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How to Create Inclusive and Accessible OER

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Open educational resources are...

“Freely accessible
online.”

Agenda

- Technical Accessibility
 - Web Content Accessibility Guidelines
 - WCAG in Educational Resources
- Beyond Technical Accessibility
 - UDL: Multiple modalities, multiple formats
 - Inclusive design
- Resources



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Technical Accessibility

Web Content Accessibility Guidelines (WCAG)



Principle 1: Perceivable

Information and user interface components must be presentable to users in ways they can perceive.

1.1 Text alternatives (non-text content)

1.2 Time-based media (video, audio)

1.3 Adaptable (Information and relationships conveyed by formatting)

1.4 Distinguishable (Contrast between foreground and background)



Principle 2: Operable

User interface components and navigation must be operable.

- 2.1 Key board accessible** (all functionality possible via a keyboard)
- 2.2 Enough time** (people have enough time to complete tasks)
- 2.3 Seizures** (no content that may cause seizures/physical reactions)
- 2.4 Navigable** (users can navigate, find content, and determine where they are)
- 2.5 Input modalities** (make it easier to interact beyond a keyboard)



Principle 3: Understandable

Information and the operation of user interface must be understandable.

3.1 Readable (text is readable and understandable)

3.2 Predictable (layout of a page is predictable and consistent)

3.3 Input assistance (help users avoid and correct mistakes)

Organizing Content

- Content is organized under headings and subheadings
- Headings and subheadings are used sequentially

<h1>Chapter 1: Introduction to Sociology</h1>

<h2>Introduction</h2>

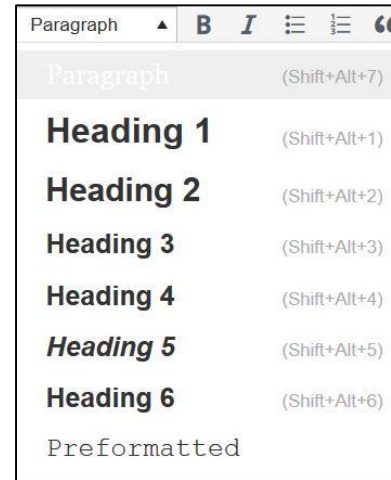
Concerts, sporting matches and games, and political rallies can have...

<h2>1.1 What is Sociology</h2>

A dictionary defines sociology as the systematic study of...

<h3>What are Society and Culture?</h3>

Sociologists study all aspects and levels of society...



Links

- ❑ The link text makes sense out of context
- ❑ Links do not open in new windows or tabs (unless a text reference is provided)
- ❑ The web address is available for those using a print copy

Not accessible

For more information on web accessibility, click [here](#).

Not accessible

For more information on web accessibility, go to <https://opentextbc.ca/accessibilitytoolkit/>.

Accessible

For more information on web accessibility, refer to the [*Accessibility Toolkit*](#).

Accessible

For more information on web accessibility, refer to the [*Accessibility Toolkit \[New Tab\]*](#).

Accessible

The [BC Open Textbook Review Template \[Word File\]](#) provides guidelines for completing an open textbook review.

Data Tables

- ❑ Tables include row and/or column headers.
- ❑ Row and column headers have the correct scope assigned.
- ❑ Tables include a caption.
- ❑ Tables do not have merged or split cells.
- ❑ Tables have adequate cell padding.

Table 15.1 One way scholars have categorized religions is by classifying what or who they hold to be divine

Religious Classification	What/Who Is Devine	Example
Polytheism	Multiple gods	Hinduism, Ancient Greeks and Romans
Monotheism	Single god	Judaism, Islam, Christianity
Atheism	No deities	Atheism, Buddhism, Taoism
Animism	Nonhuman beings (animals, plants, natural world)	Indigenous nature worship, Shinto

“

” © William Little. CC BY.

Audio

- ☐ Include a transcript

Examples: Podcasts, interviews, recorded lectures

A transcript provides a text equivalent of audio content. It includes

- Speaker name(s)
- Headings and subheadings
- All relevant audio content, including
 - All speech content
 - Relevant descriptions of speech
 - Descriptions of relevant non-speech audio

Video

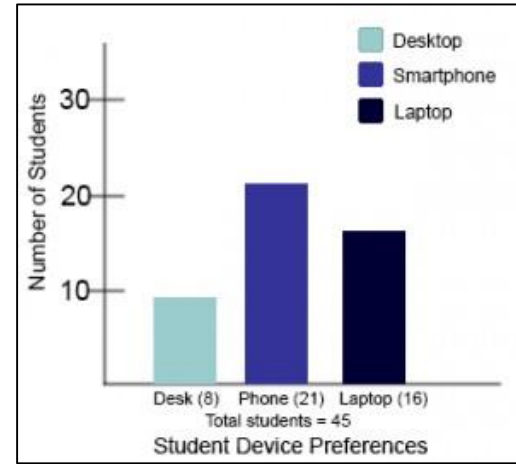
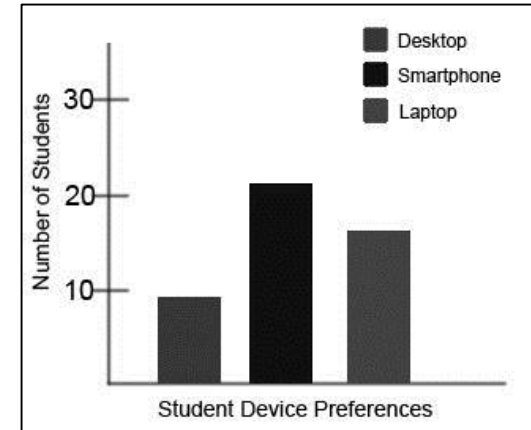
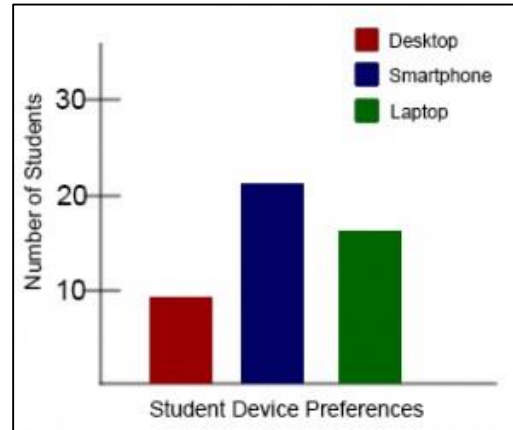
- ❑ All relevant visual information is conveyed via an audio description or transcript
- ❑ All relevant audio information is conveyed via captions or a transcript

Captions: Text that is synchronized with audio in a video.

Audio descriptions: Audio descriptions of visual content shown in the video that isn't conveyed through audio

Transcript: Includes the same information as with audio transcripts, but may also include relevant description of visual content

Colour and Colour Contrast



- ❑ Information is not conveyed by colour alone
- ❑ There is sufficient colour contrast between foreground and background

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Contrast Checker

<https://contrastchecker.com/>

Images

- ❑ Images that convey information include alternative text (alt text) descriptions of the image's content or function.
- ❑ Images that are purely decorative do not have alt text
- ❑ Graphs, charts, and maps include contextual or supporting details in the text surrounding the image.
- ❑ Images do not rely on colour to convey information.

A decorative image does not need a text description.

- primarily for design
- do not convey content (or are already described in surrounding text)

A functional image contains content that requires a text description.

- Alt tag
- Surrounding text or caption
- Long description

Alt Tag

A short text description of an image that appears in the alt attribute of the image tag.

- Will not appear visually
- Can be accessed by text-to-speech technology (including screen readers)
- Should be less than 125 characters
- Does not need to include “Image of.”



Surrounding text/ caption

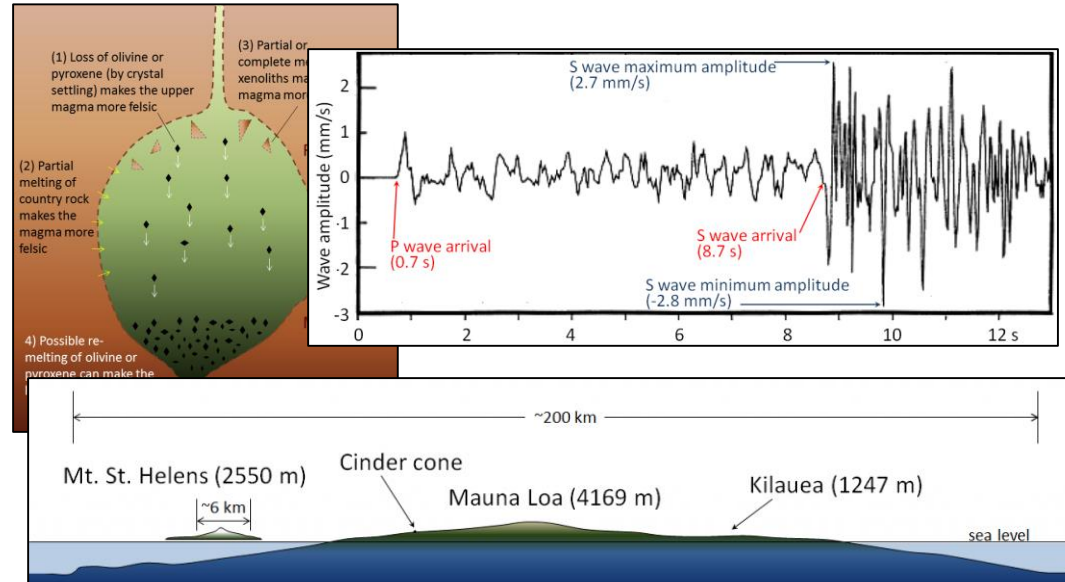


Figure 2.3 In 1871, the newcomer population in B.C. was still outnumbered by Aboriginal people who were, nevertheless, being hustled onto reserves and mostly without treaties. A Stó:lō woman, weaving baskets, n.d.

Long Descriptions for Complex Images

Examples

pie charts, bar charts, line graphs, flow charts, diagrams, illustrations, math graphs, and maps



Text Descriptions

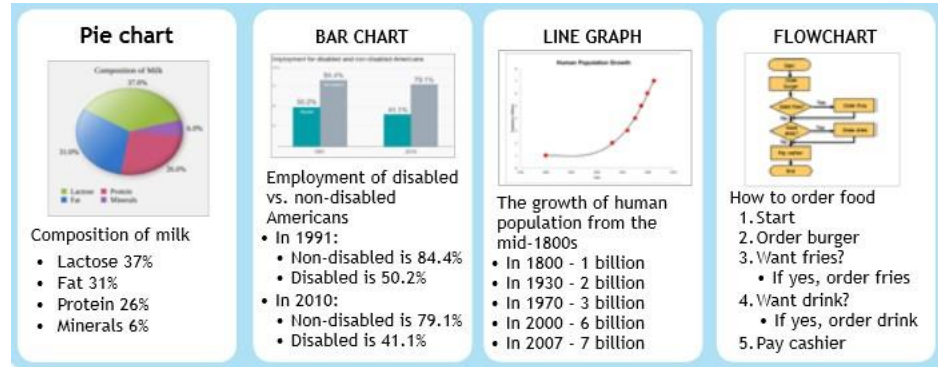
What to describe

- Content/purpose of the image
- Main focus of the image
- May depend on audience/context

How to describe

- Clear, concise, and accurate
- Go from general to specific
- Use words rather than symbols when writing math or scientific expressions
- Who? What? Where? When? Why?

Lists



Bulleted and numbered lists can be used to present information found in

- Pie charts
- Bar charts
- Line graphs
- Flow charts

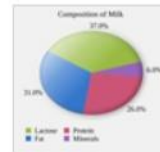
Data Tables

Data tables can be used to present information found in

- Complex tables
- Bar charts
- Line graphs
- Pie charts

PIE CHART

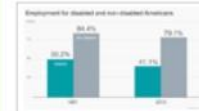
List the numbers from smallest to largest.



Composition	%
Minerals	6
Protein	26
Fat	31
Lactose	37

BAR CHART

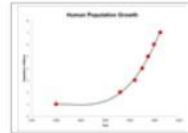
Briefly describe the chart & a summary, and provide title and axis labels.



Year	Non-disabled	Disabled
1991	84.4%	50.2%
2010	79.1%	41.1%

LINE GRAPH

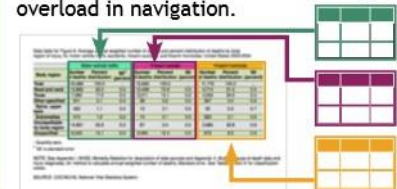
List the numbers from earliest to latest year.



Year	Population
1800	1 billion
1930	2 billion
1970	3 billion
2007	7 billion

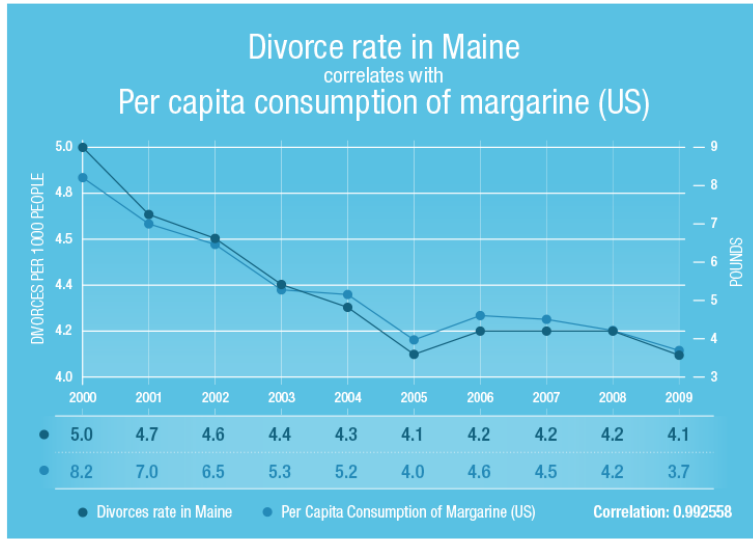
COMPLEX TABLE

Data separated into 3 tables aids cognitive overload in navigation.



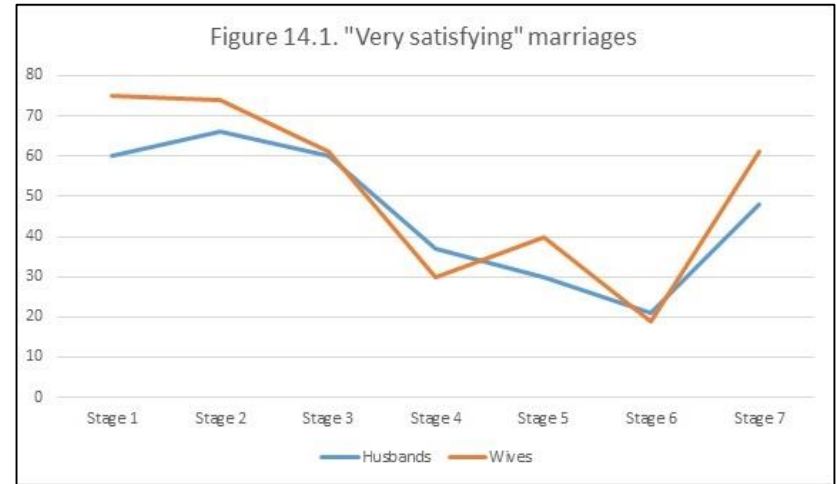
How would you describe these images?

FIGURE 4 MISTAKING CORRELATION FOR CAUSATION



Source: Tyler Vigen

ALTIMETER



“

” by

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“

” ©

. Based on data from Lupri and Frideres, 1981. CC BY.



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Beyond Technical Accessibility

- Limitations of Accessibility Checklists
- Universal Design for Learning
- Inclusive Design
- Changing Our Practices

Accessibility Checklists

Strengths

- Easy to understand and follow
- Highlight the most important technical considerations to make sure students with disabilities can access the material

Weaknesses

- Accessibility as something that we can go back and fix later
- Do not ensure good design
- Do not account for the multiple formats of OER
- Students face challenges not addressed in standard accessibility checklists
- Does not ensure equal access to learning outcomes



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What else affects accessibility?

- **Day-to-day life**
- **Digital literacy**
- **Access to technology**
- **Structure of information**
- **Presentation of information**

Universal Design for Learning (UDL)

Provide multiple means of

- **Engagement**
- **Representation**
- **Action and Expression**

What might multiple means of representation look like in OER?

- Incorporating multiple modalities (video, audio, interactive activities)
- Making resources available in multiple formats (PDF, HTML, EPUB)

<http://udlguidelines.cast.org/>



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Inclusive Design

“Design that considers the full range of human diversity with respect to ability, language, culture, gender, age, and other forms of human difference.”

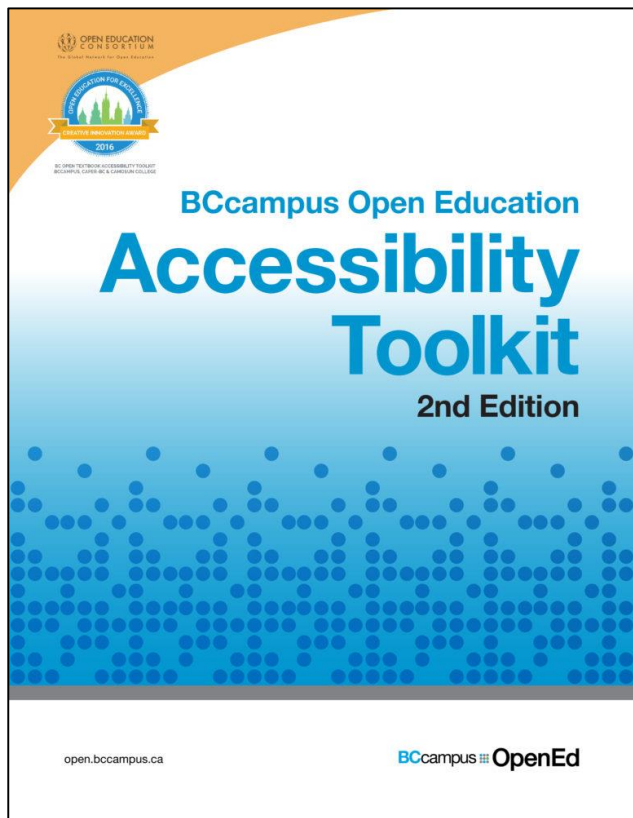
— Inclusive Design Research Centre



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Changing Our Practices



Accessibility Toolkit

<https://opentextbc.ca/accessibilitytoolkit>

- Information about how to create accessible educational resources
- Accessibility checklists
- Activities
- Webinars on Inclusive Design

Resources

English-Language Resources

- Web Content Accessibility Guidelines (WCAG) 2.1: <https://www.w3.org/TR/WCAG21/>
- Accessibility Toolkit: <https://opentextbc.ca/accessibilitytoolkit/>
- Accessibility Checklist: <https://opentextbc.ca/accessibilitytoolkit/back-matter/appendix-checklist-for-accessibility-toolkit/>
- Inclusive Design Guide: <https://guide.inclusivedesign.ca/>
- Inclusive Design Webinar Series: <https://opentextbc.ca/accessibilitytoolkit/back-matter/inclusive-design-webinar-series/>
- Inclusive Learning Design Handbook: <https://handbook.floeproject.org/>
- UDL Guidelines <http://udlguidelines.cast.org/>
- SNOW: Inclusive Learning & Education: <https://snow.idrc.ocadu.ca/>

French-Language Resources

- Web Content Accessibility Guidelines (WCAG) 2.0 (Traduction Française Agréée): <https://www.w3.org/Translations/WCAG20-fr/>
- CB Trousse d'outils d'accessibilité pour les manuels scolaires ouverts: <https://opentextbc.ca/troussedoutildaccessibilite/>

References

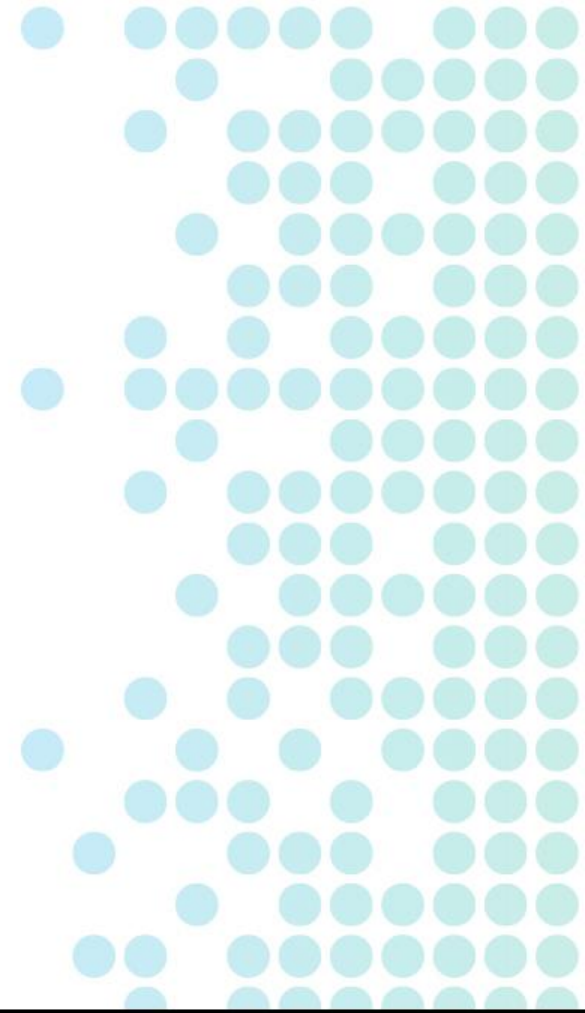
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- Kirkpatrick, A., O Connor, J., Campbell, A., & Cooper, M. (Eds.) (June 5, 2018). Web Content Accessibility Guidelines (WCAG) 2.1. WC3. <https://www.w3.org/TR/WCAG21/>



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Questions?



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