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: **Biology (OpenStax)**
Format of Textbook: **HTML**

Assistive Technology (AT) Evaluation Score: Overall	**9.3 (Maximum score = 10)**
Assistive Technologies (AT) Evaluations 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. • Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels) • Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator) • Third-party accessibility software and hardware: • Screen readers (e.g. JAWS, Window Eyes) • Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech) • Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000) • Refreshable Braille displays	
Non- Assistive Technology (NAT) Evaluation Score: Overall	**6.8 (Maximum score =10)**
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.	

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.

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.	**Fail**
Additional Information:	**There were no links provided for aditional information regarding the formal accessibility policy. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
B. The organization providing the online materials has an accessibility statement.	**Fail**
Additional Information:	**There were no links provided for aditional information regarding the accessibility statement. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
C. An Accessibility Evaluation Report is available from an external organization.	**Fail**
Additional Information:	**There were no links provided for aditional information regarding accessibility. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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.	**Fail**
Additional Information:	**0/7 chapters were analyzed and passed text to speech. Chapters 1 through 7 were used for this**

	analysis. Although the NVDA program was able to read the text content, it paused every time it came to a word that was bolded, inperenthesis, or had subscriptions or numbers. Once the NVDA reader was manually started after encountering these links and pausing, some of the words in the sentence were missing. The reader would skip three or four words before beginning to read again. This section received a score of 5, which is failing, due to the fact that the reader did read most of the text but failed to perform adequately. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.

3. Text Adjustment

A. Text is compatible with assistive technology.	**Pass**
Additional Information:	**7/7 chapters were analyzed and passed text size compatibility. Chapters 1 through 7 were used for this analysis. The text content of the chapter allowed for adequate text size adjustment between the ranges of 30% to 300% zoom. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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).	**Pass**
Additional Information:	**7/7 chapters were analyzed and passed. Chapters 1 through 7 were analyzed and allowed for adequate adjustment of the font/background color. The tool used to analyze this component was the Google extension "Care your Eyes". Google chrome was used to access the book online.**

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).	**Pass**
Additional Information:	**30/30 web pages were analyzed and passed. Content was taken from chapters 1 through 6. All of the web pages analyzed allowed for adequate text reflow between 30% and 300% zoom levels. Horizantal scrolling was not required. Results may vary depending on screen size. Text reflow was analyzed using a standard Toshiba laptop with a 16 inch screen size. Google chrome was used to access the book online.**
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	**N/A**
Additional Information:	**0/0 web pages were analyzed and passed for matching page number content in the PDF version. There was a PDF version of this text, however, the HTML version of the book does not provide page numbers to compare with the PDF version. The content covered in each chapter and section is the same in both the HTML and PDF versions. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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.	**Pass**
Additional Information:	**30/30 pages were analyzed and passed for digital resource layout. Chapters 1 through 5 were used for this analysis. The reading order for digital resource**

	content logically corresponded to the visual layout of the page when rendered by assistive technology. The program used to analyze the digital resource layout was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.

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).	**Pass**
Additional Information:	**7/7 chapters were analyzed and passed markup for navigational text. Chapters 1 through 7 were used to analyze navigational text. The text of the digital resource included markup that allowed for navigation by heading levels using assistive technology. All heading levels were black text on a white background except for chapter section headings which were dark blue on white background. The program used to analyze navigational text was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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).	**Pass**
Additional Information:	**10/10 lists were analyzed and passed for structural markup of lists. Chapters 1 through 7 were used to analyze lists. The text of the digital resource included markup for bullets and numbered lists that was compatible with assistive technology. The program**

	used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.
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.	**N/A**
Additional Information:	**0/0 text content analyzed for structural markup for eReader application. No additional eReader application being used in this evaluation. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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).	**Pass**
Additional Information:	**10/10 tables were analyzed and passed markup. Tables were taken from chapters 1 through 10. Data tables included markup that identified row and column headers in a manner that was compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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	**N/A**

embedded links take you to the correct location in the book.	
Additional Information:	**The within book links are included in the live links analysis for HTML formats.**
B. Live hyperlinks take you to any website or webpages external to the book.	**Pass**
Additional Information:	**This is a combined average of the following two subsections of the links description and functionality. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
C. Live links take you to the correct webpage that is functioning properly.	**Pass**
Additional Information:	**50/50 links were analyzed and passed for functionality. The links were taken from chapters 1 through 3. The links took you to the correct location. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
D. Live links are descriptive enough for the users to know where it should take them.	**Pass**
Additional Information:	**36/50 links were analyzed and passed for link description. The links were taken from chapters 1 through 3. There was adequate descriptions of the passing links that aided in determining where they would take you. Every link that was in the "link to learning sections in each chapter and chapter section failed because no adequate description of the link was provided that was compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a	**Pass**

manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	
Additional Information:	**7/7 chapters were analyzed and passed for color redundancy. Chapter 1 through 7 were analyzed. The text content was color redundant in that it provided adequate means of distinguishing the content aside from color. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
B. Information is conveyed from the sub-categories for contrast.	**Pass**
Additional Information:	**This is an average score taken from the combined sub sections of the color and contrast field. The content was analyzed using the color contrast analyzer tool. Google chrome was used to access the book online.**
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	**Pass**
Additional Information:	**7/7 chapters were analyzed and passed for adequate header color contrast. Chapters 1 through 7 were used for analysis. All heading levels were black text on a white background except for chapter section headings which were dark blue on white background. The content was analyzed using the color contrast analyzer tool. Google chrome was used to access the book online.**
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	**Pass**
Additional Information:	**7/7 chapters were analyzed and passed for adequate text color contrast. Chapters 1 through 7 were used for analysis. All standard text samplings were of black text on a white background,and all text link samples were dark blue text on a white backround. The content was analyzed using the color contrast**

	analyzer tool. Google chrome was used to access the book online.
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	**Pass**
Additional Information:	**7/7 chapters with simple images were analyzed and passed color contrast. The images were taken from chapters 1 through 7. The content was analyzed using the color contrast analyzer tool. Google chrome was used to access the book online.**

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.	**Pass**
Additional Information:	**The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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.	**N/A**
Additional Information:	**The digital resource did not include passages in a foreign language. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

11.Images

A. Non-decorative images have alternative text that is compatible with assistive technology	**Pass**

(or is rendered by an application such as a browser, media player, or reader that offers this functionality).	
Additional Information:	**62/62 non-decorative images were analyzed and passed. Chapters 1 through 7 were used for this analysis. Alternate text descriptions are provided for each image that are compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	**Fail**
Additional Information:	**0/25 decorative images were analyzed and passed. There was alternate text descriptions provided for each image that would be compatible with assistive technology, however, no markup was provided to allow for the reader to ignore the image. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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).	**Pass**
Additional Information:	**77/77 complex images were analyzed and passed. Chapters 1 through 7 were used for this analysis. Text descriptions are provided for each image that are compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

12.Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	**N/A**
Additional Information:	**No multimedia were found within the text resource. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
B. A transcript is provided with all audio content.	**N/A**
Additional Information:	**No multimedia were found within the text resource. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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 multimedia were found within the text resource. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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:	**While analyzing book material there was no flickering on any of the pages. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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 were analyzed and passed. All STEM figures were taken from chapter 1. The figures are marked up in a manner that is compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
B. STEM graphs have appropriate markup that indicates that the image is a graph.	**Pass**
Additional Information:	**6/6 graphs were analyzed and passed. Only 6 graphs were located within the text. The graphs are marked up in a manner that is compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
C. STEM equations have appropriate markup that indicates that the image is an equation.	**Fail**
Additional Information:	**0/10 equations were analyzed and passed. STEM equations were found in chapter 2 sections 1 and 2, and chapter 6 sections 1, 2, and 4. The figures were not marked up in a manner that is compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
D. STEM tables have appropriate markup that indicates the image is a table.	**Pass**
Additional Information:	**8/10 tables were analyzed and passed. The passing tables are marked up in a manner that is compatible with assistive technology, however, the two failing tables in chapter 5 section 4 and chapter 10 section 5 did not contain markup that was compatible with assistive technology. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	**Pass**
Additional Information:	**10/10 figures were analyzed and passed. All STEM figures were taken from chapter 1. The resource conveys both the notation (presentation) and meaning (semantics) of the STEM content. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	**Pass**
Additional Information:	**6/6 graphs were analyzed and passed. Only 6 graphs were located within the text. The resource conveys both the notation (presentation) and meaning (semantics) of the STEM content. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	**Pass**
Additional Information:	**10/10 equations were analyzed and passed. STEM equations were found in chapter 2 sections 1 and 2, and chapter 6 sections 1, 2, and 4. Although the reader could not identify or read the eaquation, the surrounding text conveys both the notation (presentation) and meaning (semantics) of the STEM content. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
H. Assistive technology used can access the content from the STEM tables.	**Pass**

Additional Information:	**10/10 tables were analyzed and passed. The resource conveys both the notation (presentation) and meaning (semantics) of the STEM content. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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 elements were found within the text resource. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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 elements were found within the text resource. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**
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 elements were found within the text resource. The program used to analyze text content was NVDA which is an open source screen reader for Windows. Google chrome was used to access the book online.**

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.	**Fail**
Additional Information:	**There was no link provided for the accessibility policy.**
B. The organization providing the online materials has an accessibility statement.	**Fail**
Additional Information:	**There was no link provided for the accessibility statement.**
C. An Accessibility Evaluation Report is available from an external organization.	**Fail**
Additional Information:	**There was no link provided for accessibility evaluation report.**

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.	**Pass**
Additional Information:	**Chapter 1: When you start the speech thing it skips the CHAPTER 1, it does explain the figure of earth, figure 1. It skips subheading names and the various figures.**

3. Text Adjustment

A. Text is compatible with assistive technology.	**Pass**
Additional Information:	**Chapter 1, 2, 10, all the content on the webpage had the capability of being minimized and maximized, the text and the figures of each page.**

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).	**Pass**
Additional Information:	**Chapter 4, 9, 19; all pass because all three chapters conver to nightmode (black background) but leave images as is so they are still vivible and legible.**

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).	**Fail**
Additional Information:	**0/0 chapters passed. Chapter 3,7,11. When contenet was zoomed in, the text did not wrap. Instead, it was just magnified and involved the reader to the scrol horizontaly and vertically.**
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	**Fail**
Additional Information:	**There are no webpage numbers on the html web based book but on the pdf file there are 638 pages, none of the web and pdf match because of this. Fail.**

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.	**N/A**
Additional Information:	**No assistive technology used.**

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).	**N/A**
Additional Information:	**No assistive technology used.**
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).	**NA**
Additional Information:	**No assistive technology used.**
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.	**N/A**
Additional Information:	**No assistive technology used.**

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).	**N/A**
Additional Information:	**No assistive technology used.**

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.	**Pass**
Additional Information:	**20/20 Hyperlinks within book passed. Chapter 1(5 figures. But they are not labeled it is simply labeled figure, its close enough to appropriate figure but there should be more consistency.) Chapter 4 (5 figure links.), Chapter 9 (5 figures), Chapter 15 (5 figures).**
B. Live hyperlinks take you to any website or webpages external to the book.	**Pass**
Additional Information:	**18/20 Hyperlinks passed. Chapter 2, section 2.1 pass because atom and isotope site works.Section 2.2 fails because it looks like an active link that will take you the the 3d animation of the strucure of ice lattice but instead it opens a blank page and downloads a movie file to your laptop wihtout permission. Insection 2.2 the second hyperlink passes, there is hyperlink that takes you the the US geological survey that talks about water and the link "website" does take you to a live website. Section 2.3 has another hyperlink that provides an additonal perspective on lipids, the link "animation" takes you to a live page that provides an animation on lipids. Chapter 4, section 4.1 provides a hyperlink that takes you the a site that explains kinetic and potential energy, and the webpage works. There is another hyperlink in the same section 4.1, and it takes you to a webpage that shows an animation of the transition of energy and another n indicded fit. section 4.4 has a "site" hyperlink that takes you to a site where you can see anaerobic cellular respiration but you need a specific plug in (having a small warning would be helpful becasuse then the reader wont waste time if they dont have that plug in or they can download it before clinking on the link. Chapter 6, section 6.2 has a hyperlink in**

	the body paragraph that directs the reader to a video about cell cycle, its a URL but it does take you to a live webpage that works. In section 6.2 there is another hyperlink that provides more on mitosis, the page is of movies that illustrate different aspects of mitosis and its active and works. Later in section 6.2 there is another link "this animation" of the animation of cell cycle, it takes you to an active and working webpage. Section 6.3 has a hyperlink that redirects the user into a website where they can watch how cancer is a result of cell cycle errors, the webpage is working as well. Chapter 14, section 14.2 has a hyperlink "website" that redirects the user to a website that shows an animation of the lyfecycle of the fern but the webpage is not active or working. In section 14.3 there is a hyperlink that redirects the user to a video on the proces of seed production, the webpage is live and working. Chapter 15, section 15.1 there a hyperlink to a video by EO wilson on animal diversity, the link is active and working. There is another video hyperlink in section 15.1 that talks about symmetry, the webpage is live and active. In 15.2 there is a video hyperlink that directs the reader to a webpage about feeding sponges and the link is active and working. In section 15.2 there is another video link that directs the user to an active and working webpage about jelies. In section 15.2 there is another video hyperlink that redirects teh user to an aactive webpage but the video is not working.
C. Live links take you to the correct webpage that is functioning properly.	**Pass**
Additional Information:	**18/20 Hyperlinks passed. Chapter 2, section 2.1 pass because atom and isotope site works.Section 2.2 fails because it looks like an active link that will take you the the 3d animation of the strucure of ice lattice but instead it opens a blank page and downloads a movie file to your laptop wihtout permission. Insection 2.2 the second hyperlink passes, there is hyperlink that takes you the the US geological survey that talks about water and the link "website" does take you to**

	a live website. Section 2.3 has another hyperlink that provides an additonal perspective on lipids, the link "animation" takes you to a live page that provides an animation on lipids. Chapter 4, section 4.1 provides a hyperlink that takes you the a site that explains kinetic and potential energy, and the webpage works. There is another hyperlink in the same section 4.1, and it takes you to a webpage that shows an animation of the transition of energy and another n indicded fit. section 4.4 has a "site" hyperlink that takes you to a site where you can see anaerobic cellular respiration but you need a specific plug in (having a small warning would be helpful becasuse then the reader wont waste time if they dont have that plug in or they can download it before clinking on the link. Chapter 6, section 6.2 has a hyperlink in the body paragraph that directs the reader to a video about cell cycle, its a URL but it does take you to a live webpage that works. In section 6.2 there is another hyperlink that provides more on mitosis, the page is of movies that illustrate different aspects of mitosis and its active and works. Later in section 6.2 there is another link "this animation" of the animation of cell cycle, it takes you to an active and working webpage. Section 6.3 has a hyperlink that redirects the user into a website where they can watch how cancer is a result of cell cycle errors, the webpage is working as well. Chapter 14, section 14.2 has a hyperlink "website" that redirects the user to a website that shows an animation of the lyfecycle of the fern but the webpage is not active or working. In section 14.3 there is a hyperlink that redirects the user to a video on the proces of seed production, the webpage is live and working. Chapter 15, section 15.1 there a hyperlink to a video by EO wilson on animal diversity, the link is active and working. There is another video hyperlink in section 15.1 that talks about symmetry, the webpage is live and active. In 15.2 there is a video hyperlink that directs the reader to a webpage about feeding sponges and the link is active and working. In section 15.2 there is another

	video link that directs the user to an active and working webpage about jelies. In section 15.2 there is another video hyperlink that redirects teh user to an aactive webpage but the video is not working.
D. Live links are descriptive enough for the users to know where it should take them.	**Fail**
Additional Information:	**0/20 Hyperlinks passed. Chapter 2,4,6,14,15 al failed because none of the hyperlinks were descriptive enough, in all the chapters the hyperlinks were labeled as link, website, or animation, it needs to be a descriptive name, not a general name that can be for all hyperlinks.**

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.	**Pass**
Additional Information:	**Chapter 4, 14, 15 all the headings of section are in a different blue tone but they can be distinguished not just by color but by size as well, all headings are lafger than body text. All hyperlinks are also a blue tone but they can be distinguished by other characteristics like being undelined, so the user can almost be sure its a hyperlink.**
B. Information is conveyed from the sub-categories for contrast.	**Pass**
Additional Information:	**Chapter 2, 6, 11 the section heading passed (both AA and AAA), sub heading and text passed.**
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	**Pass**
Additional Information:	**Chapter 2, 6, 11 the section heading passed (both AA and AAA).**
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	**Pass**

Additional Information:	**Chapter 2, 6, 11 the Text passed (both AA and AAA).**
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	**N/A**
Additional Information:	**N/A all images are complex.**

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.	**Pass**
Additional Information:	**The code says "lang="en-us".**
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.	**N/A**
Additional Information:	**No additional Language.**

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:	**0/3 chapters passed. Chapter2,6, 15, when you search for image alt in the code, there arent any alternative names given, or any description, It appears as if all images are within a div.**
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:	**N/A. All images on the webbook were illustrating an example or book content that could not be skipped**

	or ignored by assistive technology because they were all labeled and explained.
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:	**0/3 chapters passed. Chapter2,6, 15, when you search for image alt in the code, there arent any alternative names given, or any description, It appears as if all images are within a div.**

12.Multimedia

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	**N/A**
Additional Information:	**N/A there weren't any multimedia in webbook.**
B. A transcript is provided with all audio content.	**N/A**
Additional Information:	**N/A there weren't any multimedia in webbook.**
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:	**N/A there weren't any multimedia in webbook.**

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:	**No Flickering data provided in book.**

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

A. STEM figures have appropriate markup that indicates that the image is a figure.	**N/A**
Additional Information:	**No STEM Content found**
B. STEM graphs have appropriate markup that indicates that the image is a graph.	**N/A**
Additional Information:	**No STEM Content found**
C. STEM equations have appropriate markup that indicates that the image is an equation.	**N/A**
Additional Information:	**No STEM Content found**
D. STEM tables have appropriate markup that indicates the image is a table.	**N/A**
Additional Information:	**No assistive technology provided**
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	**Pass**
Additional Information:	**7/10 figures passed. Chapter 1, Section 1.2 has figure 1 that shows a algea under a microscope and its described in color and ther is a side picture that shows where they can be found like in Lakes, this is also explained right below the figure 1. figure 2 is a picture of E. Coli under a microscope and it is described as a bacteria and what it looks like under a microscope. In Chapter 2, section 2.1 figure 1 is an itom structure and there is an explanantion of the differnt parts of the structure, figure 2 doesnt pass because it is the periodic table and there is a qucik explanantion on the organization of the periodic table (although the structure could be explained in more detail like why certain items are a certain color and how to read the table) Figure 4 did not pass because it is a pictures of elements and how they share electrons between each other, the figure has alot of information that is not explained in detail like what is the neutron and electron and which element is sharing one and which one is accepting it. Figure 5**

	doesnt pass because it shows three different types of covalent bonds, the description of each but only go into detail one one covalent bond, it shoudl explain all three. Figure 6 passes becuase it is a picture of a hydrogen bond and covalont bond and the explanation is sufficient for this figure becuase there isnt alot of factors to explain. Section 2.3, figure 1 passes becuase it is a simple methane molecule and the explanation explains that it is a simple carbon molecule. Figure 2 passes becuase it is 3 examples of molecules bonded in different ways and each one is exaplined below it. Figure 9 passed becuase it an example of four levels of protein structures and each level is explained by small text boxes.
F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	**N/A**
Additional Information:	**No STEM Graphs detected in book.**
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	**N/A**
Additional Information:	**No STEM Equations detected in book.**
H. Assistive technology used can access the content from the STEM tables.	**N/A**
Additional Information:	**No STEM tables detected in book.**

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.	**Pass**
Additional Information:	**3/3 chapters passed. The book has a continuum scale on the right corner of the screen where you can see around what area you are in the book (Beg, mid, end) and it has a back and next button. Chapter**

	4,7,10 were checked by using the keyboard to navigate (Using the TAB and ENTER keys), when TAB and Enter were used, it was possible to navigate successfully through the chapters.
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 elements found.**
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 elements found.**