



## California Open Online Library for Education & Accessibility

COOL4Ed (the California Open Online Library for Education) was created so that faculty can easily find, adopt, utilize, review and/or modify free and open etextbooks for little or no cost. The COOL4Ed accessibility open textbook evaluations can inform faculty, staff, and students how the free and open etextbooks meet 15 accessibility “checkpoints” that could impact the learning of learners with a range of disabilities.

### SUMMARY OF ACCESSIBILITY EVALUATION:

**Textbook:** General Chemistry: Principles, Patterns, and Applications  
**Format of Textbook:** PDF

<b>Assistive Technology (AT) Evaluation Score: Overall</b>	<b>8.3 (Maximum score = 10)</b>
<p><b>Assistive Technologies (AT) Evaluations</b> applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, see list below, are typically not used or available by the general public into the accessibility evaluation process.</p> <ul style="list-style-type: none"> <li>• Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels)</li> <li>• Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator)</li> <li>• Third-party accessibility software and hardware:</li> <li>• Screen readers (e.g. JAWS, Window Eyes)</li> <li>• Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech)</li> <li>• Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000)</li> <li>• Refreshable Braille displays</li> </ul>	
<b>Non- Assistive Technology (NAT) Evaluation Score: Overall</b>	<b>6.1 (Maximum score =10)</b>
<p><b>Non-Assistive Technologies (NAT) Evaluations</b> applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.</p>	



## **COOL4Ed Accessibility Evaluation Methods:**

The California State University [Accessible Technology Initiative](#) and [MERLOT](#) (Multimedia Educational Resources for Learning and Online Teaching) developed the rubric or “checkpoints” for the accessibility evaluation. [CAST](#), a nationally recognized organization with expertise in accessibility and UDL, reviewed and affirmed the appropriateness and value of the accessibility evaluation rubric and contributed the references and support resources to help people learn how best to design, evaluate, and remediate the learning materials to maximize the accessibility of the learning resources for all. The “checkpoints” have been built upon the Section 508 technical standards and has been organized and tailored to the typical characteristics of digital resources used in higher education courses.

The accessibility evaluations were performed by the [Center for Usability in Design and Accessibility](#) at California State University, Long Beach; faculty and graduate students with expertise in human factors, usability, and accessibility performed the evaluations of over 150 free and open etextbooks. COOL4ed.org has published the accessibility evaluation rubric and provides a detailed description of the methodology used to evaluate the accessibility of the etextbooks in COOL4ed.

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## **LOOKING FOR DETAILED ACCESSIBILITY REPORTS?**

[See Detailed Accessibility Evaluation Report using Assistive Technologies](#)

[See Detailed Accessibility Evaluation Report using Non-Assistive Technologies](#)



## DETAILED ACCESSIBILITY EVALUATION REPORT using Assistive Technologies

**Assistive Technologies (AT) Evaluations** applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, such as Kurzweil and NVDA, are typically not used or available by the general public into the accessibility evaluation process.

### 1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	<b>Fail</b>
Additional Information:	<b>No URL to Formal Accessibility Policy found.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>No URL to Accessibility Statement found.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>No URL to Accessibility Evaluation Report found.</b>

### 2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	<b>Pass</b>
Additional Information:	<b>5/5 Pages passed. Pages checked were: 1.1, 1.2, 2.1, 2.2, 3.1. The pages checked were not part of a PDF download of the book. The PDF could not be downloaded without payment. All pages checked were able to be read in appropriate order by the NVDA reader.</b>

### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>5/5 Pages passed. Pages checked were: 1.1, 1.2, 2.1, 2.2, 3.1. The pages were checked using the zoom function in the Google Chrome browser because the</b>



	<b>PDF version could not be downloaded. All pages checked were able to have the size manipulated with the CTRL +/- functions.</b>
B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser, media player, or reader) that offers this functionality).	<b>Pass</b>
Additional Information:	<b>5/5 Pages passed. Pages checked were: 1.1, 1.2, 2.1, 2.2, 3.1.</b>

#### 4. Reading Layout

A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Pass</b>
Additional Information:	<b>Pages passed 5/5. Pages checked were: 1.1,1.2, 2.1, 2.2, 3.1. The pages checked all had text that was reflowed using the CTRL +/- function of Google Chrome. Adobe was unable to be used because access to the PDF version required payment and only the first three chapters were available for evaluation.</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>N/A</b>
Additional Information:	<b>No printed material included.</b>

#### 5. Reading Order

A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.	<b>Pass</b>
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Additional Information:	<b>Pages passed 5/5. Pages checked were: 1.3, 1.4, 2.3, 3.1, 3.6. All pages were read in a logical order by NVDA. The format used with the html version of the book because the PDF version was unavailable without payment and the first three chapters were the only ones available to evaluate.</b>
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## 6. Structural Markup/Navigation

A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Pass</b>
Additional Information:	<b>Pages passed: 25/25. Pages checked were: 1.1-1.10, 2.1-2.7, 3.1-3.8. All pages checked had headers and lists that were able to be navigated by NVDA. The version used was the html and was checked using Google Chrome because the PDF version was not available for evaluation and the first three chapters were the only ones available for the html version.</b>
B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Pass</b>
Additional Information:	<b>Lists passed 5/5. Lists found were on pages: 1.2, 1.3(5), 1.4(3), 1.5. All tables found were able to be recognized by NVDA and navigated with the L key and the I key. The version checked was the html version using Google Chrome. The PDF version was not available for evaluation.</b>
C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text	<b>N/A</b>



content that is compatible with assistive technology.	
Additional Information:	<b>No eReader application used.</b>

## 7. Tables

A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Pass</b>
Additional Information:	<b>Tables passed 10/10. Table found on pages: 1.3(5), 1.4(4), 1.5. All tables found were recognized by NVDA and were able to be navigated using the table quick keys by column and row. The version checked was the html version on Google Chrome because the PDF version was unavailable for evaluation.</b>

## 8. Hyperlinks

A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.	<b>Pass</b>
Additional Information:	<b>Links passed 36/36. All within book links passed and navigated to the intended destination. Links were checked with the html version and Google Chrome because the PDF version was not available for evaluation.</b>
B. Live hyperlinks take you to any website or webpages external to the book.	<b>N/A</b>
Additional Information:	<b>No external links found in the text. There were some in the drop down menus but they were inaccessible because the evaluator doesn't have an account.</b>



C. Live links take you to the correct webpage that is functioning properly.	N/A
Additional Information:	No external links found in the text. There were some in the drop down menus but they were inaccessible because the evaluator doesn't have an account.
D. Live links are descriptive enough for the users to know where it should take them.	N/A
Additional Information:	No external links found in the text. There were some in the drop down menus but they were inaccessible because the evaluator doesn't have an account.

### 9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	Fail
Additional Information:	Pages passed 0/25. Pages checked were: 1.1-1.10, 2.1-2.7, 3.1-3.8. Every page had in book links that were in blue text but were not underlined to signify them as links. They did have parentheses around them but were not underlined as links usually are.
B. Information is conveyed from the sub-categories for contrast.	Pass
Additional Information:	Average of the header and text contrast scores.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Pages passed 25/25. Pages checked were: 1.1-1.10, 2.1-2.7, 3.1-3.8. All chapter headers passed with black ink on a white background with a contrast ratio of 21.0:1. Headers were checked using the Colour Contrast Analyser.
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Pass

Additional Information:	<b>Pages passed 25/25. Pages checked were: 1.1-1.10, 2.1-2.7, 3.1-3.8. The body text passed with black ink on a white background with a contrast ratio of 11.73:1. Headers were checked using the Colour Contrast Analyser.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>N/A</b>
Additional Information:	<b>No simple images found in the text.</b>

### *10.Language*

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>The language code for English was found. It was checked using developer tools in Google Chrome because the PDF version was unavailable for evaluation.</b>
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	<b>N/A</b>
Additional Information:	<b>No alternate language found in the text.</b>

### *11.Images*

A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Fail</b>
Additional Information:	<b>Pages passed 0/25. Pages checked were: 1.1-1.10, 2.1-2.7, 3.1-3.8. All the non-decorative images found had alternate text to explain the image but none had</b>



	<b>alternate explanations conveyed by the NVDA reader.</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	<b>N/A</b>
Additional Information:	<b>No decorative images found in text.</b>
C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).	<b>Fail</b>
Additional Information:	<b>Pages passed 0/25. Pages checked were: 1.1-1.10, 2.1-2.7, 3.1-3.8. All the complex images found had alternate text to explain the image but none had alternate explanations conveyed by the NVDA reader.</b>

### **12.Multimedia**

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	<b>N/A</b>
Additional Information:	<b>No multimedia content found in the book.</b>
B. A transcript is provided with all audio content.	<b>N/A</b>
Additional Information:	<b>No multimedia content found in the book.</b>
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	<b>N/A</b>
Additional Information:	<b>No multimedia content found in the book.</b>

### **13.Flickering**

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	<b>Pass</b>
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Additional Information:	<b>No instances of flickering found in the book.</b>
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***14.Science, Technology, Engineering, and Math (STEM)***

A. STEM figures have appropriate markup that indicates that the image is a figure.	<b>Pass</b>
Additional Information:	<b>Figures passed 10/10. Figures found on pages: 1.1(2), 1.2(2), 1.3(6). Each page had multiple figures and all included markups that identified them as figures by NVDA.</b>
B. STEM graphs have appropriate markup that indicates that the image is a graph.	<b>Fail</b>
Additional Information:	<b>Graphs passed 1/3. Only 3 graphs were found. Graphs found on pages: 1.8, 3.6(2). The graph found in section 1.8 was recognized by NVDA as a graph but the 2 in section 3.6 were not.</b>
C. STEM equations have appropriate markup that indicates that the image is an equation.	<b>Fail</b>
Additional Information:	<b>Equations passed 1/10. Equations found on pages 1.3(2), 1.4, 1.6(3), 1.9, 2.1, 2.4. The only equation found that was recognized by NVDA as an equation was on page 1.9.</b>
D. STEM tables have appropriate markup that indicates the image is a table.	<b>Pass</b>
Additional Information:	<b>Tables passed 10/10. Table found on pages: 1.3(5), 1.4(4), 1.5. All tables found had markup signifying them as tables recognized by NVDA.</b>
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Fail</b>
Additional Information:	<b>Figures passed 0/10. Figures found on pages: 1.1(2), 1.2(2), 1.3(6). Each page had multiple figures and all included markups that identified them as figures by NVDA but there was no alternate text read to describe the figure.</b>



F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Fail</b>
Additional Information:	<b>Graphs passed 1/3. Only 3 graphs were found. Graphs found on pages: 1.8, 3.6(2). The graph found in section 1.8 had alternate text to explain the graph through NVDA but the graphs found on page 3.6 did not.</b>
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Fail</b>
Additional Information:	<b>Equations passed 1/10. Equations found on pages 1.3(2), 1.4, 1.6(3), 1.9, 2.1, 2.4. Only the equation on page 1.9 had notation markup that was recognized and read by NVDA.</b>
H. Assistive technology used can access the content from the STEM tables.	<b>Pass</b>
Additional Information:	<b>Tables passed 10/10. Table found on pages: 1.3(5), 1.4(4), 1.5. All tables found had notation markup that was recognized and read by NVDA.</b>

### ***15. Interactive Elements***

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	<b>N/A</b>
Additional Information:	<b>No interactive elements included with the book.</b>
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	<b>N/A</b>
Additional Information:	<b>No interactive elements included with the book.</b>
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as	<b>N/A</b>



text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	
Additional Information:	<b>No interactive elements included with the book.</b>

## DETAILED ACCESSIBILITY EVALUATION REPORT using Non-Assistive Technologies

**Non-Assistive Technologies (NAT) Evaluations** applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.

### 1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	<b>Fail</b>
Additional Information:	<b>No Content Found.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>No Content Found.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>No Content Found.</b>

### 2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	<b>Fail</b>
Additional Information:	<b>Pgs 48-53 were checked. The text is available to assistive technology that allows user to enable text-to-speech functionality. However, images alternative</b>



	text was read after the text-to-speech function read the directory of the image.
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### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Fail</b>
Additional Information:	<b>Pgs 6-11 were checked. When the window page chaged in size, a horizontal bar appeared. The font size of all pages checked could be adjusted.</b>
B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser, media player, or reader) that offers this functionality).	<b>Fail</b>
Additional Information:	<b>Pgs 6-11 were checked. When changing the font/background color to green text on black, the background color did change to black and the font color did not change to green.</b>

### 4. Reading Layout

A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Pass</b>
Additional Information:	<b>Pgs 6-11 were checked. When reflowing the text, the text to speech function did work. The text was available for assistive technology. The text was able to reflow.</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>N/A</b>
Additional Information:	<b>Need additional information. We do not have printed material to compare it too.</b>



### 5. Reading Order

<p>A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>Pgs 48-53 were checked. The reading order was not logical on all five pages.</b></p>

### 6. Structural Markup/Navigation

<p>A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>The Bookmarks, Headings, and Title all failed using the accessibility checker. Tagged PDF passed.</b></p>
<p>B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>There were no list structural markups. The Bookmarks, Headings, and Title all failed using the accessibility checker. Tagged PDF passed.</b></p>
<p>C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.</p>	<p><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>There was none found. The Bookmarks, Headings, and Title all failed using the accessibility checker. Tagged PDF passed.</b></p>



## 7. Tables

<p>A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>0/5 tables included alternative text that identified as rows and columns headers. The tables were on pages 22 (2 tables), 24, 29, and 51. The text-to-speech function read the tables by row but did not identify the rows or column as headers. In other words in only read them by row and never mentioned that it was reading row 1 (headers). Using the accessibility checker, the rows, TH and TD, and headers all passed. Regularity failed.</b></p>

## 8. Hyperlinks

<p>A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>No within book links found throughout the book.</b></p>
<p>B. Live hyperlinks take you to any website or webpages external to the book.</p>	<p><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>20/20 live links worked. The link were found on pages 2 (2 links), 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. All links were in URL form. The text-to-speech function read the link in URL form. Using the accessibility checker, the navigation links passed.</b></p>
<p>C. Live links take you to the correct webpage that is functioning properly.</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>20/20 live links worked. The link were found on pages 2 (2 links), 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,</b></p>



	<b>16, 17, 18, 19, and 20. The accessibility checker showed navigation links passed.</b>
D. Live links are descriptive enough for the users to know where it should take them.	<b>Fail</b>
Additional Information:	<b>1/20 live links were descriptive enough. The link were found on pages 2 (2 links), 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. Almost links were in URL (www.) form, except for the one of the links on page 2. The text-to-speech function read the links in URL form. Using the accessibility checker, navigation links passed.</b>

## 9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	<b>Pass</b>
Additional Information:	<b>Pgs 6-125 were checked. Information not conveyed by color alone. Size of font was used to convey information as well as the style (bold vs non-bold text). The chapter titles larger is size compared to the rest of the text. There was also text in italics.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Fail</b>
Additional Information:	<b>Pgs 6-125 were checked. Most pages had the contrast ratio of 4.51:1 and above (10.32:1). The chapter titles were larger in size compared to the rest of the text. The chapter titles passed with 8.18:1 and 21.0:1 (given chapter titles were in two colors). Links were in blue and failed with a ratio of 8.59:1. Text in italics passed with a ratio of 12.46:1. "Key Takeaways" sections within a chapter were in white and on green background. "Key takeaways" failed with a 4.38:1. "Learning Objectives" sections within a chapter were in black on baige background. "Learning Objectives" passed with a ratio 8.21:1.</b>



	Figure notation markups failed with a ratio of 2.61:1. Text against blue background passed with a ratio of 10.8:1.
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	Pass
Additional Information:	Pgs 6-125 were checked. The chapter headers were larger in size compared to the rest of the text. The chapter headers passed with 8.18:1 and 21.0:1 (given chapter titles were in two colors).
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	Fail
Additional Information:	Pgs 6-125 were checked. The text on pages checked had the contrast ratio of 4.51:1 and above (10.32:1). The chapter titles passed with 8.18:1 and 21.0:1 (given chapter titles were in two colors). Links were in blue and failed with a ratio of 8.59:1. Text in italics passed with a ratio of 12.46:1. "Key Takeaways" sections within a chapter were in white and on green background. "Key takeaways" failed with a 4.38:1. "Learning Objectives" sections within a chapter were in black on beige background. "Learning Objectives" passed with a ratio 8.21:1. Figure notation markups failed with a ratio of 2.61:1. Text against blue background passed with a ratio of 10.8:1.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	Fail
Additional Information:	Pgs 6-125 were checked. Simple images failed with a ratio of 4.51:1 and below (Example: On page 47, the simple image failed with a ratio of 2.28:1).

### 10. Language

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	Fail
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Additional Information:	Using the accessibility checker the primary language failed.
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	Fail
Additional Information:	Using the accessibility checker the primary language failed.

### 11.Images

A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	Fail
Additional Information:	<b>10/10 non-decorative images included alternative text. Images were found on pages 9, 10, 13, 19, 21, 36, 37, 41, 42, and 43. The text-to-speech function read the directory for the picture instead of reading the alternative text. Figures alternative text failed.</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	N/A
Additional Information:	<b>No Decorative images found. Figures alternative text failed.</b>
C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).	Fail
Additional Information:	<b>0/10 complex images had descriptive alternative text. Images were found on pages 22 (2 tables), 24, 29, 34, 35, 39 (2 tables), 40, and 50. All complex images did not have alternative text that conveyed meaning on the images. The text-to-speech function</b>



	read the directory for the picture instead of reading the alternative text. Figures alternative text failed.
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### 12. Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	N/A
Additional Information:	No content found.
B. A transcript is provided with all audio content.	N/A
Additional Information:	No content found.
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No content found.

### 13. Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	Pgs 1-10 were checked. No flickering content was observed. Using the accessibility checker, screen flicker passed.

### 14. Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	Pass
Additional Information:	10/10 figures markups are compatible with assistive technology and were sufficient to convey meaning. Figures were found on pages 9, 10, 13, 19, 21, 36, 37, 41, 42, and 43.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	Graphs were under figure markups.



C. STEM equations have appropriate markup that indicates that the image is an equation.	<b>N/A</b>
Additional Information:	<b>No equations were found throughout the book.</b>
D. STEM tables have appropriate markup that indicates the image is a table.	<b>Fail</b>
Additional Information:	<b>4/10 table markups are compatible with assistive technology and were sufficient to convey meaning. Tables were found on pages 22 (2 tables), 24, 29, 34, 35, 39 (2 tables), 40, and 50. Tables on pages 24, 29, 34, 35, and 39 did not have markups.</b>
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Pass</b>
Additional Information:	<b>10/10 figures notation markups are compatible with assistive technology and were sufficient to convey meaning and presentation. The notation markups were sufficient enough. Figures were found on pages 9, 10, 13, 19, 21, 36, 37, 41, 42, and 43.</b>
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>N/A</b>
Additional Information:	<b>Graphs were under figure notation markups.</b>
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>N/A</b>
Additional Information:	<b>No equations were found throughout the book.</b>
H. Assistive technology used can access the content from the STEM tables.	<b>Fail</b>
Additional Information:	<b>4/10 table notation markups are compatible with assistive technology and were sufficient to convey meaning and presentation. Tables were found on pages 22 (2 tables), 24, 29, 34, 35, 39 (2 tables), 40, and 50. Tables on pages 24, 29, 34, 35, and 39 did not</b>



	have notation markups. The notation markups were not sufficient enough.
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### 15. Interactive Elements

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	N/A
Additional Information:	No Interactive Element Present.
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	N/A
Additional Information:	No Interactive Element Present.
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No Interactive Element Present.

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