

Web Accessibility Training



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WebAIM.org

Resources online at:

webaim.org/presentations/2023/sbctc

Outline

- Overview of WCAG 2
- Brief overview of strategic accessibility principles
- Introduction to WAVE (there will be evaluation activities throughout the training)
- Auditory disabilities and multimedia
- Visual disabilities
 - Contrast
 - Color reliance
 - Screen reader users
- Photosensitive epilepsy
- Cognitive and learning disabilities
- Motor disabilities

Is your web content accessible?

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
 - Perceivable
 - Operable
 - Understandable
 - Robust

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)	☐ Synchronized captions are provided for non-live video (YouTube videos, etc.).

Legal requirements

- Washington Policy Number 188
- Section 508
 - US federal agencies
 - 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
- Other laws reference (or do not exceed) WCAG 2 A/AA

VPAT – Voluntary Product Accessibility Template

Criteria	Supporting Feature	Remarks and Explanations
2.4.2 Page Titled: Web pages have titles that describe topic or purpose.	Supported	
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.	Supported With Exceptions	On invoking 'Generate a description for me' button in the Alt Text pane, keyboard focus falls on 'Close' button instead of moving to Description edit field.
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.	Supported	
2.4.5 Multiple Ways: More than one way is available to locate a Web page	Supported	

[Templates Available for 508, WCAG, EU, and all-in-one](#)

WebAIM Accessibility Services

- Next week: “IT Procurement and Accessibility in Higher Ed”
- [StrategicA11y - Strategic Web Accessibility Workshops](#)
 - April 5-6 and 12-13
- Consulting
 - Policy development and implementation
 - System-wide coordination
 - Testing and risk assessments

Strategic web accessibility



ncdae.org/goals/



WAVE

web accessibility evaluation tool

wave.webaim.org

User experience

Auditory Disabilities



PULL THE LEVER, KRONK.

Multimedia accessibility requirements

- Captions required for multimedia
 - Automatic captions continue to improve, but are they good enough?
- Descriptive transcripts for audio-only content
 - Recommended for multimedia
- Audio descriptions for important visual-only content



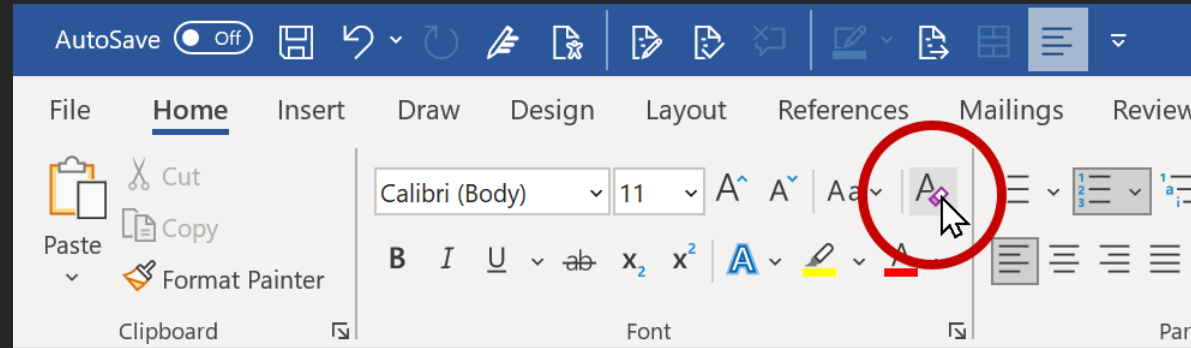
Audio Description

A narrator that describes visual content



Avoid expensive audio descriptions by ensuring important visual content is presented audibly.

Action + Name + Description + Location

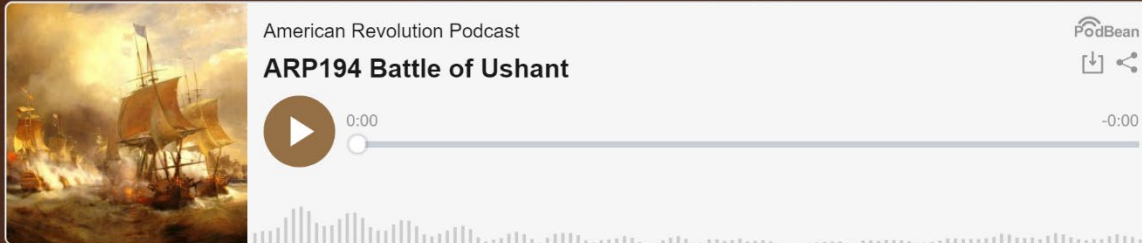


1. Action: “Click”
2. Name: “Clear All Formatting”
3. Description: “Letter ‘A’ with an eraser”
4. Location: “Left side of the Home tab”

[Tips for Accessible Screen Sharing](#)

Descriptive Transcript

ARP194 Battle of Ushant



After Britain and France went to war in the spring of 1778, America became a sideshow to the main event. Britain and France had been traditional enemies for centuries. Part of it was the whole Catholic-Protestant rift that had divided Europe. Part of it was conflicting claims over each other's countries. King George III still held the title of King of France, a claim that dated back more than 400 years. Although the British Channel kept the two kingdoms separated, there was a continuing rivalry between the two countries that simply would not end.

In the prior decades most of the fighting had been fought over colonies around the world. Britain and France traded colonies in wars back and forth. North America was only one pawn in that larger game of chess.

In the hundred years prior to this war, Britain and France had faced off in at least five major wars, totaling 39 years of fighting. These were a continuation of centuries more fighting between the two kingdoms.

In the Seven Years War, the British Navy had dominated the French at sea. That was a big reason why France lost North America. In the intervening years, France focused on rebuilding her navy to compete with the British. France, which had three times the population of Britain, thought that



Battle of Ushant

- Called “Alternative for Time-based Media” in WCAG
- Text-based presentation of important audio and visual information
 - Does not have to be text-only
- Not synchronized

WCAG Requirements

Level A

- Captions
- Transcript for audio-only or video-only content
- Audio description OR transcript (if needed)

Level AA

- Audio description (if needed)
- Live audio – Captions

Level AAA

- Descriptive transcript
- Sign language
- Live audio – Transcript

Our recommendation

Level A

- Captions
- Transcript for audio-only or video-only content
- Audio description OR transcript (if needed)

Level AA

- Audio description (if needed)
- Live audio – Captions
- **Descriptive transcript**

Level AAA

- Sign language
- Live audio – Transcript

What are additional benefits of captions and transcripts?

Visual Disabilities

Low Vision

Images of Text



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



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

WCAG Zoom Requirements

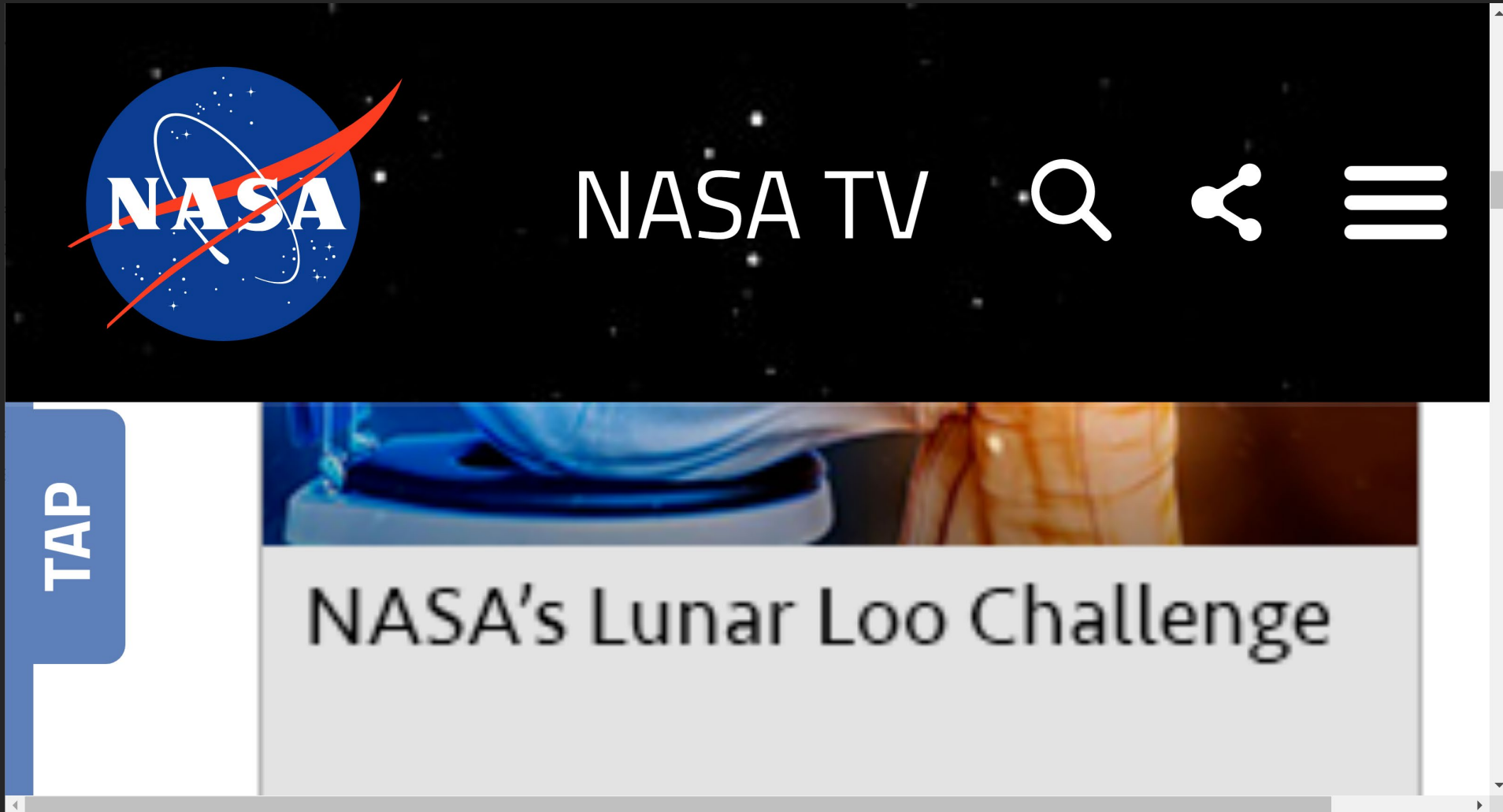
1.4.4 Resize text (Level AA)

- “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.

Browser Zoom on nasa.gov



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 =

$$\begin{aligned} &R_{sRGB} \leq 0.03928 \text{ then } R = R_{sRGB} / 12.92 \\ &\text{else } R = ((R_{sRGB} + 0.055) / 1.055) ^ 2.4 \end{aligned}$$

where

$$R_{sRGB} \leq R_{8bit} / 255$$

21:1

21:1

Text Contrast (Level AA)

4.5:1

3:1 – “Large” text

Gray on White

≥18pt (24px)

Purple on White

Red on Yellow

BOLD: ≥14pt (18.67px)

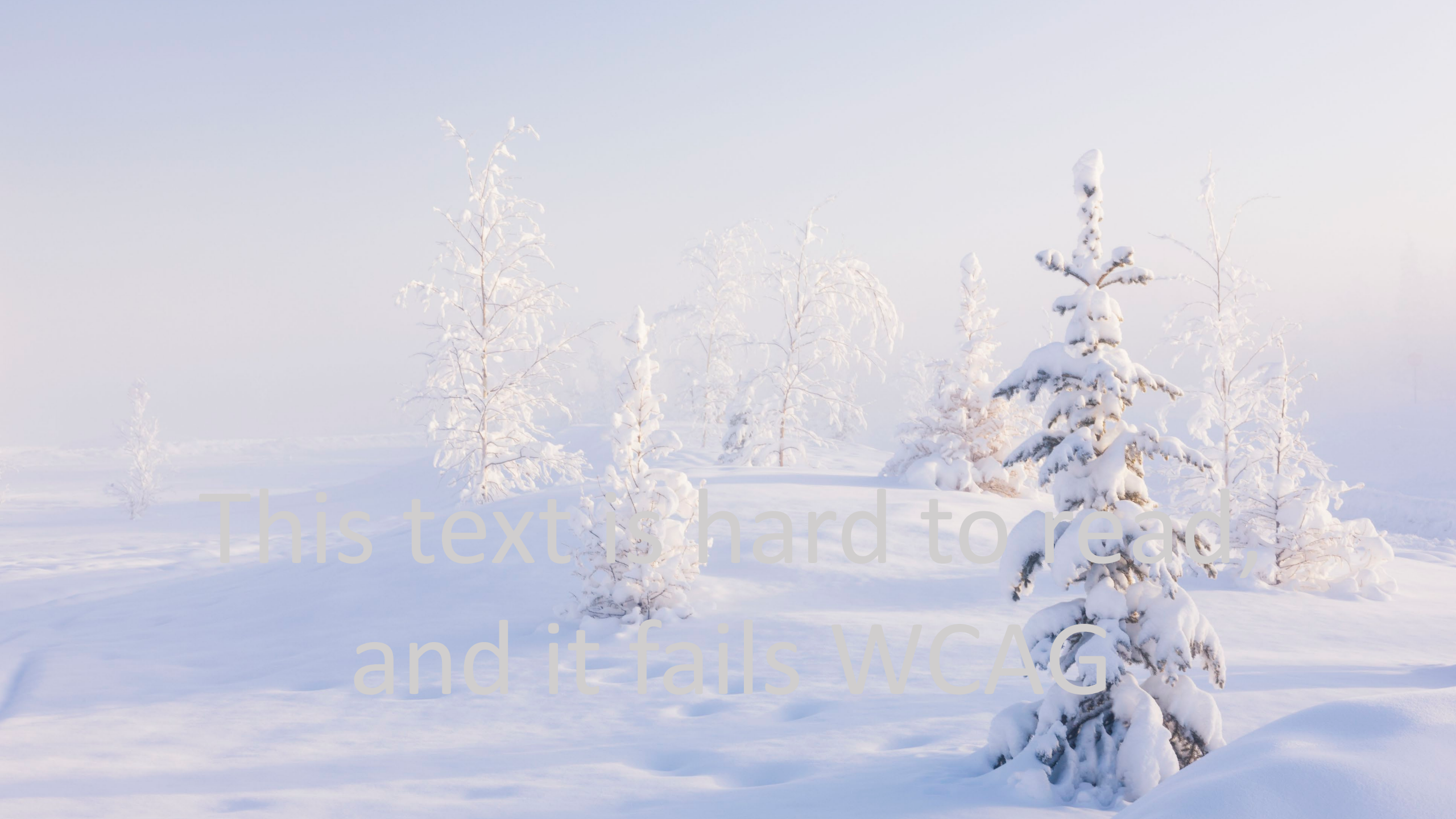
“Images of text”

50 most played
songs by genre



WebAIM Contrast Checker

webaim.org/resources/contrastchecker/

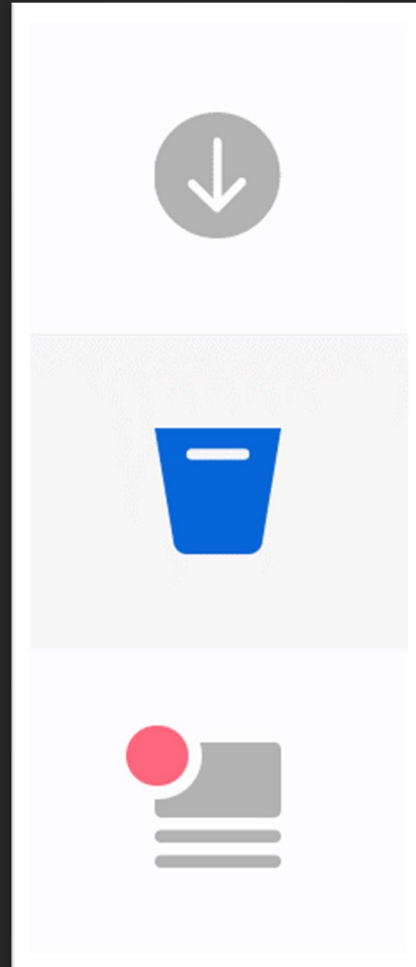
A serene winter scene featuring several evergreen trees heavily laden with snow. The ground is a smooth, undisturbed expanse of white snow. The sky is a pale, hazy blue, suggesting a bright but overcast day. The overall atmosphere is quiet and cold.

This text is hard to read,
and it fails WCAG

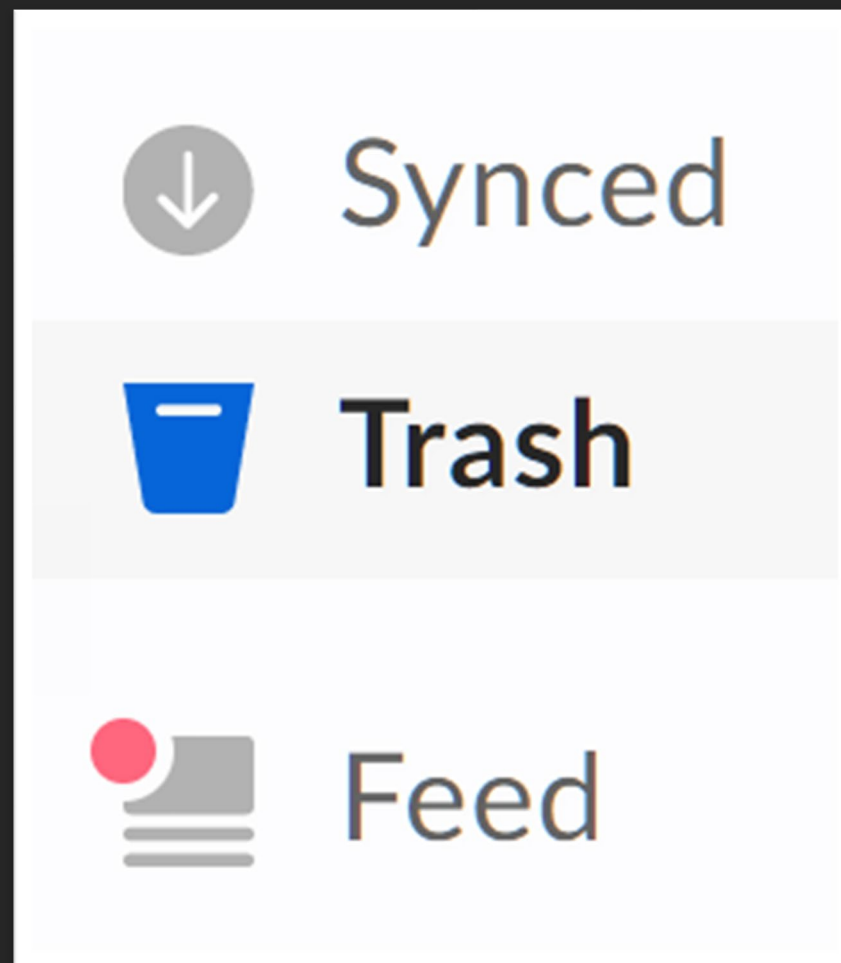
A serene winter scene featuring a snow-covered landscape with several evergreen trees heavily laden with snow. The sky is a pale, hazy blue, and the overall atmosphere is quiet and cold. The text is overlaid on the lower half of the image.

This text is hard to read,
~~and it fails WCAG~~

WCAG 2.1 – 3:1 Contrast of “Graphical Objects”



“...required to understand”



“Against adjacent color(s)”



Add a border



3:1 Contrast of UI “Boundaries”

☐

I have read and agree to the [Terms of Use](#)

WCAG 2.0 – Keyboard focus is visible

But there is no minimum contrast level

WCAG 2.1 – 3:1 contrast of keyboard focus indicators



Follow your interests.

You must test contrast of different states

☐

I have read and agree to the [Terms of Use](#)

☐

I have read and agree to the [Terms of Use](#)

Exceptions

"Inactive"

“Logotypes”

50 most played
songs by genre



“Pure Decoration”



“Essential”



WIKIPEDIA
Die freie Enzyklopädie

Hauptseite
Themenportale
von A bis Z
Zufälliger Artikel

Wünschen
Artikel verbessern
Neuen Artikel anlegen
Autorenportal
Hilfe
Letzte Änderungen
Kontakt
Spezial

Werkzeuge
Link auf diese Seite
Änderungen an verlinkten Seiten
Spezialseiten
Permanenter Link
Seiteninformationen
Wikidata Datenobjekt

Drucken/Exportieren
Buch erstellen
Als PDF herunterladen
Druckversion

In anderen Sprachen

العربية
Български
Català
Čeština
Dansk
Deutsch
English
Español
فارسی
Français
Galego
Italiano
日本語
한국어
Polski
Português
Română
Slovenščina

Hauptseite Diskussion

Nicht angemeldet Diskussionseite Beiträge Benutzerkonto erstellen Anmelden

Lesen Quelltext anzeigen Versionsgeschichte Wikipedia durchsuchen

Willkommen bei Wikipedia

Wikipedia ist ein Projekt zum Aufbau einer Enzyklopädie aus freien Inhalten, zu denen du sehr gern beitragen kannst. Seit Mai 2001 sind 2.076.952 Artikel in deutscher Sprache entstanden.

 **Geographie**  **Geschichte**  **Gesellschaft**  **Kunst und Kultur**  **Religion**  **Sport**  **Technik**  **Wissenschaft**

Artikel nach Themen · Artikel nach Kategorien · Gesprochene Wikipedia · Archiv der Hauptseite

Kontakt · Presse · Statistik · Sprachversionen · Mitmachen · Mentoringprogramm

Artikel des Tages



Puma war eine brasilianische Automarke. Die Fahrzeuge entstanden ursprünglich auf DKW-Lizenz-Basis, wechselten nach dem Niedergang dieser Marke zu Technik von Volkswagen (in Brasil und wurden in ihrer Entwicklung aus Serienteilen von General Motors hergestellt. Es gab rund 20 verschiedene Modelle, die in ihrer Grundkonstruktion alle auf einem zentralen Plattformen mit GFK-Karosserie basierten. Im einflussreichen Technikzeitschrift 1973 entstanden 3500 Pumas (CAI basieren). Insgesamt wurden offiziell 21.733 Fahrzeuge gebaut. Eine andere Quelle nennt etwa 22.000 Fahrzeuge. 1986 erwarb Ford die Rechte an der Marke Puma und nutzte den Namen von 1987 bis 2002 für den Ford Puma. In den 1980er- und 1990er-Jahren versuchte Brasilien, das Anschluss an die wachsenden Industriemächte zu gewinnen. Sichtbarer Ausdruck dafür war, neben der Einführung der damals hochmodernen Hauptstadt Brasília, der Aufbau einer nationalen Automobilindustrie. Um dieses Ziel zu erreichen, wurden Kooperationen mit großen Automobilherstellern eingegangen, unter anderem mit Volkswagen. Parallel dazu wurden zur Förderung heimischer Produktionsstätten hohe Importzölle auf fertig produzierte Automobile erhoben. – Zum Artikel ...

[Archiv](#) · [Weitere exzellente und lesenswerte Artikel](#) · [RSS-Feed](#)

Was geschah am 4. Juli?

- 1187 – In der Schlacht bei den Hörnern von Hattin unterliegt das Heer der Kreuzfahrerstaaten gegen die Truppen von Saladin.
- 1872 – Im Deutschen Kaiserreich werden Niederlassungen der Jesuiten durch das Jesuitengesetz verboten.
- 1902 – Vivekananda, hinduistischer Mönch und Gelehrter, stirbt.
- 1927 – Die italienische Filmschauspielerin Gina Lollobrigida (eas. *Fanfani*, *der Husar*, *Trapez*, *Der Glockner von Notre Dame*) wird geboren.
- 1997 – Die NASA-Sonde Pathfinder landet auf dem Mars.



[Weitere Langformate](#) · [Bildergalerie](#)

In den Nachrichten

Unabhängigkeitstag der USA • Busunfall auf der BAB 9 • Katastrophe

- Die SPD-Politikerin Manuela Schwesig (linke) ist zur neuen Ministerpräsidentin von Mecklenburg-Vorpommern gewählt worden.
- Der deutsche Schachmeister Fabian Kieninger wurde für ihr Lebenswerk der diesjährige Thomas Mann Preis zuerkannt.
- Durch einen 1:0-Sieg gegen Chile im Finale hat die deutsche Fußballnationalmannschaft erstmals den FIFA Confederations Cup gewonnen.

[Weitere aktuelle Ereignisse](#) · [Wikinews](#)

Kürzlich Verstorbene

- José Luis Cuevas (83), mexikanischer Künstler († 3. Juli)
- Jean Jacques Susini (83), französischer Politiker († 3. Juli)
- Paolo Villaggio (84), italienischer Schauspieler († 3. Juli)
- Chris Roberts (73), deutscher Schlagersänger († 2. Juli)
- Hans Baschang (80), deutscher Maler († 24. Juni)

[Weitere kürzlich Verstorbene](#)

Schon gewusst?

- Die „Köhlerkirche“ der Zechen Georgsmarienhütte diente gelegentlich als illegaler Agentenversammlungsplatz.
- In der Gammelsche Mühle in Kambien wurde eine außerordentliche Mülleierfabrik im Inneren wieder in Schrägen.
- Die Kriminelle Elvira war der ersten seiner Art auf amerikanischem Boden.
- Der Parco Giardino Sigurd südlich des Gardasees ist einer der schönsten Landschaftsgärten Italiens.

[Weitere tolle Artikel](#) · [Hier schnell gewusst Artikel](#)

Schwesterprojekte

 **Meta-Wiki** – Koordination  **Commons** – Medien  **Wiktionary** – Wörterbuch  **Wikibooks** – Lehrbücher  **Wikiquote** – Zitate  **Wikiversity** – Lernplattform  **Wikisource** – Quellen  **Wikinews** – Nachrichten

 **Wikidata** – Wissensdatenbank  **Wikiwayage** – Reiseleiter

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Color Blindness



WCAG 1.4.1 – Use of Color (A)

The green mushrooms listed here are okay to eat. The red mushrooms are poisonous.

- Amanita
- Chanterelle
- Porcini
- Shiitake
- Tylopilus

WCAG 1.4.1 – Use of Color (A)

The green mushrooms listed here are okay to eat. The red mushrooms are poisonous.

- Amanita
- Chanterelle
- Porcini
- Shiitake
- Tylopilus

Icons (with alternative text)

- Amanita 
- Chanterelle
- Porcini
- Shiitake
- Tylopilus 

Separate lists

Edible

- Chanterelle
- Porcini
- Shiitake

Poisonous

- Amanita
- Tylopilus

Bold or Italicized text?

- *Amanita*
- Chanterelle
- Porcini
- Shiitake
- *Tylopilus*

1. Ensure sufficient contrast
2. Do not rely on color alone

You must agree to the **Terms of Use**

You must agree to the Terms of Use

You must agree to the [Terms of Use](#)

Requirements for links that rely on color

1. A 3:1 contrast ratio between link text and non-link text
2. Link must present a non-color cue (typically underline) on mouse hover AND keyboard focus
 - Not possible in most electronic documents (e.g., Word and PowerPoint)

webaim.org/resources/linkcontrastchecker

Evaluate contrast

1. WAVE contrast tab – Automatically-detected text
2. WebAIM contrast checker – Eyedropper, slider
3. [Chrome DevTools](#) – Mouse inspector, toggle states (e.g., hover)

Screen Reader Users

- Not all screen reader users are completely blind
- Most have low vision
- Some users have a reading or cognitive disability
- Focus on structure and semantics



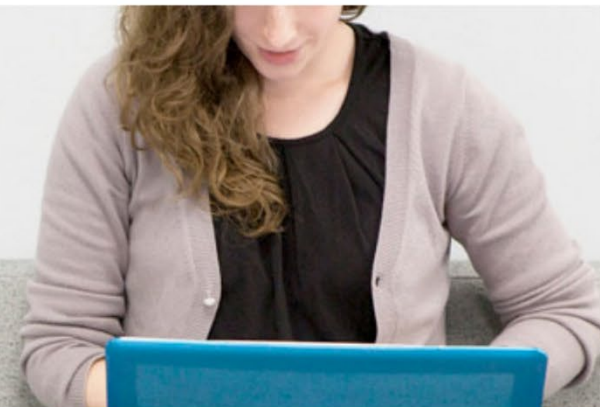
Search:



[Introduction to Web Accessibility](#)



[WebAIM Training](#)



We have web accessibility in mind

Expanding the potential of the web for people with disabilities by empowering individuals and organizations to create accessible content.

[Accessibility Training](#)



Whether here in Utah or on-site at your organization, WebAIM can provide web and document training to fit your needs.

[Accessible Site Certification](#)



As a respected third party accessibility expert, WebAIM can evaluate and certify your site to established web accessibility guidelines.

[StrategicA11y](#)



The Strategic Web Accessibility Workshop helps participants optimize their organization's accessibility.

[Evaluation and Reporting](#)



We can provide reports to help you know how accessible your site is and how to make it better.

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[Introduction to Web Accessibility](#)

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h1 We have web accessibility in mind

Expanding the potential of the web for people with disabilities by empowering individuals and organizations to create accessible content.

h2 [Accessibility Training](#)

Whether here in Utah or on-site at your organization, WebAIM can provide web and document training to fit your needs.

h2 [Accessible Site Certification](#)

As a respected third party accessibility expert, WebAIM can evaluate and certify your site to established web accessibility guidelines.

h2 [Technical Assistance](#)

Need assistance implementing accessibility? WebAIM's expert staff can provide the assistance you need.

h2 [Evaluation and Reporting](#)

We can provide reports to help you know how accessible your site is and how to make it better.

h2 Community

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Navigation

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Structure & Semantics

Recommended screen readers for testing

Desktop

- Windows
 - [JAWS](#) – 54%, \$1000+
 - [NVDA](#) – 31%, Free
- [VoiceOver for Mac](#) – 7%

Mobile

- [VoiceOver for iOS](#) – 72%
- [Talkback for Android](#) – 25%

Use WebAIM tutorials to learn commands and practice common tasks

Screen reader testing

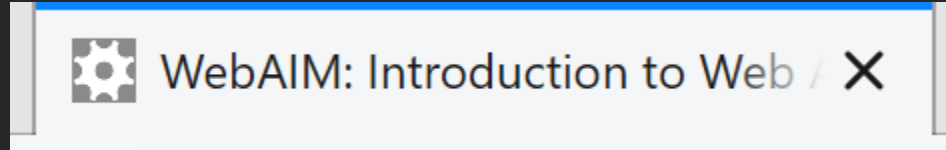
- Don't try to be an "expert."
 - 10 shortcuts to get started, 20 is about all you'll ever need.
- Screen readers read things differently and can misbehave.
- Verbosity settings impact the content that is read.
 - Keep default settings.
- Focus on document structure, navigation, forms, and dynamic content.

Screen Reader Demo

Headings

- The most common method for finding information on a page
 - 69% of WebAIM screen reader user survey respondents
- Headings should describe a section of content
 - Should never be empty
- Usually one h1 per page
- Do not skip heading levels (e.g., h2 to h4)
 - Can skip backward (e.g., h4 to h2)

Page Title



```
<title>WebAIM: Introduction to  
Web Accessibility</title>
```

- Often the first thing seen or read by a screen reader
- Must be descriptive
- Should be succinct
- Should usually match, or be similar to, the first-level heading

[Page title article](#)

Evaluate headings

WAVE “Structure” tab

Lists

- `<ol>`/Numbers for sequence or hierarchy
- `<ul>`/Bullets for parallel or equal importance
 - Can you reorder the items in the list?
- `<dl>` for “name/value pairs”
 - E.g., FAQ or glossary

EASY SHORTBREAD



Ingredients

- 1 cup butter, softened
- 1/2 cup sugar
- 2 1/2 cups flour

Directions

1. Preheat the oven to 300 F.
2. Cream butter and sugar.
3. Gradually stir flour into the creamed mixture until blended.
4. Pat the dough in the bottom of an ungreased 9x13 baking pan.
5. Bake at 300 F for 30 to 40 minutes, until just lightly browned.
6. Remove from oven and pierce all over with a fork.

Baking Terms

Softened butter

Butter left at room temperature for approximately 20 minutes.

Cream butter and sugar

Mix butter and sugar together until it is light and fluffy.



Tables

Keys to accessible tables

1. Caption (if needed)
 - (or heading if a caption isn't supported)
2. Table headers
3. Table header scope (if supported)
 - Column or row

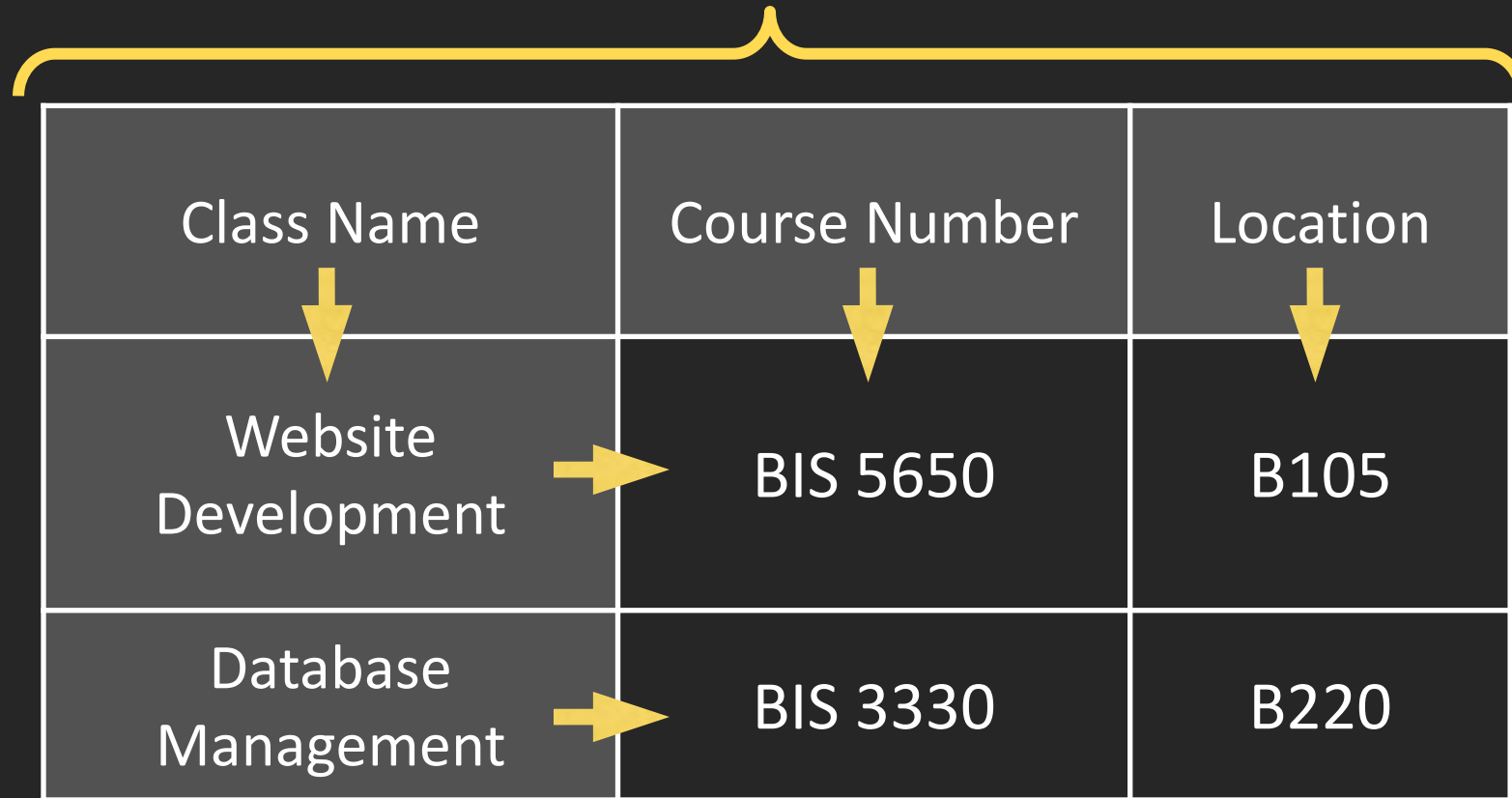
Data tables

Class Schedule

Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

Structure for screen readers

Class Schedule



Class Name	Course Number	Location
Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

[Table example](#)

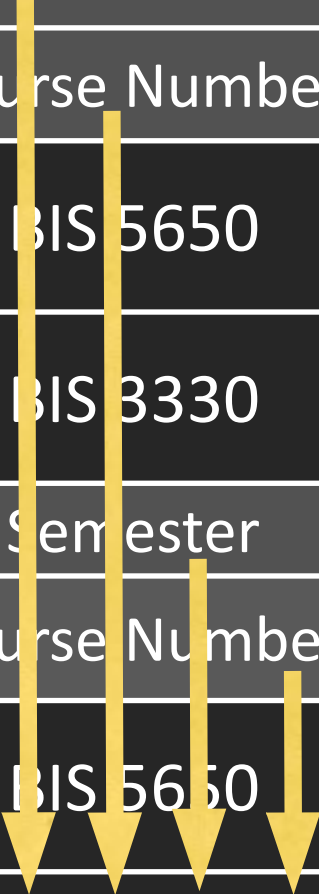
Fall Semester		
Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

Fall Semester

Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

Fall Semester		
Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220
Winter Semester		
Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

Fall Semester		
Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220
Winter Semester		
Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220



Fall Semester

Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

Winter Semester

Class Name	Course Number	Location
Advanced Website Development	BIS 5650	B105
Database Management	BIS 3330	B220

Language

“Most people today can hardly conceive of life without the internet. Some have argued that no other single invention has been more revolutionary since Gutenberg's printing press in the 1400s. Now, at the click of a mouse, the world can be “at your fingertips”—that is, if you can use a mouse... and see the screen... and hear the audio—in other words, if you don't have a disability of any kind.”



Language of Page (Level A)

```
<html lang="en">
```

[WebAIM language article](#)

Language of Parts (Level AA)

Language of parts example

Alternative Text

Alternative Text

- Read by screen readers
- Alternative to images if they are disabled or not supported
- Used by search engines

Alternative Text

- Must
 - Be equivalent
- Should
 - Usually be succinct
- Should not
 - Be redundant
 - Start with "image of ..." or "graphic of ..."

What is **equivalent** alternative text?

CONTENT and **FUNCTION**

VERY RARELY Description

Alternative text for this image?





“WebAIM - web accessibility in mind”

Text alternatives can be presented two ways

- In the **alt attribute** of the img element.
`<img alt="I am alt text">`
- In the **context** or surroundings of the image itself.



```
<a href="minivans.html">  
    <br>  
    Minivans  
</a>
```



```
<a href="minivans.html">  
    <br>  
    Minivans  
</a>
```

Empty vs. Missing alt attribute

- Empty alt (`alt=""`) definitively states:
 - The image is decorative, or
 - Alternative text is nearby
- Missing alt is ambiguous
 - Screen readers may or may not treat it the same as `alt=""`
- Content tools (e.g., WordPress and Word) should have a way to identify decorative images

Images that are the only thing
within a link must **ALWAYS**
have alternative text

...and image map hot-spots and image buttons too.

Image Link



Text Link

```
<a href="minivans.html">  
</a>  
<br>  
<a href="minivans.html">Minivans</a>
```

The unexpected star of NASA's Webb images — the alt text descriptions

A team in Baltimore was responsible for the words that made the stunning photos accessible to everyone



Perspective by [Theresa Vargas](#)

Metro columnist

July 20, 2022 at 5:09 p.m. EDT



This image released by NASA on July 12 was captured by the James Webb Space Telescope. (AP)

 Comment

 Gift Article

 Share

In the days since NASA publicly shared stunning images captured by the James Webb Space Telescope, people have oohed and aahed. They have

The unexpected star of NASA's Webb images — the alt text descriptions

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alt=""

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Comment Gift Article Share

In the days since NASA publicly shared stunning images captured by the James Webb Space Telescope, people have oohed and aahed. They have

alt="Carina Nebula"

FILTER IMAGES

Category ▼

Type ▼

Collection ▼

Enter Keyword

SUBMIT

◀◀ First

◀ Previous

1

2

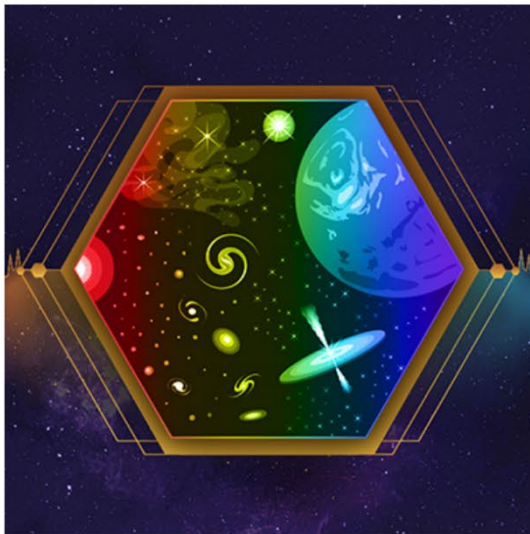
3

4

5

Next ▶▶

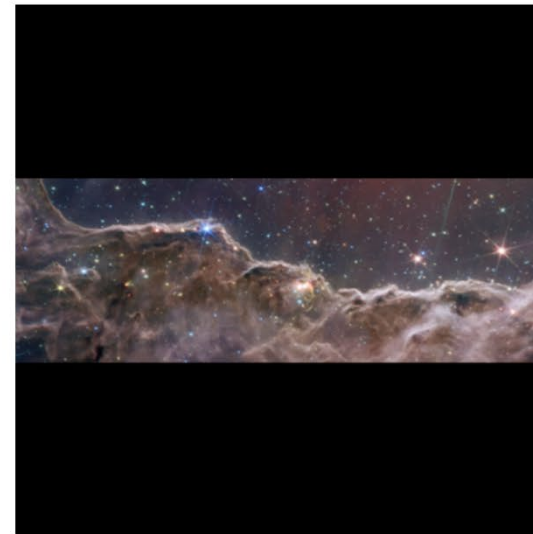
Last ▶▶



Webb's Science Themes



"Cosmic Cliffs" in the Carina Nebula
(NIRCam Image)



"Cosmic Cliffs" in the Carina Nebula
(NIRCam and MIRI Composite Image)



Webb's Science Themes



"Cosmic Cliffs" in the Carina Nebula
(NIRCam Image)



"Cosmic Cliffs" in the Carina Nebula
(NIRCam and MIRI Composite Image)



alt="Image of bright eight-pointed stars scattered across a dense orange-brown undulating cloudscape below a deep blue starscape."

"Cosmic Cliffs" in the Carina Nebula (NIRCam Image)

[< VIEW ALL IMAGES](#)

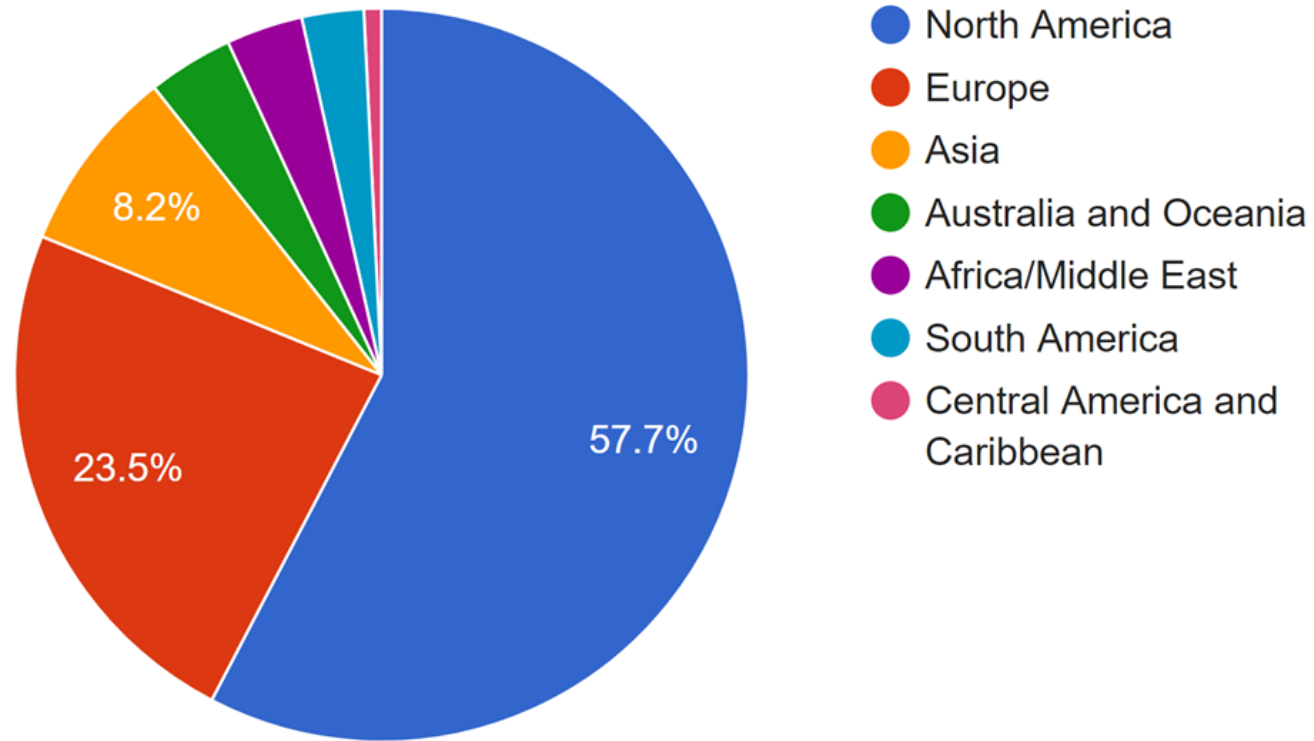


"Cosmic Cliffs" in the Carina Nebula (NIRCam Image)

[< VIEW ALL IMAGES](#)

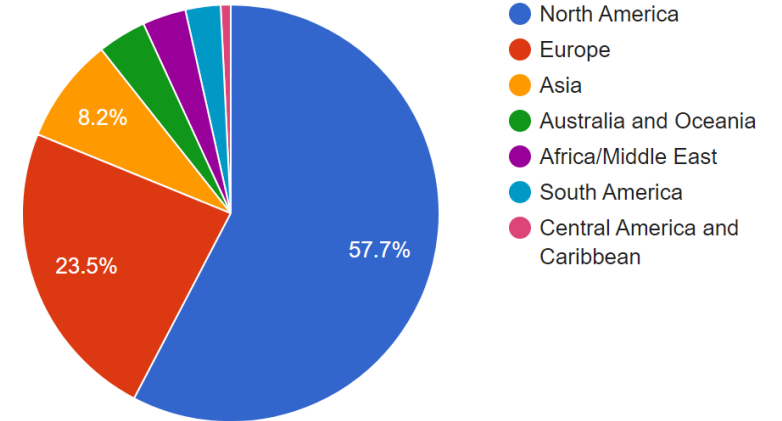
alt="The image is divided horizontally by an undulating line between a cloudscape forming a nebula along the bottom portion and a comparatively clear upper portion. Speckled across both portions is a starfield, showing innumerable stars of many sizes. The smallest of these are small, distant, and faint points of light. The largest of these appear larger, closer, brighter, and more fully resolved with 8-point diffraction spikes. The upper portion of the image is blueish, and has wispy translucent cloud-like streaks rising from the nebula below. The orangish cloudy formation in the bottom half varies in density and ranges from translucent to opaque. The stars vary in color, the majority of which, have a blue or orange hue. The cloud-like structure of the nebula contains ridges, peaks, and valleys – an appearance very similar to a mountain range. Three long diffraction spikes from the top right edge of the image suggest the presence of a large star just out of view. For more details, download the Text Description."

Charts and data



Alt text + description

1. Give the image succinct alternative text
2. Provide a detailed description
 - In context **OR**
 - Link to the information



Respondent Region

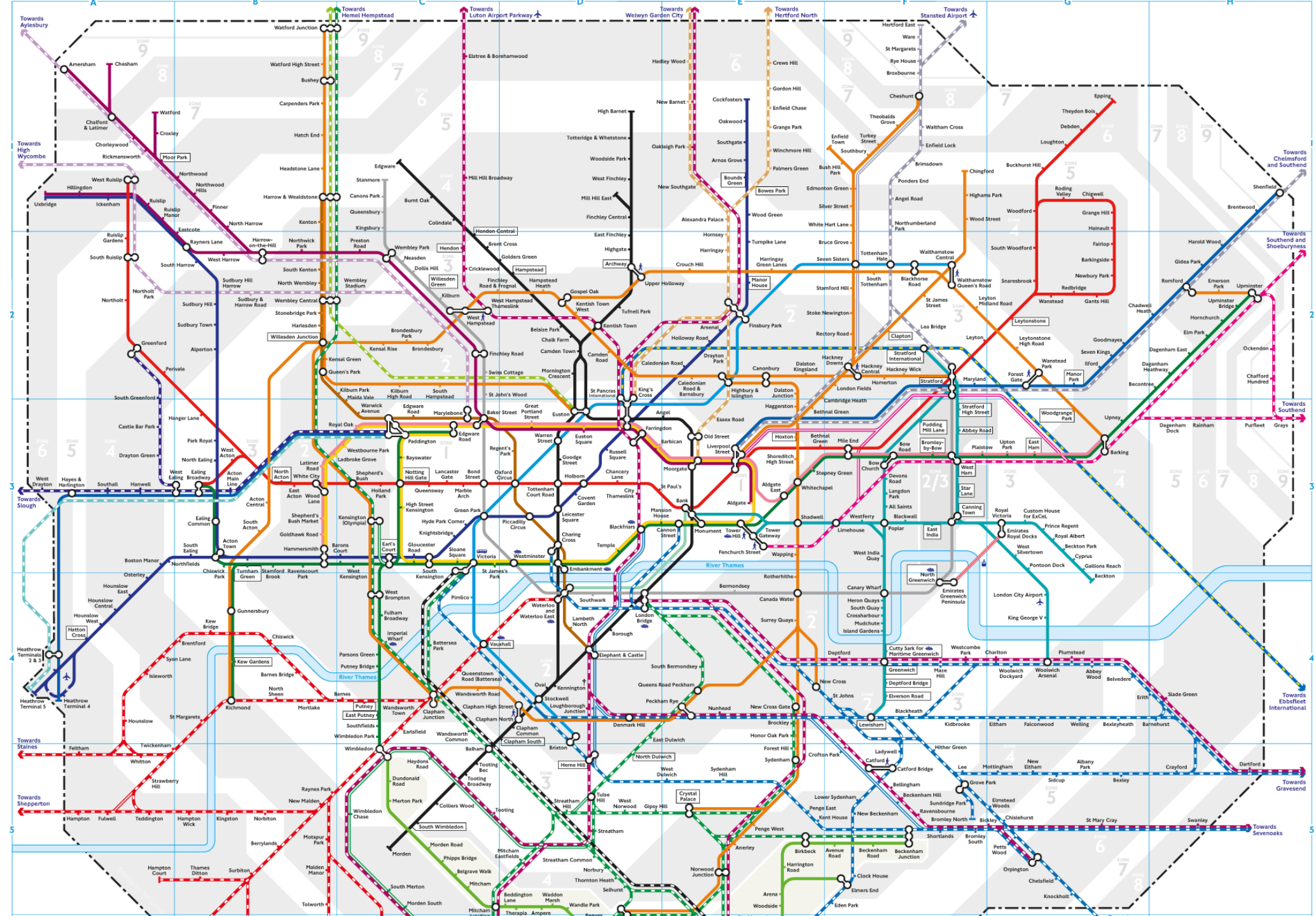
Region	# of respondents	% of respondents
North America	888	57.7%
Europe	362	23.5%
Asia	126	8.2%
Australia and Oceania	58	3.8%
Africa/Middle East	52	3.4%
South America	42	2.7%
Central America and Caribbean	12	0.8%

London's Rail & Tube services

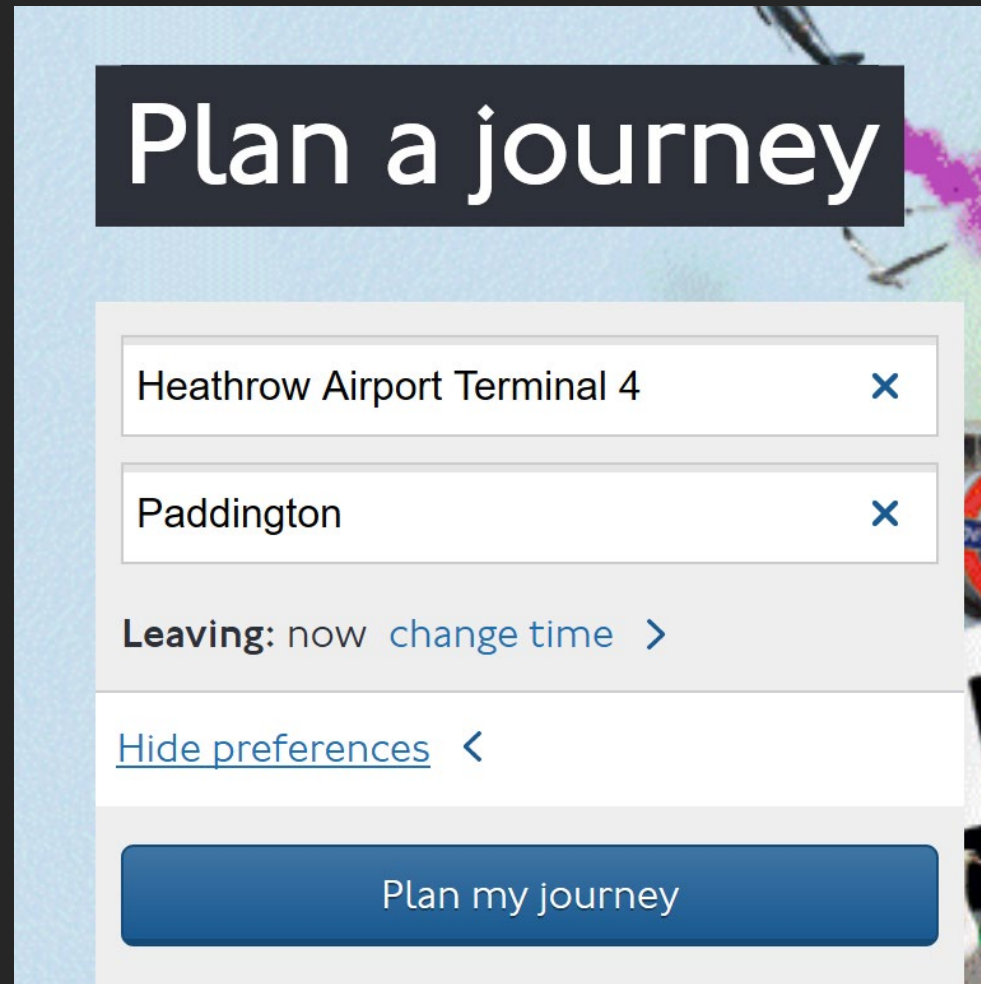
Key to lines and symbols

- | | | |
|--|-----------------------------|--------------------------------------|
|  | Bakerloo | |
|  | Central | |
|  | Circle | |
|  | District | <u>limited service</u> |
|  | Hammersmith & City | |
|  | Jubilee | |
|  | Metropolitan | |
|  | Northern | |
|  | Piccadilly | |
|  | Victoria | |
|  | Waterloo & City | |
|  | DLR | |
|  | London Overground | |
|  | London Trams | |
|  | TfL Rail | |
|  | Emirates Air Line cable car | |
|  | | |
|  | c2c | <u>limited service</u> |
|  | Gatwick Express | |
|  | Great Northern | |
|  | Great Western Railway | |
|  | Greater Anglia | <u>peak hours only</u> |
|  | Heathrow Express | <u>peak hours or limited service</u> |
|  | Southern | <u>peak hours only</u> |
|  | Southeastern | <u>peak hours only</u> |
|  | Southeastern high speed | <u>peak hours only</u> |
|  | South Western Railway | <u>peak hours only</u> |
|  | Thameslink | <u>peak hours only</u> |
|  | West Midlands Trains | |

- | | |
|---|--|
|  | London Trams fare zone |
|  | Station in both fare zones |
|  | Interchange stations |
|  | Street level transfer between stations |
|  | Airport |
|  | Riverboat services |
|  | Victoria Coach Station |



“Equivalent” experience



Plan a journey

Heathrow Airport Terminal 4 ×

Paddington ×

Leaving: now [change time](#) >

[Hide preferences](#) <

[Plan my journey](#)

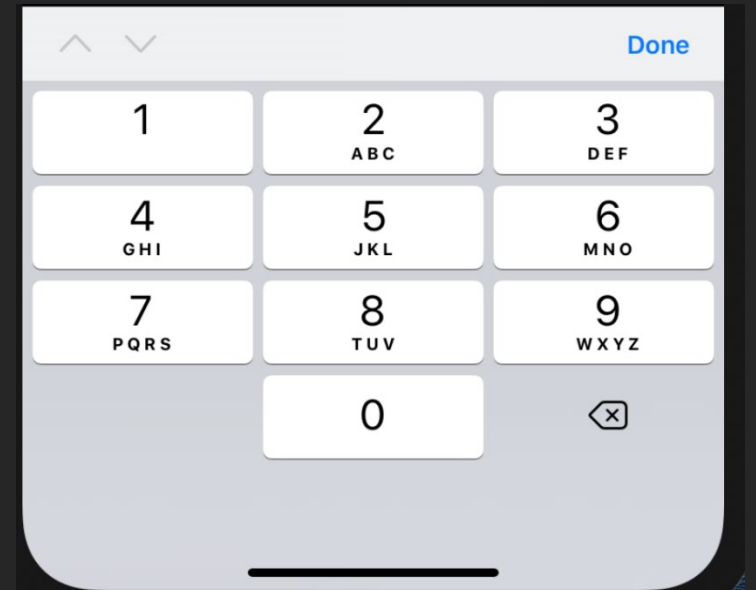
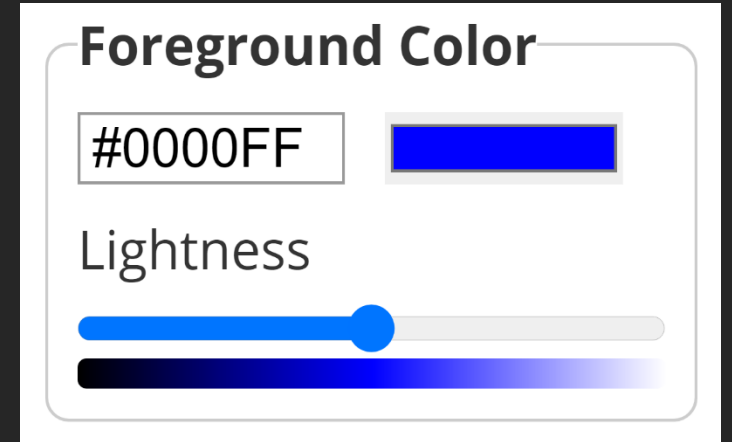
Evaluate alternative text

- Use WAVE
- Search for images that do not have WAVE icons

Forms

HTML Input Types

- Use the correct input type
 - `checkbox` (multiselect)
 - `radio` (single select)
- Native inputs have better accessibility than custom inputs
 - E.g., `color` and `range`
- Mobile devices may present custom keyboards
 - e.g., phone keypad for `type="tel"`



Form Labels

First Name:

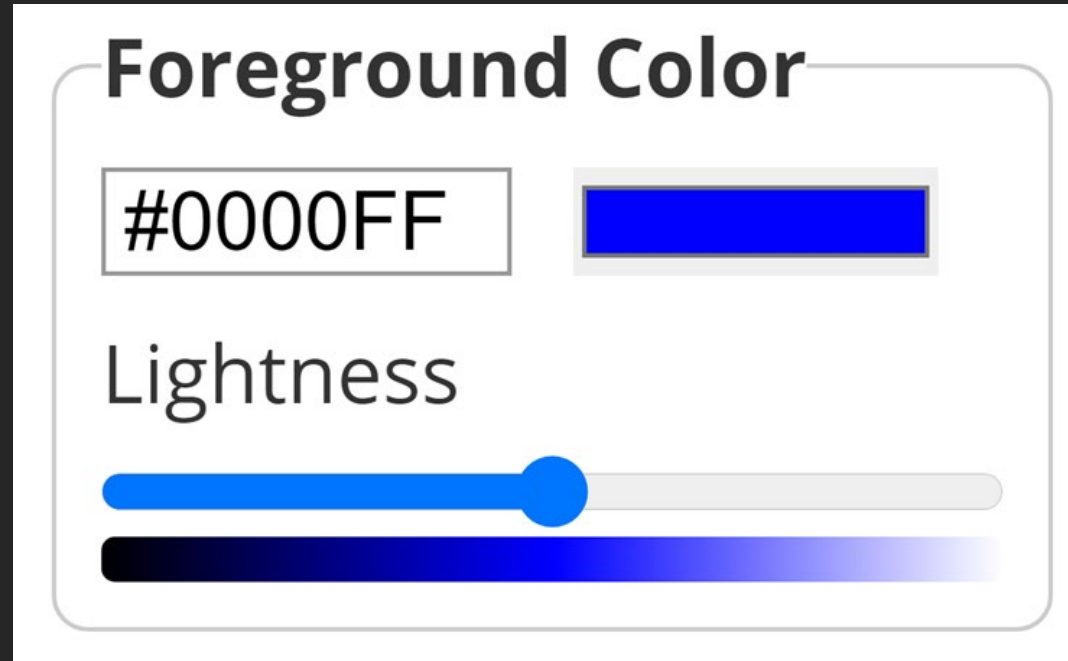
```
<label for="fname">First Name:</label>  
<input type="text" id="fname"...>
```

Text boxes, text areas, select menus, checkboxes,
radio buttons, and HTML5 input types.

Implicit Form Labels

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

<fieldset> and <legend>

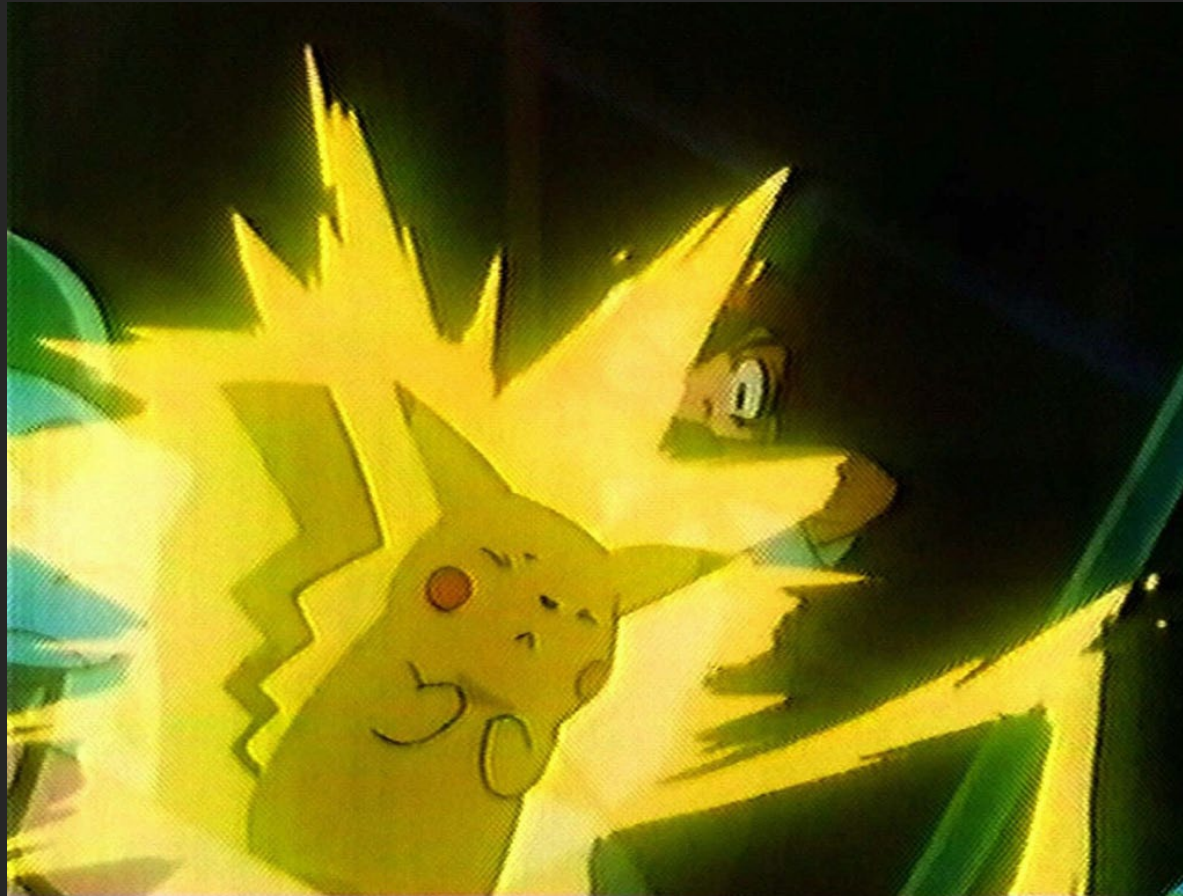


The image shows a web form titled "Foreground Color" enclosed in a rounded rectangle. Inside the form, there is a text input field containing the hex code "#0000FF". To the right of the text field is a small rectangular color swatch filled with blue. Below these elements is a label "Lightness" followed by a horizontal slider. The slider has a blue track and a blue circular handle positioned at approximately the middle. Below the slider track is a horizontal color gradient bar that transitions from black on the left to light blue on the right.

```
<fieldset>  
  <legend>Foreground Color</legend>  
  ...  
</fieldset>
```

Evaluate forms and labels

Photosensitive Epilepsy



Caution with flashing/strobing content

- 3 times per second or greater
- Size, brightness, and red threshold
- “Annoying rule”

Cognitive/Learning Disabilities

- Largest disability group.
- Because users' needs vary greatly, we will focus on general recommendations.
- Most of the earlier principles can make content more understandable.
 - Captions, contrast, color, headings, lists, simple tables, etc.

Make Content “Understandable”

- Be consistent
 - “Consistent Navigation” and “Consistent Identification” in WCAG
- Use plain language
 - “readable to users with a lower secondary reading level” (WCAG AAA)
 - Write for your audience
- Be careful with movement and other distractions

There must be a way to pause/stop/hide moving content that:

1. Starts automatically
2. lasts more than five seconds,
3. *and* is presented in parallel with other content.

E.g., [Carousels](#)

NEWS More →



MEN'S BASKETBALL / OCT 6
Utah State Men's Basketball Announces 2022-23 Televised Games

◀ || ▶



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Legible Text

- Small text negatively impacts readability
 - WCAG has no text size requirements
- Avoid long line lengths
 - Consider line height/spacing
- Choose legible fonts
 - Web fonts and embedded fonts are OK

Typefaces and Fonts

C vs O

C vs O

e vs o

e vs o

l vs l vs l

I vs l vs 1

Each new typeface **INTRODUCES**
additional cognitive overhead.

Motor disabilities

- Content and functionality should be accessible to mouse users and keyboard users
- Lack of fine motor control
- Repetition and fatigue
- Control over timing or moving elements

Standard keystrokes

- Navigate links, form controls, etc.: Tab, Shift + Tab
- Link: Enter
- Button: Enter or Spacebar
- Toggle (e.g. Checkbox): Spacebar
- Navigate options in one “tab stop”: ↑/↓ or ←/→
- Close/Collapse: Esc
- Scrolls the page (unless focused on a control): Spacebar
- Other widgets: use standard patterns

Example – `<select>` menu

Which is your favorite city?

New York ▾

Amsterdam

Buenos Aires

Delhi

Hong Kong

London

Los Angeles

Moscow

Mumbai

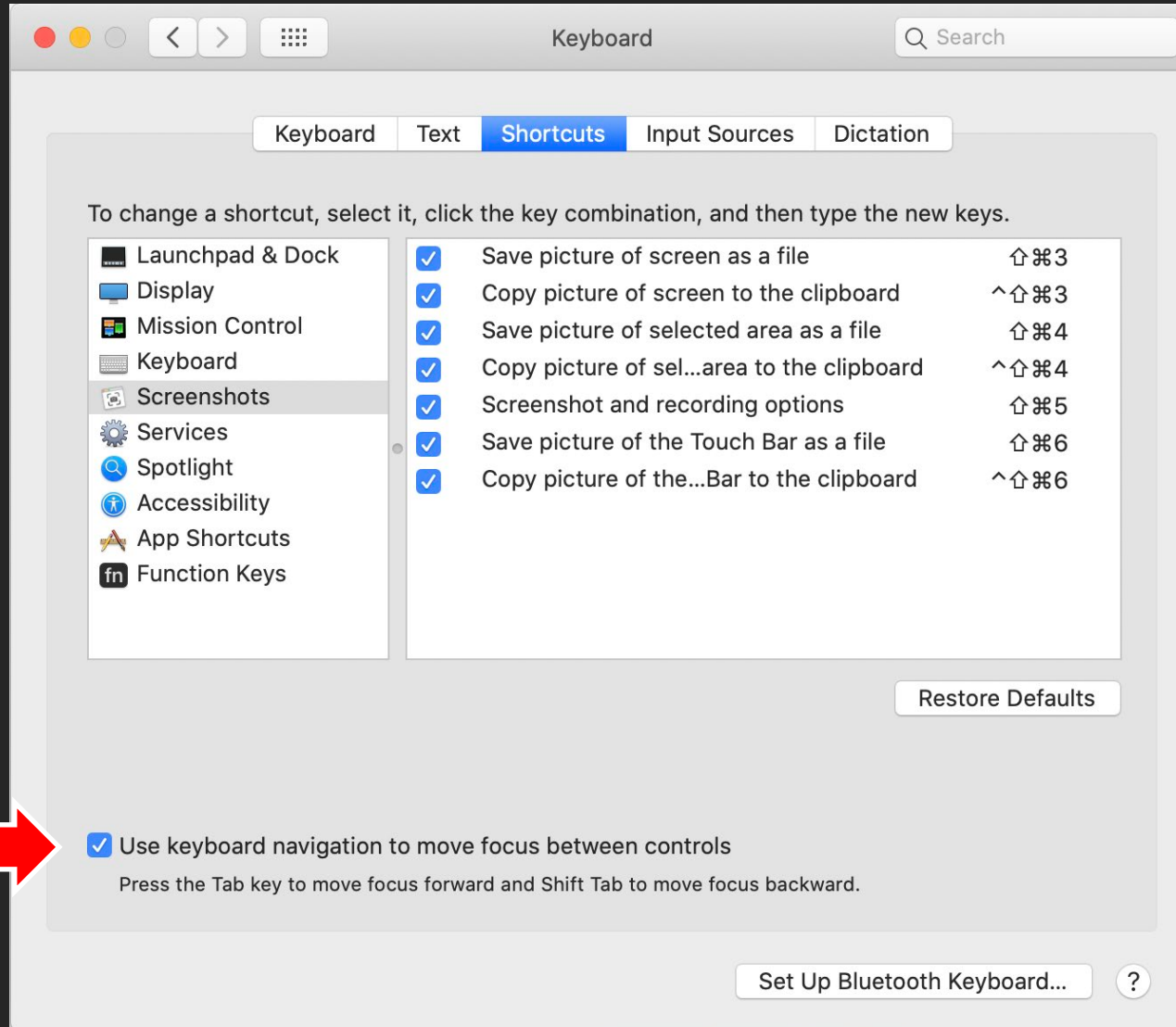
New York

São Paulo

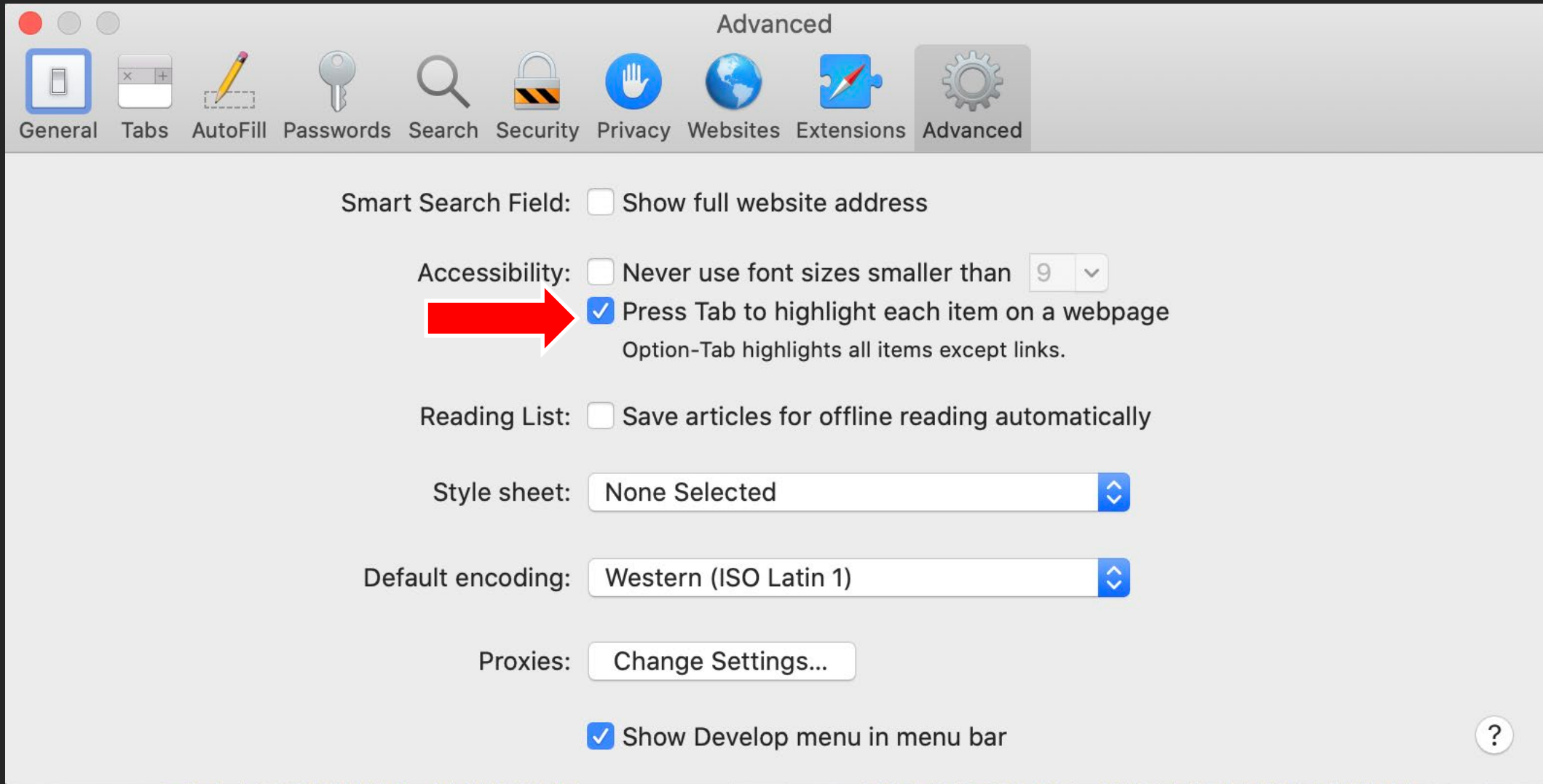
Tokyo

- Tab: Navigate in/out
- Space: Expand
- Arrow keys or Letters: Choose an option
- Enter: Select and collapse
- Esc: Collapse
- Tab: Move to the next element

Some tweaking required on Mac



Safari Keyboard Settings





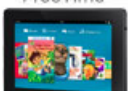
!= Touch Only

kindle fire HD

Our most affordable Kindle Fire, now in HD



FreeTime



Apps & Games



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learn more 17 of 17 x

★★★★★ (9,193 customer reviews)

\$139.00

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8 GB

16 GB

Offer Type: **With Special Offers**

With Special Offers

Without Special Offers

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- Fast 1.5GHz dual-core processor—apps launch quickly, games and videos play smoothly
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- Ultra-fast web browsing over built-in Wi-Fi, plus updated e-mail and calendar support for Gmail, Outlook, and more
- Instant access to over 100,000 apps and games in the Amazon Appstore, including a new paid app for free every day
- **Prime** In addition to Free Two-Day Shipping, Prime members can stream tens of thousands of Prime Instant Video titles at no additional cost, over half of which can be downloaded to the latest generation of Kindle Fire tablets. [Learn more](#)

Meaningful link text

- [Click here](#)
- [Click here](#) to log in
- [Click here to log in](#)
- [Log in](#)

Evaluate keyboard accessibility

Navigate the site using only the keyboard (Tab, Shift + Tab, Enter, Space, arrow keys, Esc).

- Is all functionality available?
- Is there a clear keyboard focus indicator?
- Is navigation order logical?
 - WAVE “Order” tab
- How about responsive layouts?

Mobile resources

- [MDN Mobile accessibility checklist](#)
- [BBC Mobile Accessibility Guidelines](#)

Thank You!

Services

- Training
- Evaluation
- Consultation

Resources

- E-mail discussion list
- Monthly newsletter
- Tutorials, articles, and resources
- Blog