style

- Keyboard access and visual focus in Easy Checks - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#interaction
- Understanding 2.4.7 **Focus Visible:** Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible. (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-focus-visible

## Text Format

Millions of people cannot read normally-formatted text, and millions more will not be able to in the coming years as their vision declines due to ageing. Many people with low vision, dyslexia, and related conditions and situations that impact reading cannot read the text in print books, newspapers, manuals, etc. (even with reading glasses). However they can read text that is formatted differently, for example, with larger letters, different font, more spacing, etc.

Consider readability of default text, as well as working with the coder to enable user text customization.

### Learn more about Text Format

- Understanding SC 1.4.8 **Visual Presentation:** For the visual presentation of blocks of text, a mechanism is available to achieve the following:… (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-visual-presentation
- Accessibility Requirements for People with Low Vision
  www.w3.org/TR/low-vision-needs/
- **Text Customization for Readability**
  www.tader.info/

## Movement

Moving content can be a significant distraction for some people, making it difficult for them to focus on other parts of the web page. Content that moves or auto-updates can be a barrier to anyone who has trouble reading text quickly as well as anyone who has trouble tracking moving objects. It can also cause problems for screen readers.

### Learn more about Movement

- Understanding SC 2.2.2 **Pause, Stop, Hide:** For moving, blinking, scrolling, or auto-updating information, all of the following are true: (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/time-limits-pause
- Understanding SC 2.3.1 **Three Flashes or Below Threshold:** Web pages do not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/seizure-does-not-violate
- Understanding SC 2.3.2 **Three Flashes:** Web pages do not contain anything that flashes more than three times in any one second period. (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/seizure-three-times

# 7 Markup/Code

## Page Structure

### Headings

Web pages often have sections of information separated by visual headings, for example, heading text is bigger and bold (like "Headings" right above this sentence :-).

To make these work for everyone, the headings need to be marked up. That way people can navigate to the headings — including people who cannot use a mouse and use only the keyboard, and people who use a screen reader.

Heading levels should have a meaningful hierarchy, e.g.:

- Heading Level 1 <h1>
    - Heading Level 2 <h2>
        - Heading Level 3 <h3>
        - Heading Level 3 <h3>
    - Heading Level 2 <h2>
        - Heading Level 3 <h3>
            - Heading Level 4 <h4>
            - Heading Level 4 <h4>
    - Heading Level 2 <h2>

## Page Sections

To help people navigate around the page, they need to be able to identify distinctive page sections such as navigation, main content, headers, and footers.

Common page sections in HTML5:

- Main page header
- Navigation
- Main content
- Page footer
- Complementary content
- Search section

## Lists

Lists can be marked-up as unordered lists (bullets), ordered lists (numbers), and definition lists.

### Headings Activity

Indicate the heading levels (H1, H2, H3,…) on this page.

www.uwhealth.org/uw-carbone-cancer-center/patient-and-support-services/10308

# UW Carbone Cancer Center

Request a Second Opinion

- UW Carbone Cancer Center Home
- Cancer Types
- Treatments
- Patient and Support Services
- Cancer Doctors
- Clinics and Phone Numbers
- Clinical Trials
- About Us
- Make a Gift
- e-Newsletter Sign Up
- Ranked as a U.S. News & World Report "Best Hospital" for Cancer


## Patient and Support Services

The University of Wisconsin Carbone Cancer Center, the state's only comprehensive cancer center, is recognized throughout the Midwest and the nation as one of the leading innovators in cancer research, quality patient care and active community involvement.

A large component of our comprehensive care involves patient support. The links below discuss the ways we support our patients and families.

### Patient Guide

The Cancer Center Patient Guide is intended to help you learn more about receiving care at the UW Carbone Cancer Center.

- Cancer Center Patient Guide

### What to Think About When Newly Diagnosed

- Can You Still Work?
- Finding Reliable Resources
- Navigating Health Insurance

### Living with Cancer

- Cancer and Relationships: 5 Ways to Keep Things Positive
- How Can I Help Someone Who Has Cancer
- 15 Ways to be Your Own Advocate After Diagnosis
- Tips for Making Tough Cancer Decisions
- What Does a Family Cancer Diagnosis Mean for Me?
- Marriage Increases Survival: What the Studies Mean
- Tips for Making Food More Palatable

### Support Groups

- Cancer Support Groups at UW Health

**Contact Information**

**Cancer Connect**

Contact us for new appointment scheduling and information

Online Contact Form

(608) 262-5223
(800) 622-8922
e-mail Cancer Connect

**Related Resources**

Talking to Your Kids About Breast Cancer
Helping Children Cope When a Loved One Has Cancer

**Cancer e-Newsletter**

Sign Up to receive Advances, the UW Carbone Cancer Center's free e-Newsletter

### Headings Activity

Check out the headings on your pages.

**To practice checking headings in BAD:**

**Headings outline:**

- Follow one of the instructions under "Headings outline" above and use the accessible News page: **www.w3.org/WAI/demos/bad/after/news**. Notice there is a nice hierarchical outline.
- Next, use the inaccessible News page: **www.w3.org/WAI/demos/bad/before/news**. (In HTML Validator, the "Check" button might now say "Revalidate".) Notice there is just one heading.

**Heading markup in the page:**

- Start by visually looking at the inaccessible BAD news page: **www.w3.org/WAI/demos/bad/before/news**. What looks like headings? *(Citylights News, Heat wave linked to temperatures, Man Gets Nine Months in Violin Case, ...)*
- Next, see how it should look. Follow one of the instructions for "Heading markup in the page" above on the accessible News page: **www.w3.org/WAI/demos/bad/after/home**. Notice the headings have icons next to them.
- Next, see what it looks like when headings are not marked up. Use the inaccessible News page:**www.w3.org/WAI/demos/bad/before/home**. Notice there is text that visually looks like headings, but does not have headings icons next to it. (With WAVE, there are yellow icons with "h?" because it thinks these might be headings.)

### Learn more about Page Structure

- **Page Structure Tutorial**
  www.w3.org/WAI/tutorials/page-structure/
- Headings in **Easy Checks** - A First Review of Web Accessibility
  http://www.w3.org/WAI/eval/preliminary#headings
- Understanding SC 1.3.1 **Info and Relationships:** Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/content-structure-separation-programmatic
- Understanding SC 2.4.1 **Bypass Blocks:** A mechanism is available to bypass blocks of content that are repeated on multiple Web pages. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-skip
- Understanding SC 2.4.6 **Headings and Labels:** Headings and labels describe topic or purpose. (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-descriptive
- Understanding SC 2.4.10 **Section Headings:** Section headings are used to organize the content. (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-headings

## Keyboard Access

Many people cannot use a mouse and rely on the keyboard to interact with the Web. People who are blind and some sighted people with mobility impairments rely on the keyboard or on assistive technologies and strategies that rely on keyboard commands, such as voice input. Websites need to enable people to access all content and functionality — links, forms, media controls, etc. — through a keyboard.

Keyboard focus should be visible and should follow a logical order through the page elements.

What to check for

- **Tab to all:** Check that you can tab to all the elements, including links, form fields, buttons, and media player controls. (A common problem is that you cannot tab to media player controls.)
- **Tab away:** Check that you can tab **away** from all elements that you can tab into. (A common problem is the keyboard focus gets caught in media controls and you cannot get out; it's called the "keyboard trap".)
- **Tab order:** Check that the tab order follows the logical reading order (e.g., for left-to-right languages: top to bottom, left to right) in sequence.
- **Visual focus:** Check that the focus is clearly visible as you tab through the elements, that is, you can tell which element has focus, e.g., links have a gray outline around them or are highlighted.
- **All functionality by keyboard:** Check that you can do everything with the keyboard; that is, you don't need the mouse to activate actions, options, visible changes, and other functionality. (A common problem is that some functionality is available only with mouse hover, and is not available with keyboard focus.)
- **Drop-down lists:** Check that after you tab into a drop-down list, you can use the arrow keys to move through all the options without triggering an action. (A common problem for drop-downs used for navigation is that as soon as you arrow down, it automatically selects the first item in the list and goes to a new page — you cannot get to other items in the list.)
- **Image links:** Check that when images are links, they have clear visual focus and can be activated using the keyboard (usually by pressing the Enter key).

## Learn more about Keyboard Access

- Keyboard access and visual focus in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#interaction
- Understanding Guideline 2.**1 Make all functionality available from a keyboard**.
  www.w3.org/TR/UNDERSTANDING-WCAG20/keyboard-operation
- Understanding SC 2.4.3 **Focus Order:** If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-focus-order

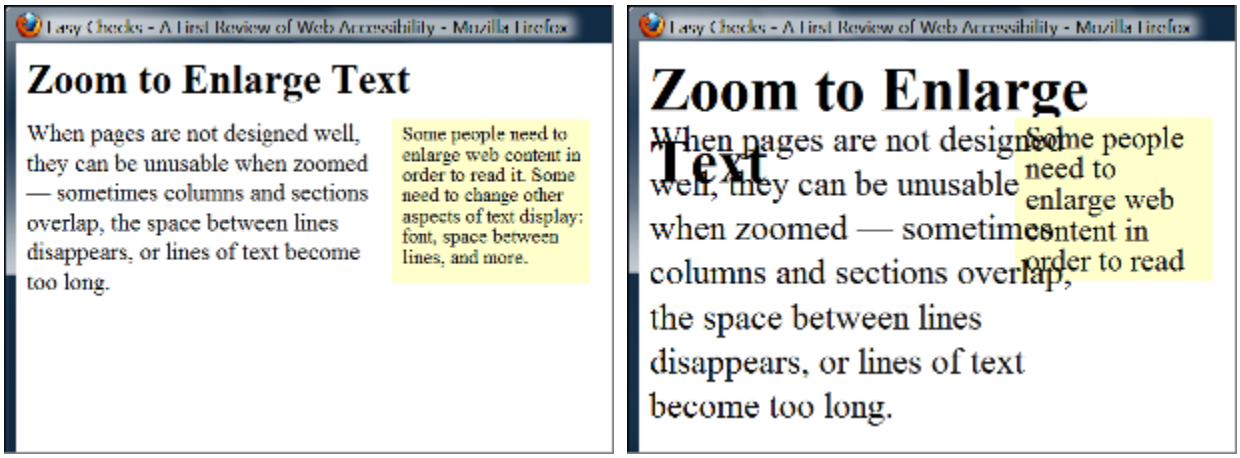
# Enable Text Resizing

Some people need to enlarge web content in order to read it. Some need to change other aspects of text display: font, space between lines, and more.

Most browsers allow users to change text size through:

- text size settings (usually through Options or Preferences)
- text-only zoom
- page zoom (which also zooms images, buttons, etc.)

When pages are not designed properly, they can be unusable when the text size is changed, especially when it is changed through text-only zoom or text settings. Sometimes columns and sections overlap, the space between lines disappears, lines of text become too long, or text disappears.




*Images: Two screen captures show that when text size is increased, the heading overlaps the main text, the main text overlaps the sidebar text; and the sidebar text is cut off at the bottom.*

When text size is increased, sometimes part of the sentences are not visible and users have to scroll horizontally to read a sentence, as shown in the third example below. Most people cannot effectively read text that requires horizontal scrolling, and some disabilities make this impossible.


*Images: The first image shows normal-size text. In the second image, the larger text "wraps" to fit the width. In the third image, some of the larger text is not visible without scrolling horizontally.*

## Learn more about Enabling Text Resizing

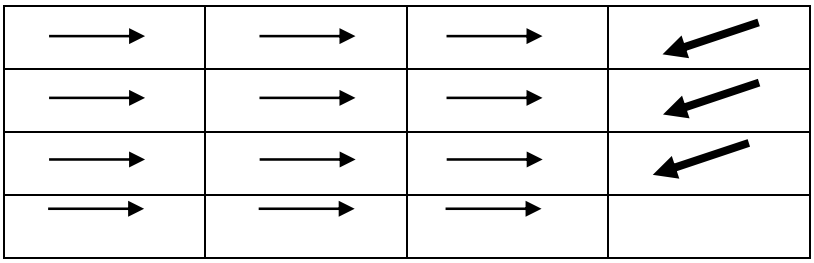
- Resize text in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#resize
- Understanding SC 1.4.4 **Resize text:** Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality. (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-scale
- Understanding SC 1.4.5 **Images of Text:** If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for the following: [...] (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-text-presentation

# Table Markup

Accessible tables need HTML markup that indicates header cells and data cells, and defines their relationship. Assistive technologies use this information to provide context to users.

To make tables accessible, mark up header cells with <th> and data cells with <td>. For more complex tables, explicit associations may be needed using scope, id, and headers attributes.

Linearization



## Learn more about Table Markup

**Tables Tutorial**
www.w3.org/WAI/tutorials/tables/

# Forms Markup

Provide labels to identify all form controls, including text fields, checkboxes, radio buttons, and drop-down menus. In most cases this is done by using the <label> element.

A label and a form control need to be associated with each other either implicitly or explicitly. Web browsers provide the label as a larger clickable area, for example, to select or activate the control. It also ensures that assistive technology is able to refer to the correct label when presenting a form control.

When labels are marked up correctly, people can interact with them using only the keyboard, using voice input, and using screen readers. Also, the label itself becomes clickable, which enables a person who has difficulty clicking on small radio buttons or checkboxes to click anywhere on the label text.

## Learn more about Forms Markup

- **Forms Tutorial**
  www.w3.org/WAI/tutorials/forms/
- Forms, labels, and errors in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#forms
- Understanding 1.3.1 **Info and Relationships:** Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/content-structure-separation-programmatic
- Understanding 2.4.6 **Headings and Labels:** Headings and labels describe topic or purpose. (AA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-descriptive
- Understanding 3.3.2 **Labels or Instructions:** Labels or instructions are provided when content requires user input. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/minimize-error-cues
- Understanding 4.1.2 **Name, Role, Value:** For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/ensure-compat-rsv

# 7
# Overall example: Multimedia

## Multimedia

Information in podcasts or other audio is not available to people who are deaf or some people who are hard of hearing, unless it is provided in an alternative format such as captions and text transcripts. Visual information in videos is not available to people who are blind or some people what have low vision, unless it is provided in an alternative format such as audio or text. (Text can be read by a screen reader or Braille display, or enlarged and reformatted for people with low vision.)

- Keyboard access
- Captions
- Transcript
- Audio description

## Learn more about Multimedia

- Multimedia (video, audio) alternatives in **Easy Checks** - A First Review of Web Accessibility
  www.w3.org/WAI/eval/preliminary#media
- W3C Multimedia Accessibility FAQ
  www.w3.org/2008/06/video-notes
- Understanding SC 1.2.2 **Captions** (Prerecorded): Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/media-equiv-captions
- Understanding SC 1.2.3 **Audio Description or Media Alternative** (Prerecorded): An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labeled as such. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/media-equiv-audio-desc
- Understanding SC 1.4.2 **Audio Control**: If any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level. (A)
  www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-dis-audio
- Understanding SC 1.2.8 **Media Alternative** (Prerecorded): An alternative for time-based media is provided for all prerecorded synchronized media and for all prerecorded video-only media. (AAA)
  www.w3.org/TR/UNDERSTANDING-WCAG20/media-equiv-text-doc

# 8
# Conclusions