What’s new in WCAG 2.1

WebAIM
web accessibility in mind

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WebAIM.org

Resources online at:

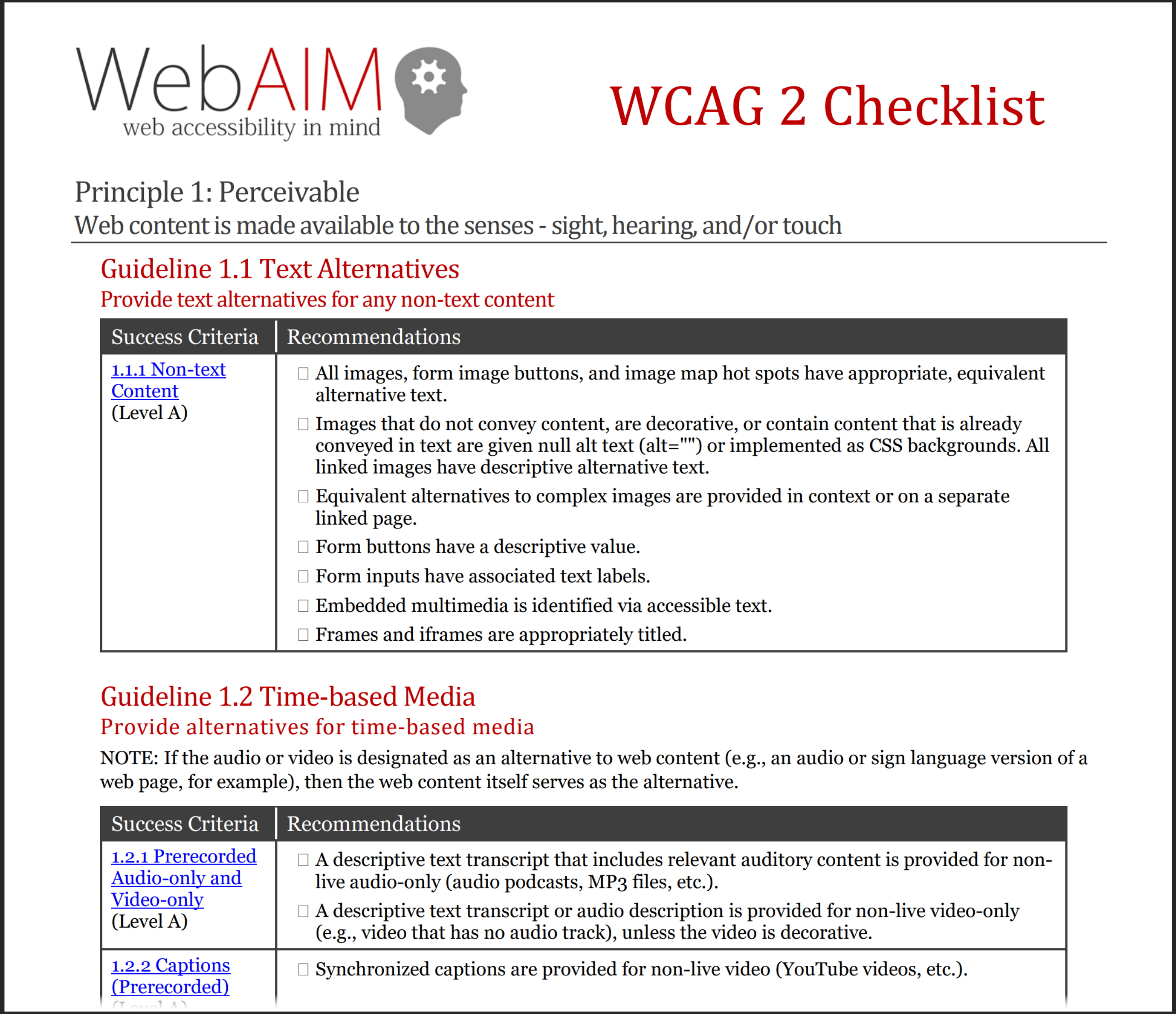
webaim.org/presentations/2022/mnit

Outline

- Overview of WCAG 2 and law
- Low vision – Zooming content
- Low vision – Contrast
- Screen reader users – Label and name
- Cognitive and learning disabilities – Text spacing
- Preview of upcoming session

WCAG 2

- Web Content Accessibility Guidelines
- Versions 1.0 (1999), 2.0 (2008), and 2.1 (2018)
- WCAG 2.2 in the works
- Principles based
  - **P**erceivable
  - **O**perable
  - **U**nderstandable
  - **R**obust



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WCAG 2 Checklist

Principle 1: Perceivable

Web content is made available to the senses - sight, hearing, and/or touch

Guideline 1.1 Text Alternatives

Provide text alternatives for any non-text content

Success Criteria	Recommendations
1.1.1 Non-text Content (Level A)	□ All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. □ Images that do not convey content, are decorative, or contain content that is already conveyed in text are given null alt text (alt="") or implemented as CSS backgrounds. All linked images have descriptive alternative text. □ Equivalent alternatives to complex images are provided in context or on a separate linked page. □ Form buttons have a descriptive value. □ Form inputs have associated text labels. □ Embedded multimedia is identified via accessible text. □ Frames and iframes are appropriately titled.

Guideline 1.2 Time-based Media

Provide alternatives for time-based media

NOTE: If the audio or video is designated as an alternative to web content (e.g., an audio or sign language version of a web page, for example), then the web content itself serves as the alternative.

Success Criteria	Recommendations
1.2.1 Prerecorded Audio-only and Video-only (Level A)	□ A descriptive text transcript that includes relevant auditory content is provided for non-live audio-only (audio podcasts, MP3 files, etc.). □ A descriptive text transcript or audio description is provided for non-live video-only (e.g., video that has no audio track), unless the video is decorative.
1.2.2 Captions (Prerecorded) (Level A)	□ Synchronized captions are provided for non-live video (YouTube videos, etc.).

webaim.org/standards/wcag/checklist

Legal requirements

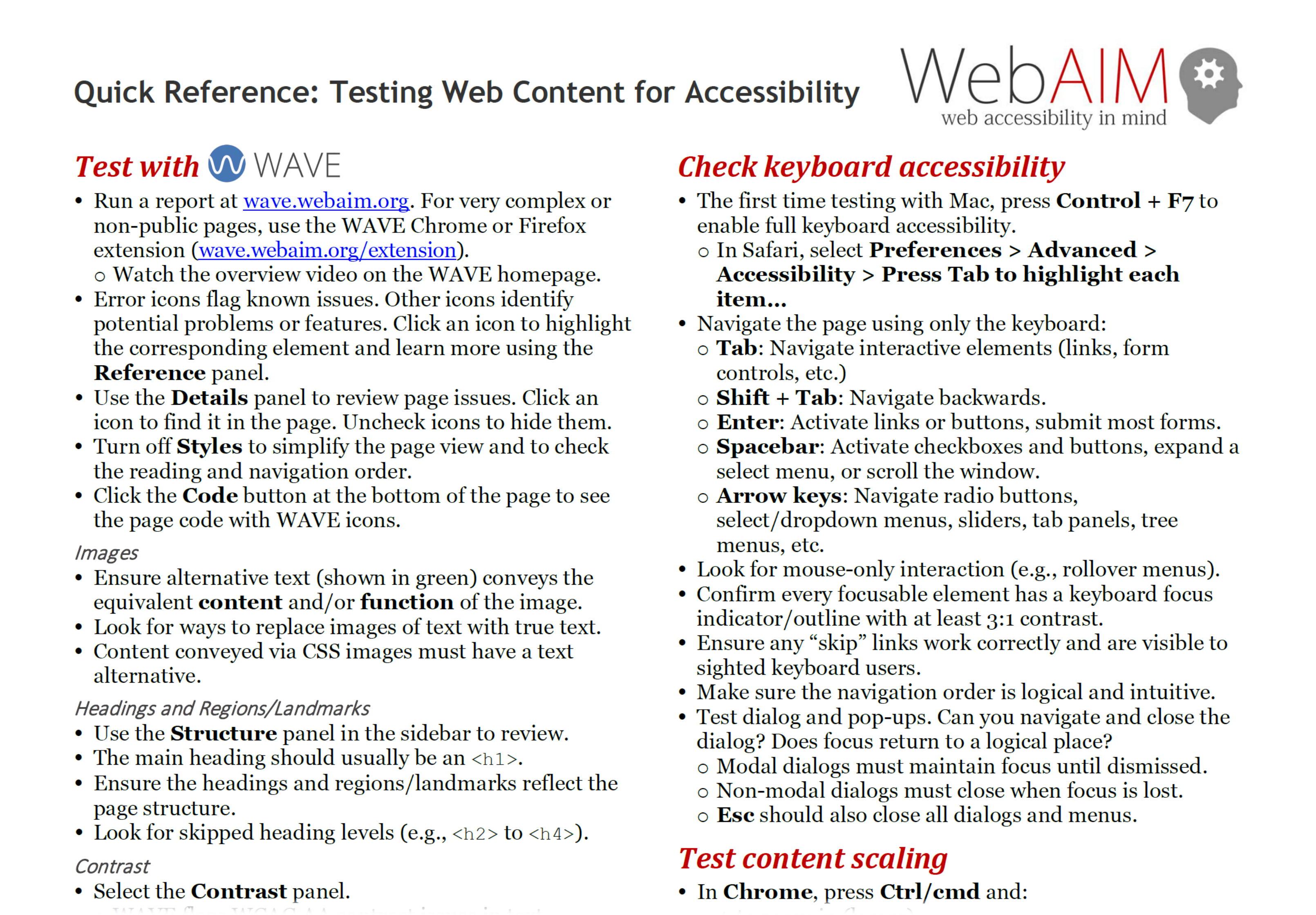
- Section 508
  - US federal agencies
  - WCAG 2.0
- MN state law
  - WCAG 2.0
- Americans with Disabilities Act
  - 3 Important sections – employment, state/local government, public & commercial facilities
  - No technical accessibility standard
  - Complaints reference WCAG 2.0 or 2.1

Visual Disabilities

Low Vision

Browser Zoom

- Browser controls
  - Larger: Ctrl/command & +
  - Smaller: Ctrl/command & -
  - Reset : Ctrl/command & 0
- Zoomed content will trigger responsive breakpoints
  - Responsive design supports users with low vision who zoom page content



Quick Reference: Testing Web Content for Accessibility

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Test with WAVE

- Run a report at wave.webaim.org. For very complex or non-public pages, use the WAVE Chrome or Firefox extension (wave.webaim.org/extension).
  - Watch the overview video on the WAVE homepage.
- Error icons flag known issues. Other icons identify potential problems or features. Click an icon to highlight the corresponding element and learn more using the **Reference** panel.
- Use the **Details** panel to review page issues. Click an icon to find it in the page. Uncheck icons to hide them.
- Turn off **Styles** to simplify the page view and to check the reading and navigation order.
- Click the **Code** button at the bottom of the page to see the page code with WAVE icons.

Images

- Ensure alternative text (shown in green) conveys the equivalent **content** and/or **function** of the image.
- Look for ways to replace images of text with true text.
- Content conveyed via CSS images must have a text alternative.

Headings and Regions/Landmarks

- Use the **Structure** panel in the sidebar to review.
- The main heading should usually be an `<h1>`.
- Ensure the headings and regions/landmarks reflect the page structure.
- Look for skipped heading levels (e.g., `<h2>` to `<h4>`).

Contrast

- Select the **Contrast** panel.

Check keyboard accessibility

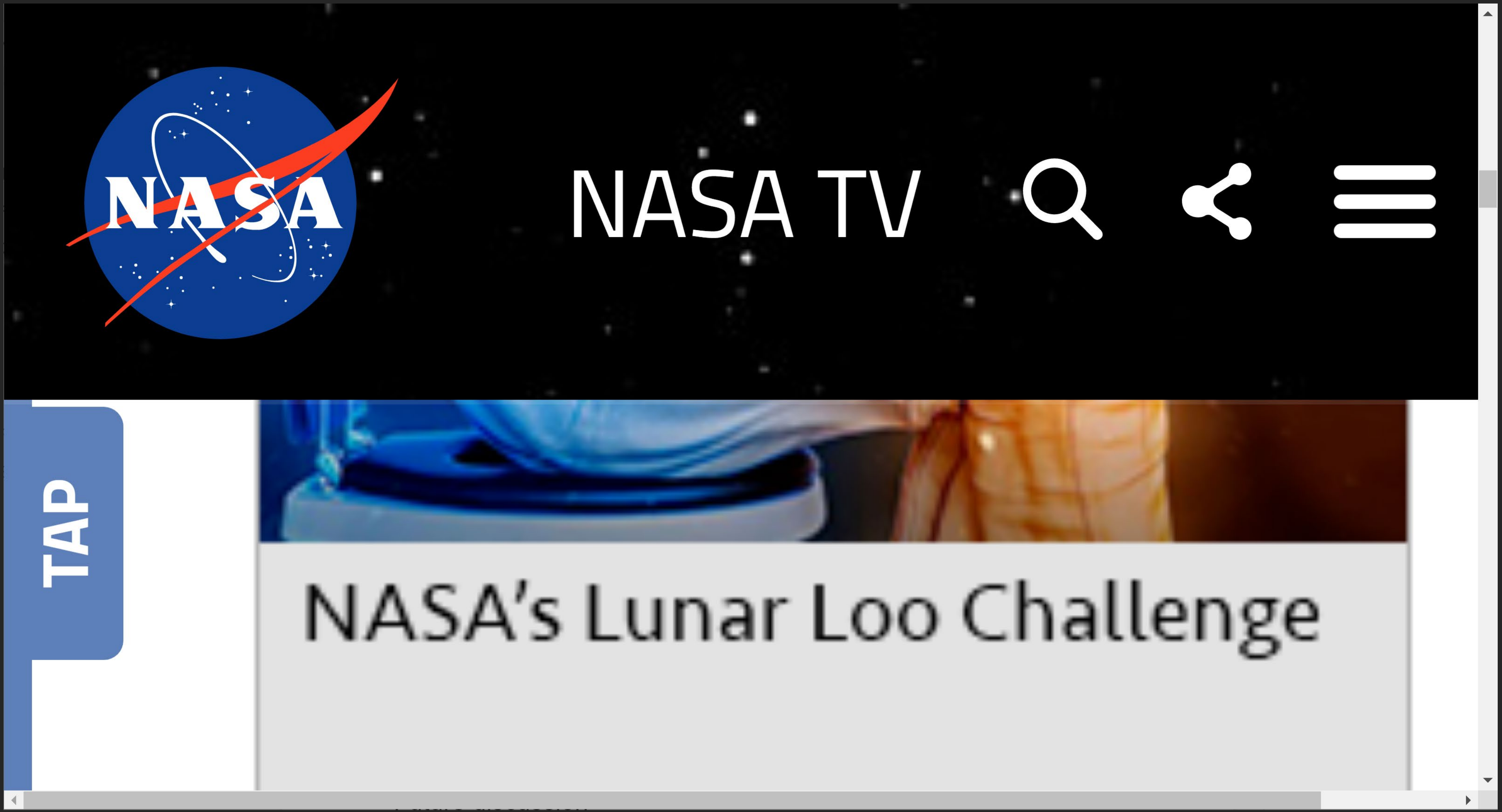
- The first time testing with Mac, press **Control** + **F7** to enable full keyboard accessibility.
  - In Safari, select **Preferences** > **Advanced** > **Accessibility** > **Press Tab to highlight each item...**
- Navigate the page using only the keyboard:
  - **Tab**: Navigate interactive elements (links, form controls, etc.)
  - **Shift** + **Tab**: Navigate backwards.
  - **Enter**: Activate links or buttons, submit most forms.
  - **Spacebar**: Activate checkboxes and buttons, expand a select menu, or scroll the window.
  - **Arrow keys**: Navigate radio buttons, select/dropdown menus, sliders, tab panels, tree menus, etc.
- Look for mouse-only interaction (e.g., rollover menus).
- Confirm every focusable element has a keyboard focus indicator/outline with at least 3:1 contrast.
- Ensure any “skip” links work correctly and are visible to sighted keyboard users.
- Make sure the navigation order is logical and intuitive.
- Test dialog and pop-ups. Can you navigate and close the dialog? Does focus return to a logical place?
  - Modal dialogs must maintain focus until dismissed.
  - Non-modal dialogs must close when focus is lost.
  - **Esc** should also close all dialogs and menus.

Test content scaling

- In **Chrome**, press **Ctrl/cmd** and:

webaim.org/resources/evalquickref

Browser Zoom on nasa.gov



NASA's Lunar Loo Challenge

WCAG Zoom Requirements

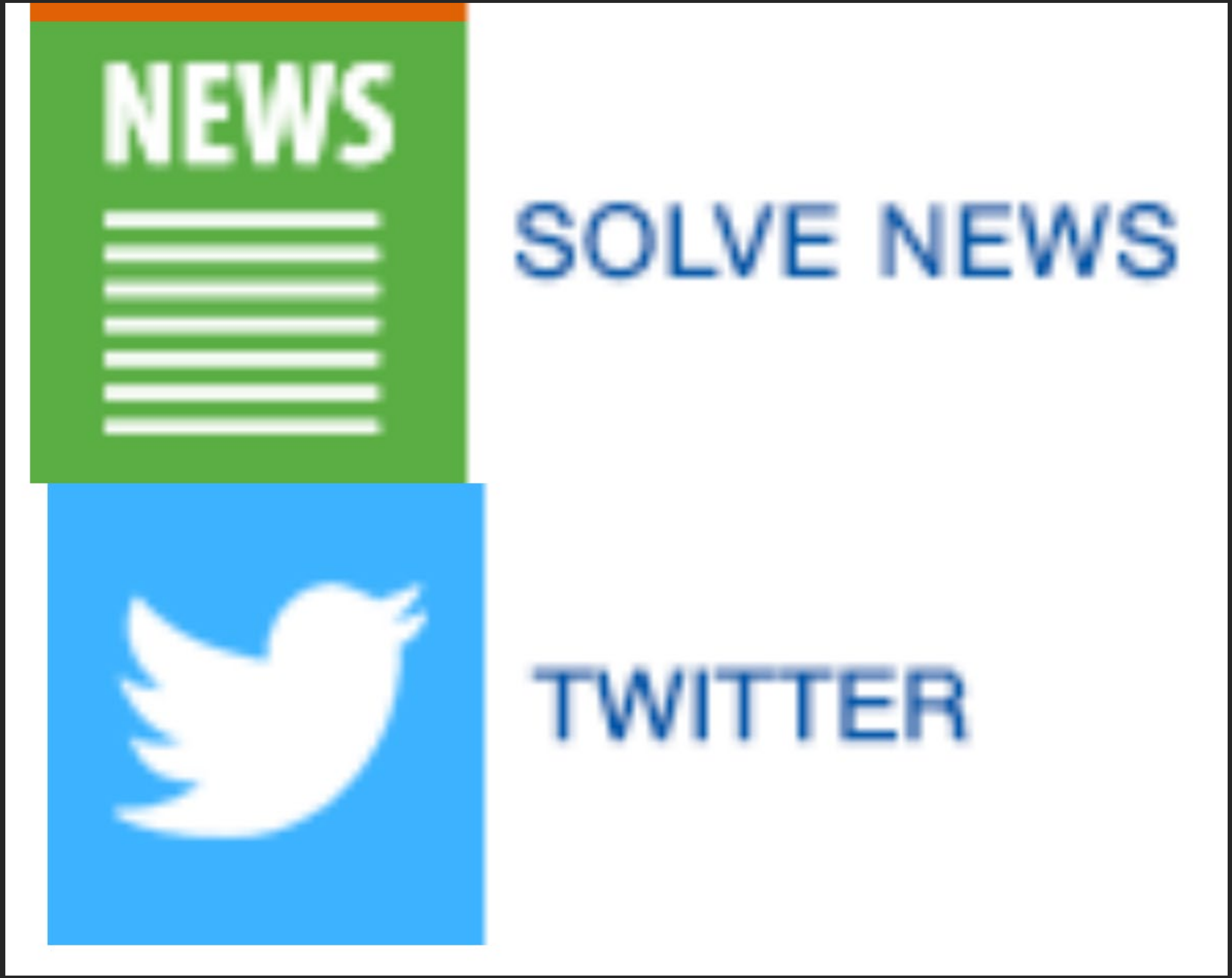
1.4.4 Resize text (Level AA)

- “Except for captions and images of text, text can be resized without assistive technology up to 200% without loss of content or functionality.”
- Zoom to 200% is supported.

1.4.10 Reflow (Level AA - WCAG 2.1)

- “Content can be presented without loss of information or functionality…” and without horizontal scrolling (except when necessary) at 400% zoom with viewport width at 1280 pixels.

Images of Text



SOLVE NEWS

TWITTER

Evaluate page zoom

- Ctrl/command & +, -, 0
- Zoom to 200%
- Resize to 1280px and Zoom to 400%
  - Any horizontal scrolling?
- Test the mobile menu

Provide Sufficient Contrast

[WebAIM contrast article]

WCAG Contrast Formula

(L1 + 0.05) / (L2 + 0.05)

where

L = 0.2126 * R + 0.7152 * G + 0.0722 * B

where

R, G, and B =

R_{sRGB} <= 0.03928 then R = R_{sRGB}/12.92
else R = ((R_{sRGB}+0.055)/1.055) ^ 2.4

where

R_{sRGB} < = R_{8bit}/255

21:1

21:1

Level AA Contrast Examples

4.5:1

Gray (#767676) on White

Purple (#CC21CC) on White

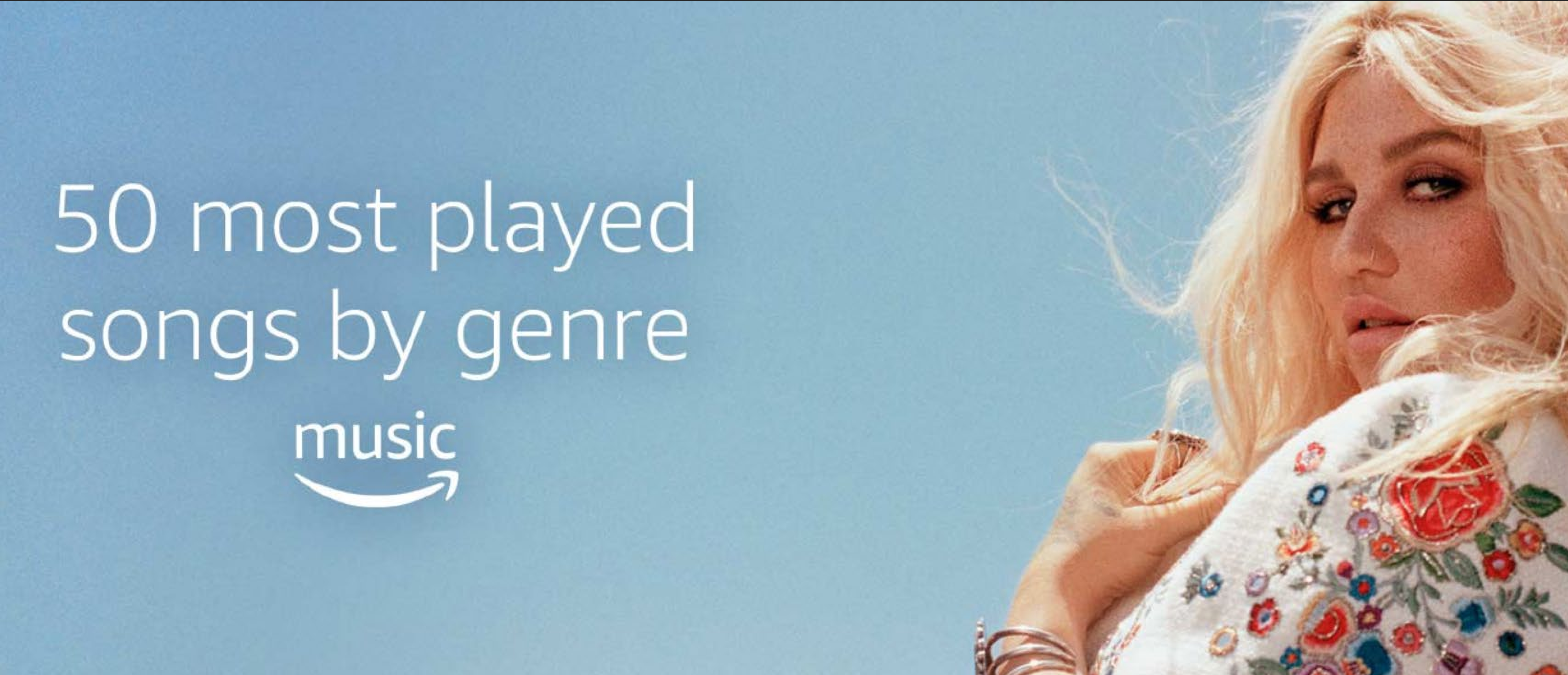
Red (#E30000) on Yellow (#FFFF00)

3:1 – “Large” text

≥18pt (24px)

BOLD: ≥14pt (18.67px)

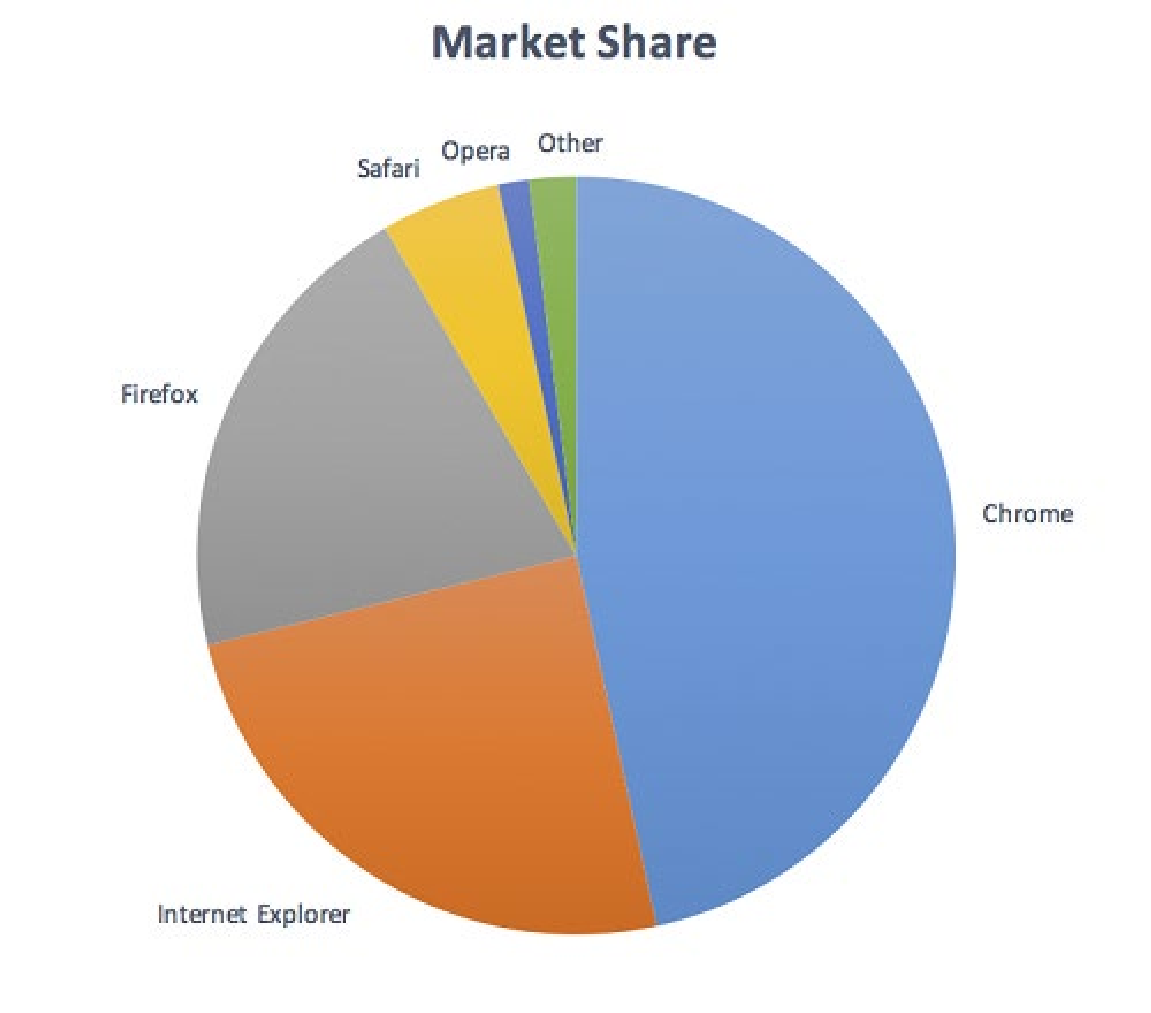
“Images of text”



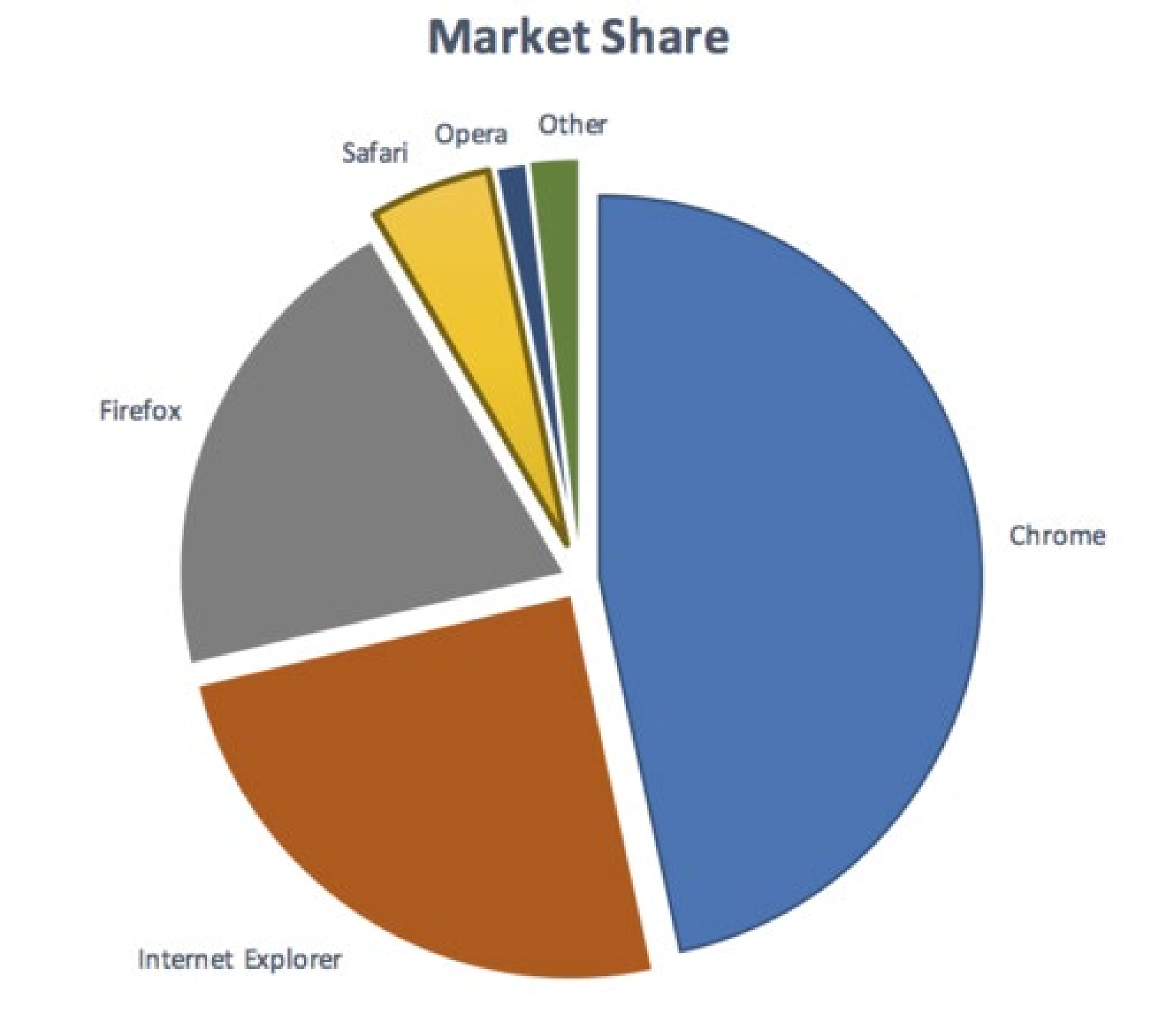
WebAIM Contrast Checker

webaim.org/resources/contrastchecker/

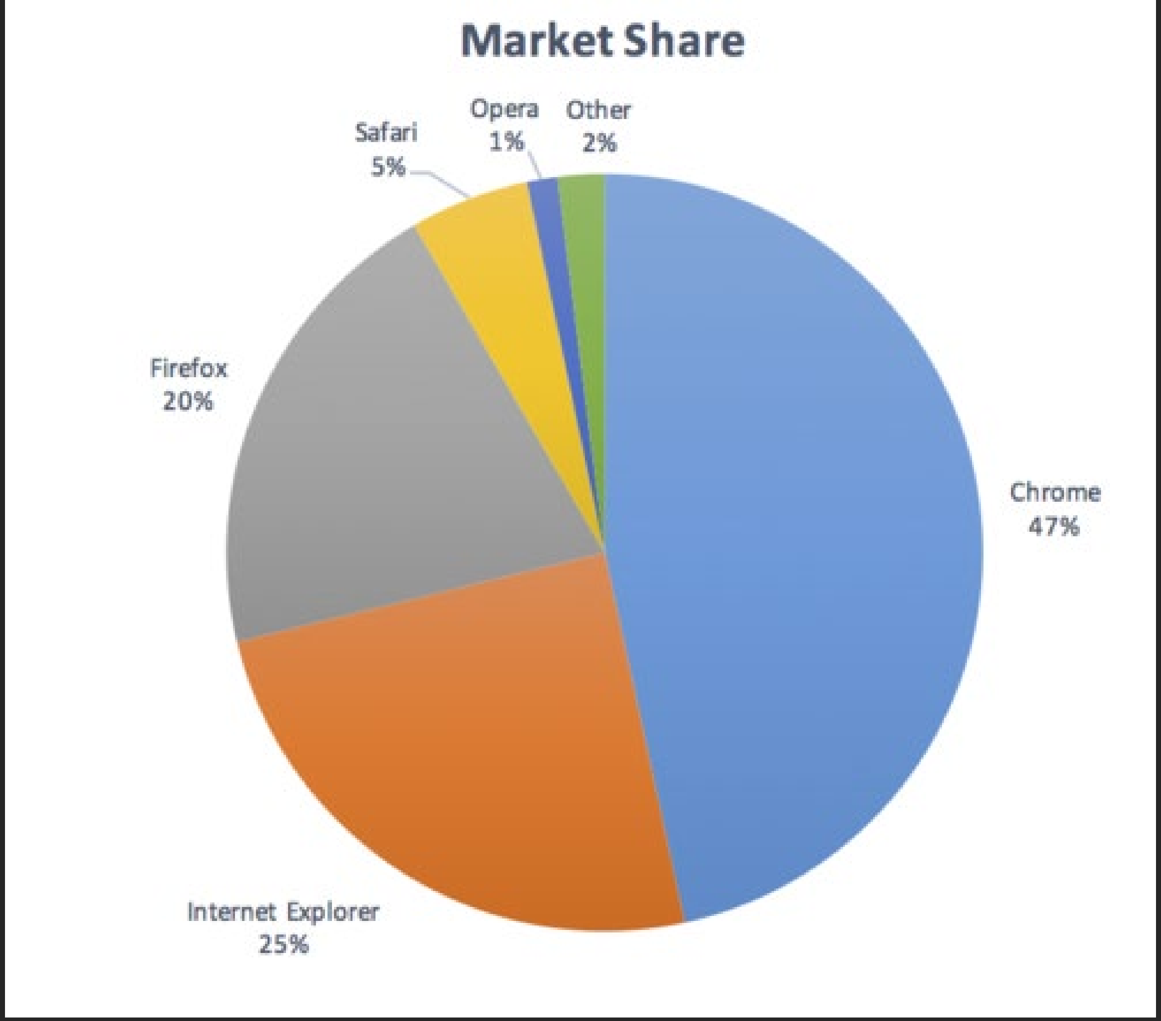
WCAG 2.1 – 3:1 Contrast of "Graphical Objects"



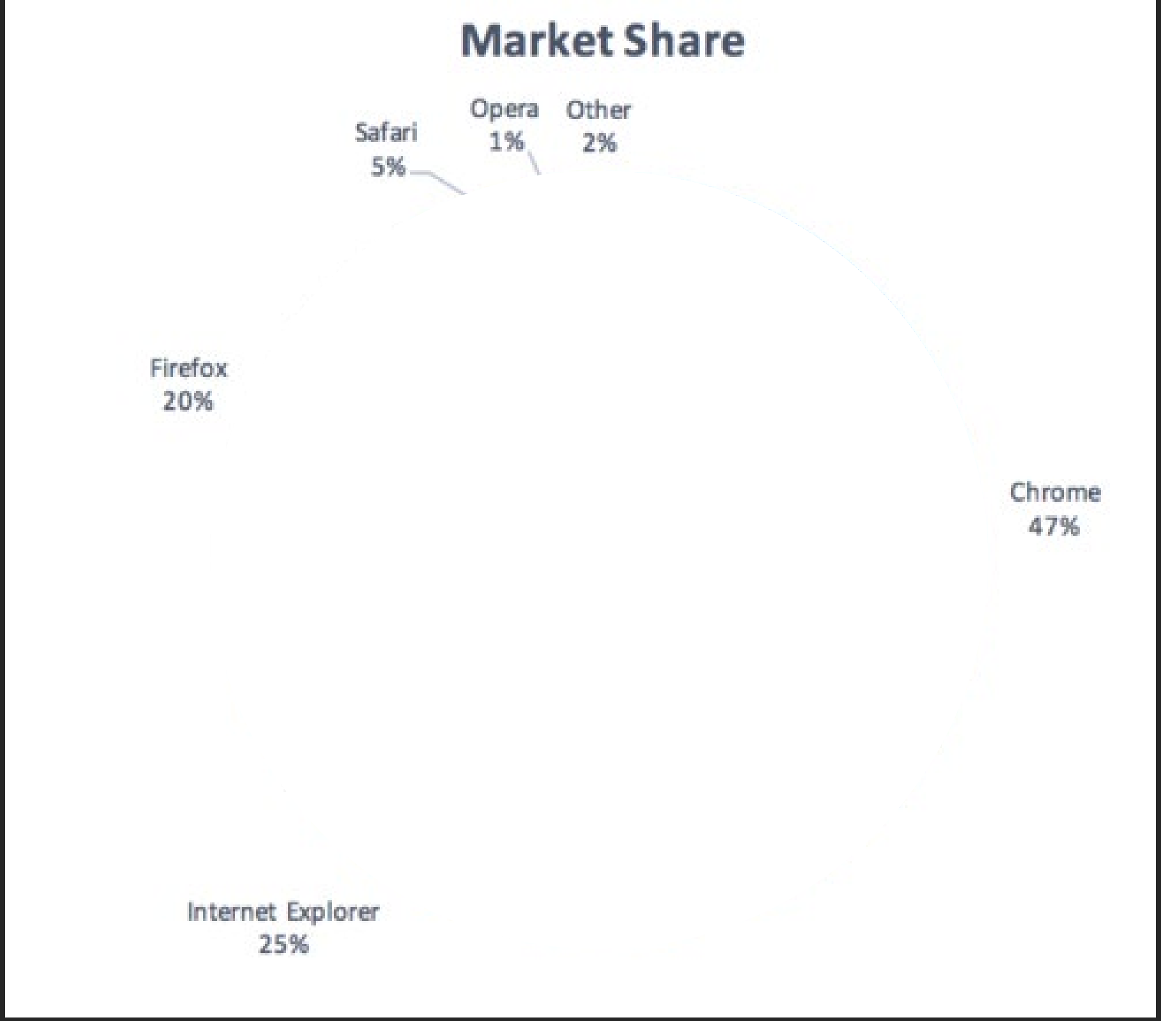
“Against Adjacent color(s)”



“…required to understand”



“…required to understand”



WCAG 2 “Label” and “Name”

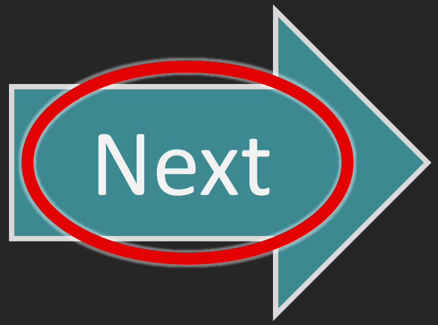
WCAG requires a “label” (2.4.6, 3.3.2) and “name” (1.1.1)

- The **Label** is visually presented
- The **Name** is presented to assistive technology
  - Also called “accessible name”
  - May be visually hidden

3 principles of accessible names

1. All interactive elements must have an accessible name.
2. An element can only have one accessible name.
3. To be sure of the name, you must test with a screen reader or inspect the HTML.

What is the WCAG “Label”?



What is the WCAG “Name”?

```
<a href="page2.php"…>
   <img alt="Next"…>
</a>
```

“Label” and “Name” are often the same

Code	Label	Name
`<a href="…">Log in</a>`	Log in	“Log in”

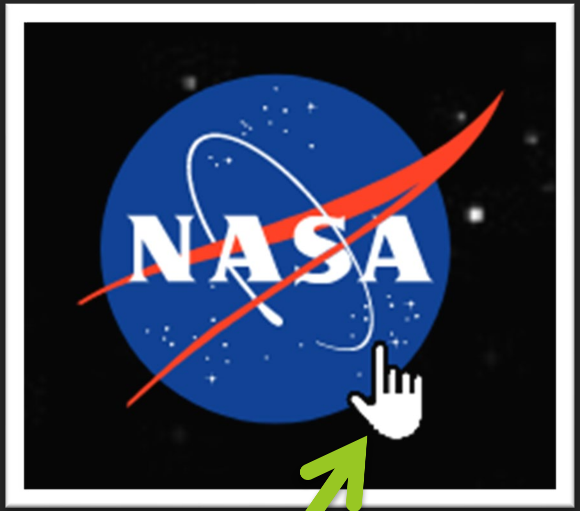
`<label>First Name:`
`<input type="text">`
`</label>`
	First Name:
	▭
		“First Name:”

`<button>Activate`
`</button>`
		“Activate”

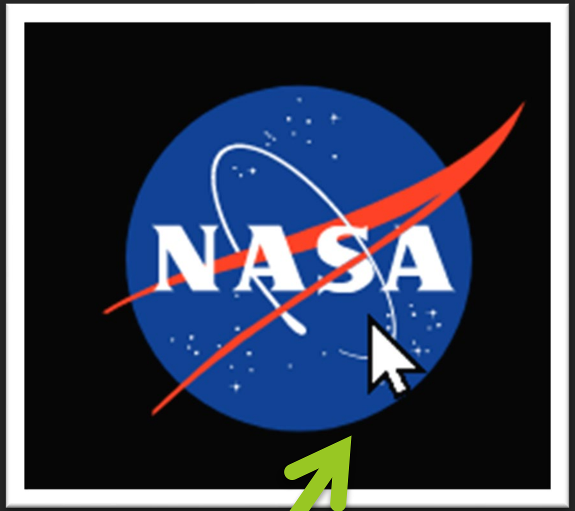
2.5.3 – Label in Name (Level A)

“For user interface components with labels that include text or images of text, the name contains the text presented.”

“User interface components”

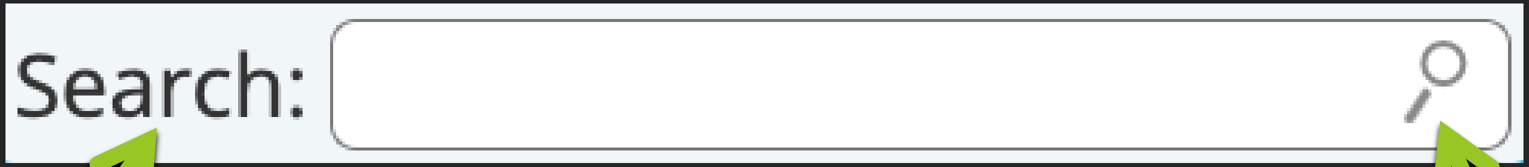


UI component



NOT a UI component

“Labels that include text or images of text”

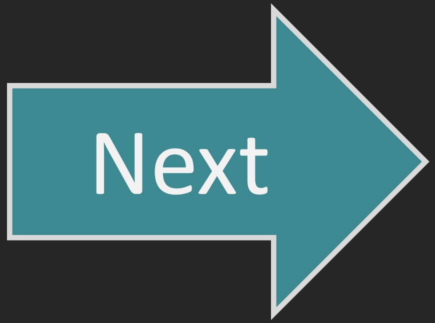


Text in label

No text in label

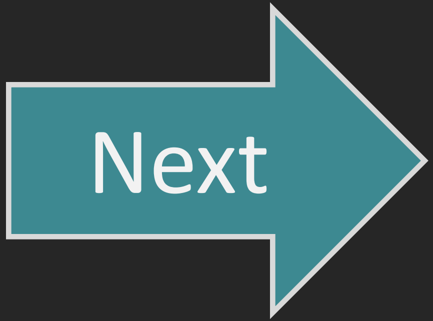
“The name contains the text presented”

Label not in Name – Fails 2.5.3



```
<a href="page2.php"…>
   <img alt="Continue"…>
</a>
```

Label *in* Name – Passes 2.5.3



```
<a href="page2.php"…>
   <img alt="Next Page"…>
</a>
```

Better solution

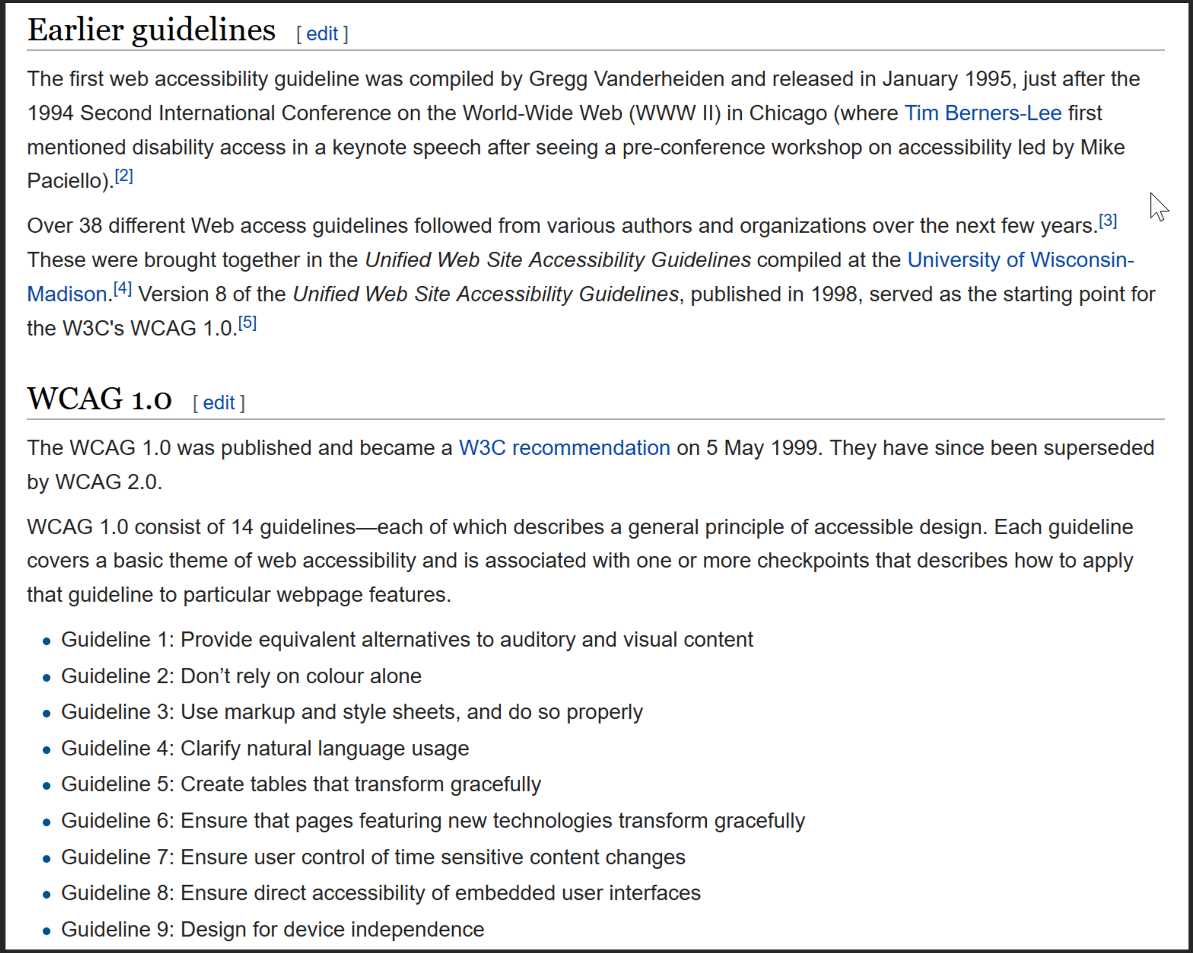
```
<a href="page2.php"…>
   <img alt="Next"…>
</a>
```

WCAG 2.1 – 1.4.12 Text Spacing (Level AA)

“No loss of content or functionality occurs” when the ***user*** increases spacing between:

- Paragraphs: 2 × font size
- Lines: 1.5 × font size
- Words: 16% font size
- Letters: 12% font size

Text Spacing Applied



Earlier guidelines [edit]

The first web accessibility guideline was compiled by Gregg Vanderheiden and released in January 1995, just after the 1994 Second International Conference on the World-Wide Web (WWW II) in Chicago (where Tim Berners-Lee first mentioned disability access in a keynote speech after seeing a pre-conference workshop on accessibility led by Mike Paciello).[2]

Over 38 different Web access guidelines followed from various authors and organizations over the next few years.[3] These were brought together in the *Unified Web Site Accessibility Guidelines* compiled at the University of Wisconsin-Madison.[4] Version 8 of the *Unified Web Site Accessibility Guidelines*, published in 1998, served as the starting point for the W3C's WCAG 1.0.[5]

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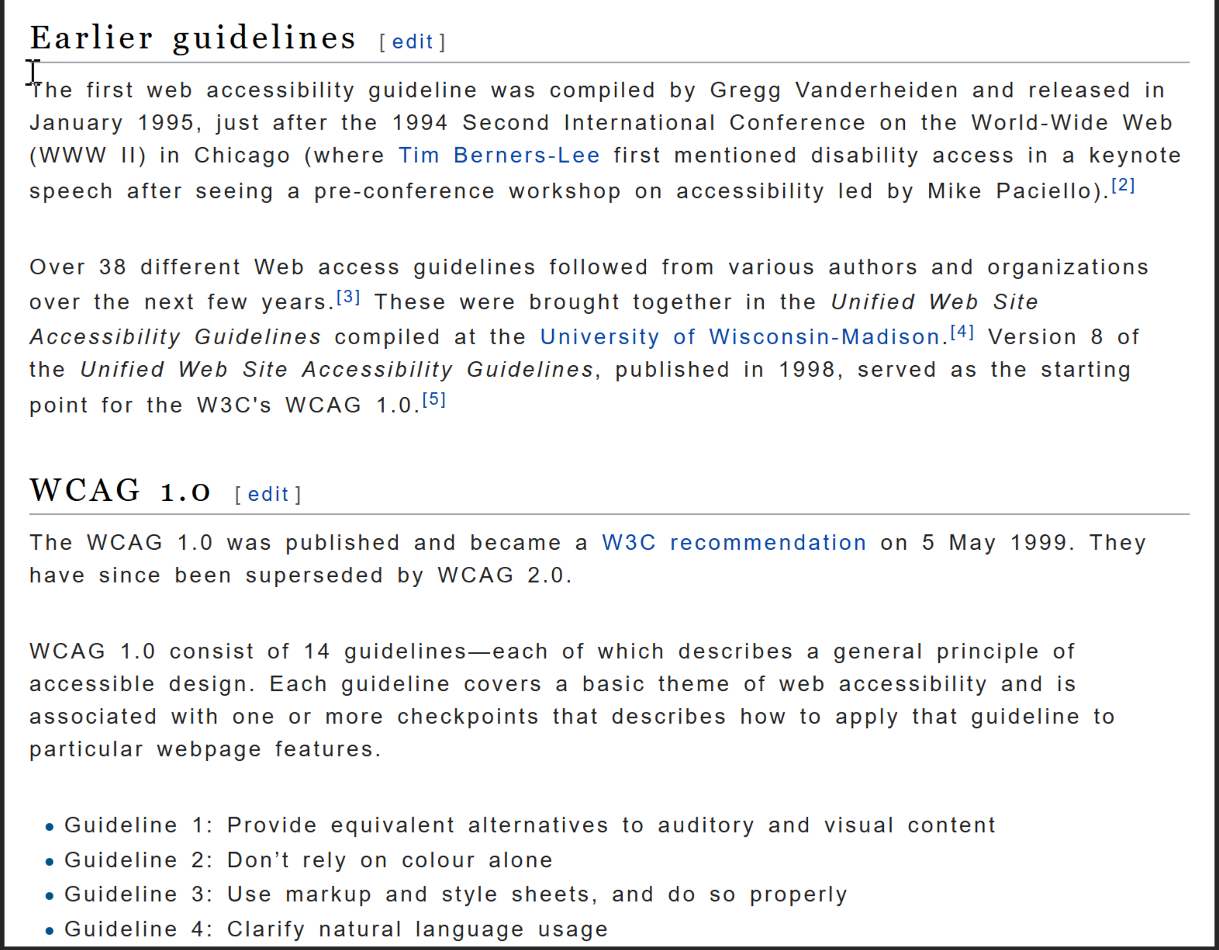
WCAG 1.0 consist of 14 guidelines—each of which describes a general principle of accessible design. Each guideline covers a basic theme of web accessibility and is associated with one or more checkpoints that describes how to apply that guideline to particular webpage features.

- Guideline 1: Provide equivalent alternatives to auditory and visual content
- Guideline 2: Don’t rely on colour alone
- Guideline 3: Use markup and style sheets, and do so properly
- Guideline 4: Clarify natural language usage
- Guideline 5: Create tables that transform gracefully
- Guideline 6: Ensure that pages featuring new technologies transform gracefully
- Guideline 7: Ensure user control of time sensitive content changes
- Guideline 8: Ensure direct accessibility of embedded user interfaces
- Guideline 9: Design for device independence



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Text spacing bookmarklet

Session 2 preview

- Non-Text Contrast – UI components
- Testing “Text Spacing”
- Tooltips
- Autocomplete attribute
- Single-key shortcuts
- Popup/Toast messages
- Mobile accessibility – Screen orientation, gestures, motion, target size, etc.

Thank You!

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