

SKILLSCOMMONS ACCESSIBILITY CHECKPOINTS

METHODS FOR EPUB3 FORMATS
(ASSISTIVE TECHNOLOGIES)

Evaluation time

Estimate evaluation time per book:

- Novice rater: 2~3 hours
- Experienced rater: 1.5~2 hours

Depending on book content and amount of material,

- STEM books
- Books with more pages
- Books with lots of images

Takes longer to evaluate

Accessibility Checkpoints

1. Accessibility Documentation
2. Text Access
3. Text Adjustment
4. Reading Layout
5. Reading Order
6. Structural Markup/Navigation
7. Tables
8. Hyperlinks
9. Color and Contrast
10. Language
11. Images
12. Multimedia
13. Flickering
14. STEM
15. Interactive Elements

How to access texts

STEPS:

1. Visit Cool4Ed eTextbook Reviews site @ <http://www.cool4ed.org/reviews.html>



How to access texts


STEPS:

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<http://www.cool4ed.org/reviews.html>
2. Select desired titles
3. Search for preferred formats
4. Download text

How to access texts

STEPS:

2. Select desired titles

Introduction to Statistics		
		
MATH 110		
eTextbook	eTextbook Reviews	
<i>Introductory Statistics From BC Campus</i>	Tami Matsumoto, CCC Faculty Andrew Noymer, UC Faculty Hasan Rahim, CCC Faculty	
<i>Introductory Statistics From Open Stax College</i>	Tami Matsumoto, CCC Faculty Andrew Noymer, UC Faculty Hasan Rahim, CCC Faculty	
<i>Online Statistics Education: An Interactive Multimedia Course of</i>	Tami Matsumoto, CCC	


How to access texts

3. Search for preferred format and download text



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Formats

Online texts are available in various formats and should be evaluated based on the following rankings:

1. EPUB3
2. HTML
3. Microsoft Word
4. PDF

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Formats

In other words, EPUB3 is ideal, but if it is not available, we move down the list and search for the next available format

4. Download textbook or open link (if applicable)

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Formats

Note: This is an OpenStax text. Although EPUB3 isn't listed, it is available!

To determine if there is an EPUB3 format for OpenStax texts, additional navigation is required.

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Introductory Statistics

Book by: OpenStax College

 Contents +  Metadata +  Tools +

 Back  Next 

ASK US

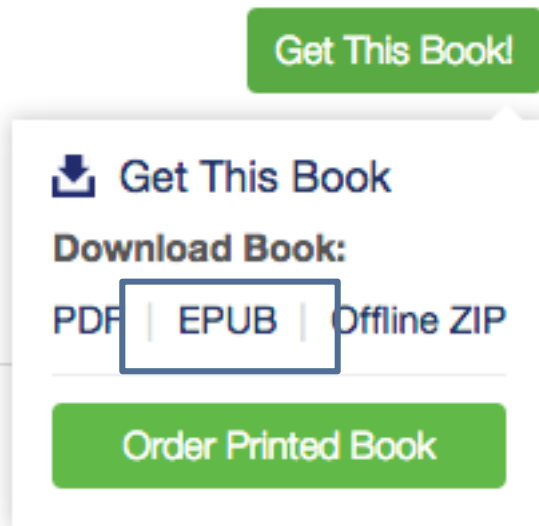
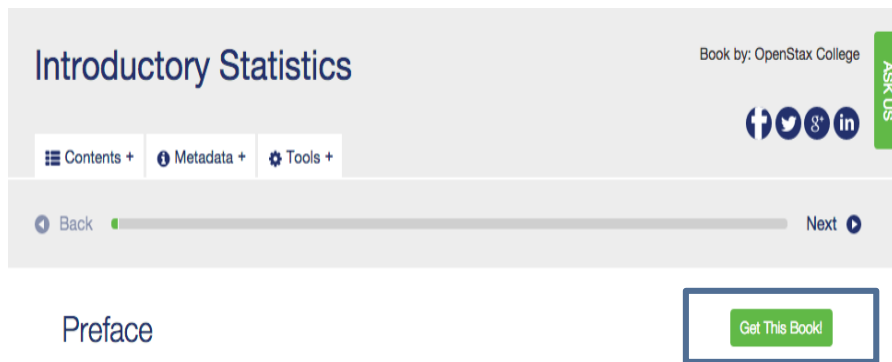
Preface

Get This Book!

How to access texts

Now you can download the EPUB file!

Note: At the time of this writing, only OpenStax texts have been found to need additional navigation. All other texts have been found to clearly list out all available formats.



Checklist

All information obtained from textbook evaluation will be entered into checklists:

HTML Accessibility Checklist					
Content	Name of book	Format	OS Used	Total Number of Pages	Number of Chapters
		HTML			

Check point	Criteria	Amount of Material	Pass/Fail
1 Acc. Documentation	A. URL to Formal Accessibility Policy		
1 Acc. Documentation	B. URL to Accessibility Statement		
1 Acc. Documentation	C. URL to Accessibility Evaluation Report		
2 Text Access	Text to Speech	0	
3 Text Adjustment	A. Compatible	0	
3 Text Adjustment	B. Adjust font and colors	0	
4 Reading Layout	A. Reflow the text	30 web pages	
4 Reading Layout	B. Page # match printed material & reflow of text	30 web pages	
5 Reading Order	Digital resource layout		
6 Structural Markup	A. Navigation text		
6 Structural Markup	B. Lists		
6 Structural Markup	C. eReader application		
7 Table Markup	Table Markup		
8 Hyperlinks	Hyperlinks (within book)		
8 Hyperlinks	Hyperlink (live on internet)	20 links	
9 Color and Contrast	A. Color redundancy		
9 Color and Contrast	B. Contrast		
10 Language	A. Markup		
10 Language	B. Passage Markup		
11 Images	A. Non-decorative		
11 Images	B. Decorative		
11 Images	C. Complex		
12 Multimedia	A. Text Track		
12 Multimedia	B. Transcript		
12 Multimedia	C. Assistive Player		
13 Flickering	Flickering	10 links	
14 STEM	A. Markup (figures)	10 figures	
14 STEM	A. Markup (graphs)	10 graphs	
14 STEM	A. Markup (equation)	10 equations	
14 STEM	B. Notation Markup (figures)	10 figures	
14 STEM	B. Notation Markup (graphs)	10 graphs	
14 STEM	B. Notation (equation)	10 equations	
15 Interactive Elements	A. Keyboard		
15 Interactive Elements	B. Markup		
15 Interactive Elements	C. Text Prompts		

EPUB Accessibility Checklist					
Content	Name of book	Format	OS Used	Total Number of Pages	Number of Chapters
		EPUB			
#	Check point	Criteria	Amount of Material	Pass/Fail	Additional Info
1	Acc. Documentation	A. URL to Formal Accessibility Policy			
1	Acc. Documentation	B. URL to Accessibility Statement			
1	Acc. Documentation	C. URL to Accessibility Evaluation Report			
2	Text Access	Text to Speech	0 pages		
3	Text Adjustment	A. Compatible	0 pages		
3	Text Adjustment	B. Adjust font and colors	0 pages		
4	Reading Layout	A. Reflow the text	0 pages		
4	Reading Layout	B. Page #s match printed material & reflow of text	0 pages		
5	Reading Order	Digital resource layout			
6	Structural Markup	A. Navigation text			
6	Structural Markup	B. Lists			
6	Structural Markup	C. eReader application			
7	Table Markup	Table Markup			
8	Hyperlinks	Hyperlinks (in-book)	30 links		
8	Hyperlinks	Hyperlink (live)	20 links		
9	Color and Contrast	A. Color redundancy			
9	Color and Contrast	B. Contrast			
10	Language	A. Markup			
10	Language	B. Passage Markup			
11	Images	A. Non-decorative			
11	Images	B. Decorative			
11	Images	C. Complex			
12	Multimedia	A. Text Track			
12	Multimedia	B. Transcript			
12	Multimedia	C. Assistive Player			
13	Flickering	Flickering	10 links		
14	STEM	A. Markup (figures)	10 figures		
14	STEM	A. Markup (graphs)	10 graphs		
14	STEM	A. Markup (equation)	10 equations		
14	STEM	B. Notation Markup (figures)	10 figures		
14	STEM	B. Notation Markup (graphs)	10 graphs		
14	STEM	B. Notation (equation)	10 equations		
15	Interactive Elements	A. Keyboard			
15	Interactive Elements	B. Markup			
15	Interactive Elements	C. Text Prompts			

Checklist

For every book, enter the following:

- Content area
- Name of book
- Format (i.e., EPUB, HTML, Word, or PDF)
- OS used (e.g., Microsoft; Windows)
- For EPUB, Word, and PDF formats: Total number of pages (obtained from Word or PDF format preferably, if available)
- For HTML only: Total number of chapters

Note: Only Windows
will be used for
analysis until Apple
equivalents are
decided upon.

Checklist

Example for the EPUB format of Introductory Statistics (PDF version has 863 pages)

The diagram shows a form titled "EPUB Accessibility Checklist" with several input fields and a table. Annotations with arrows point to specific parts of the form:

- "Select content type from dropdown list" points to the "Content" field.
- "Select format and OS – note: each format has a different checklist" points to the "Format" and "OS Used" fields.
- "Only for HTML" points to the "Number of Chapters" field.
- "Enter name of book in its entirety" points to the "Name of book" field.

EPUB Accessibility Checklist					
Content	Name of book	Format	OS Used	Total Number of Pages	Number of Chapters
Introduction to Statistics	Introductory Statistics	EPUB	Windows	863	

Checklist


Note: When certain information is entered such as the number of pages or number of chapters, certain information in the checklist is updated:

EPUB Accessibility Checklist					
Content	Name of book	Format	OS Used	Total Number of Pages	Number of Chapters
Introduction to Statistics	Introductory Statistics	EPUB	Windows	863	
#	Check point	Criteria	Amount of Material	Pass/Fail	Additional Info
1	Acc. Documentation	A. URL to Formal Accessibility Policy			
1	Acc. Documentation	B. URL to Accessibility Statement			
1	Acc. Documentation	C. URL to Accessibility Evaluation Report			
2	Text Access	Text to Speech	172.6 pages		
3	Text Adjustment	A. Compatible	86.3 pages		
3	Text Adjustment	B. Adjust font and colors	86.3 pages		
4	Reading Layout	A. Reflow the text	172.6 pages		
4	Reading Layout	B. Page #s match printed material & reflow of text	172.6 pages		

Checklist

This information is based upon predetermined values for the amount of information that needs to be evaluated. You only need to round up to the next page count (or link count).

EPUB Accessibility Checklist					
Content	Name of book	Format	OS Used	Total Number of Pages	Number of Chapters
Introduction to Statistics	Introductory Statistics	EPUB	Windows	863	
#	Check point	Criteria	Amount of Material	Pass/Fail	Additional Info
1	Acc. Documentation	A. URL to Formal Accessibility Policy			
1	Acc. Documentation	B. URL to Accessibility Statement			
1	Acc. Documentation	C. URL to Accessibility Evaluation Report			
2	Text Access	Text to Speech	172.6 pages		
3	Text Adjustment	A. Compatible	86.3 pages		
3	Text Adjustment	B. Adjust font and colors	86.3 pages		
4	Reading Layout	A. Reflow the text	172.6 pages		
4	Reading Layout	B. Page #s match printed material & reflow of text	172.6 pages		




173 pages
87 pages
87 pages
173 pages
173 pages

Checklist

The percentages used are included in this presentation, but that is only for your reference – the checklist will fill out this information for you!

EPUB Accessibility Checklist					
Content	Name of book	Format	OS Used	Total Number of Pages	Number of Chapters
Introduction to Statistics	Introductory Statistics	EPUB	Windows	863	
#	Check point	Criteria	Amount of Material	Pass/Fail	Additional Info
1	Acc. Documentation	A. URL to Formal Accessibility Policy			
1	Acc. Documentation	B. URL to Accessibility Statement			
1	Acc. Documentation	C. URL to Accessibility Evaluation Report			
2	Text Access	Text to Speech	172.6 pages		
3	Text Adjustment	A. Compatible	86.3 pages		
3	Text Adjustment	B. Adjust font and colors	86.3 pages		
4	Reading Layout	A. Reflow the text	172.6 pages		
4	Reading Layout	B. Page #s match printed material & reflow of text	172.6 pages		



173 pages
87 pages
87 pages
173 pages
173 pages

Skills Commons Accessibility Checkpoints

All information obtained from textbook evaluation will be entered into the checkpoints document:

3. *Text Adjustment*

PASS/FAIL: _____ Ranking: _____

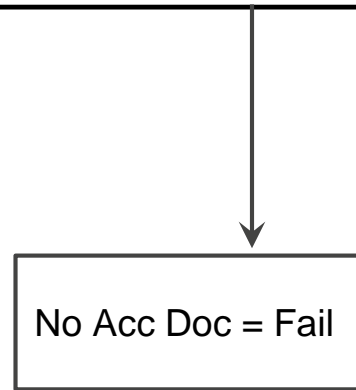
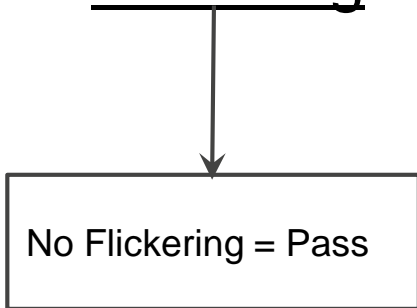
- A. Text is compatible with assistive technology.
- B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser, media player, or reader) that offers this functionality).

Additional Information: Please describe the technologies (hardware and software versions) and methodologies you used to evaluate the accessibility of the resource for this feature.

Enter info
such as the
pages you
evaluated
here as well.

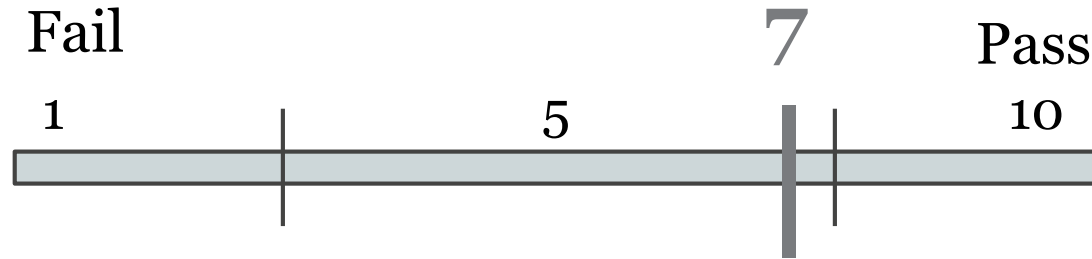
Pass, Fail, or N/A?

- Evaluate material based on the amount of material included in the checklist.
- If there is no related materials, mark N/A for that checkpoint. The only exception are Acc Documentation and Flickering.



Ratings

- Ratings are on a scale of 1-10



- Failure to meet a checkpoint (Fail) should not be rated above a 7
- Meeting a checkpoint (Pass) should not be rated below a 7

Assistive Technology

Kurzweil 3000

Kurzweil 3000

- Assistive technology
- Log in:
 - ID: **cudalab**
 - Password: **cuda@2000!**
- All of us are sharing the same ID and password.

Accessibility Checkpoints

1. Accessibility Documentation
2. Text Access 🤖
3. Text Adjustment 🤖
4. Reading Layout 🤖
5. Reading Order 🤖
6. Structural Markup/Navigation
7. Tables
8. Hyperlinks 🤖
9. Color and Contrast
10. Language
11. Images 🤖
12. Multimedia 🤖
13. Flickering 🤖
14. STEM 🤖
15. Interactive Elements 🤖

EPUB3

EPUB3 Evaluation Requirements

OS

- Windows OS (XP or above)

Require Downloading

- Kurzweil 3000
- Color Contrast Analyzer- CCA ([Download](#))
- Adobe Digital Editions ([Download](#))

1. Accessibility Documentation

For the textbooks' organizations, find the following:

- ☒ URL to formal Accessibility Policy
 - ☒ URL to accessibility statements
 - ☒ URL to Accessibility Evaluation Report
-
- ☒ Look on the Merlot website for the links.

Accessibility Documentation: Checkpoint 1 parts A, B, and C

Pass =

There was a URL address found for the formal accessibility policy/accessibility statement/accessibility evaluation report. Kurzweil 3000 and Google Chrome were used to access and evaluate this text.

Fail =

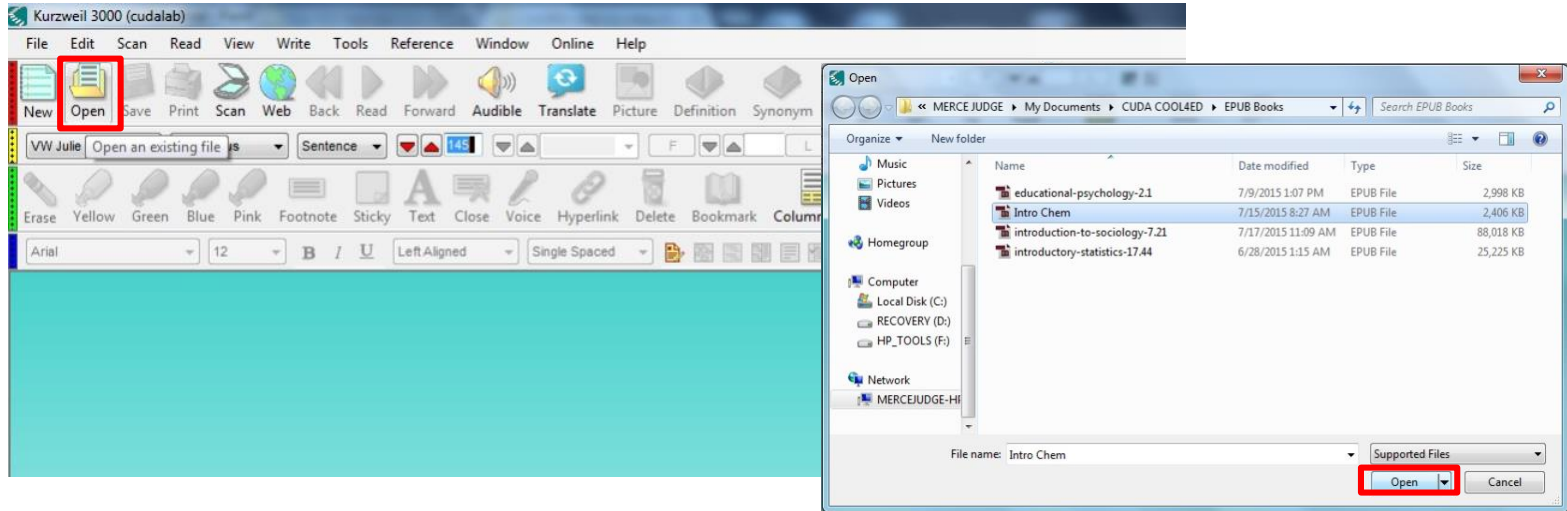
There was no URL address found for the formal accessibility policy/accessibility statement/accessibility evaluation report. Kurzweil 3000 and Google Chrome were used to access and evaluate this text.

2. Text Access

- ☒ The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality

OPEN EPUB

- Start up Kurzweil 3000
- Enter the log in ID and password provided
- Open > Select book > Open



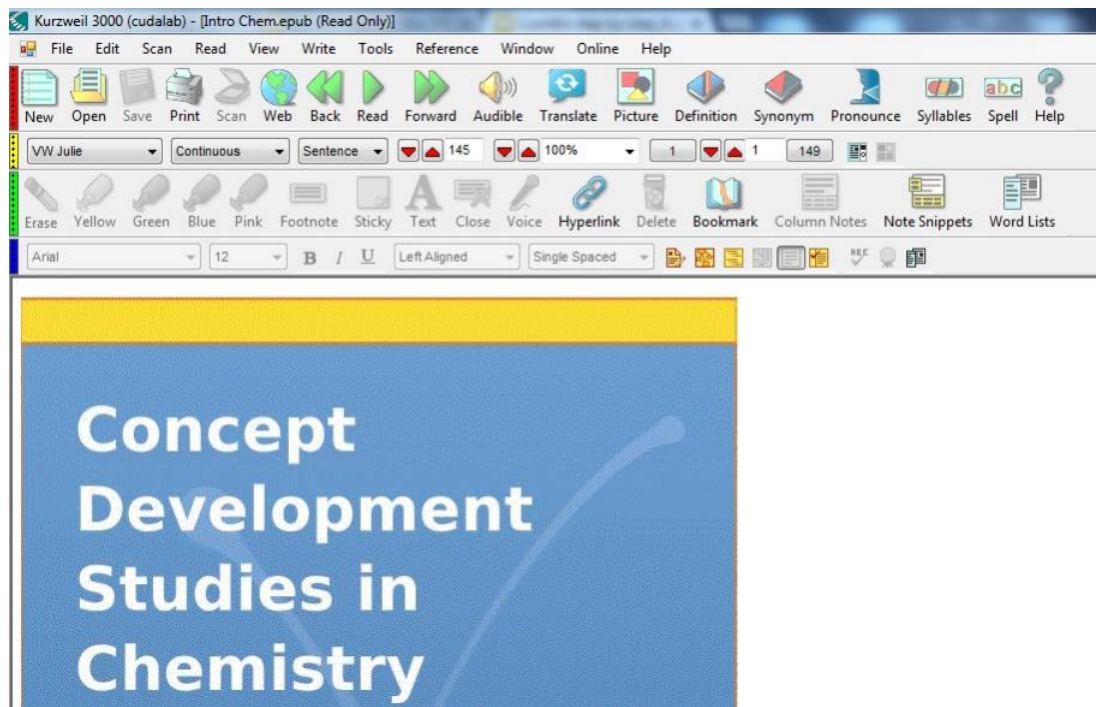
2. Text Access

STEPS:

1. Open up EPUB book with Kurzweil 3000
2. Go to evaluation pages
3. Click on READ
 - The text content should be read in a manner that is clear and understandable to the listener.
 - If elements of the text are not read properly, take that into account when scoring this checkpoint
 - Base your score off of the amount of passing material

Text Access

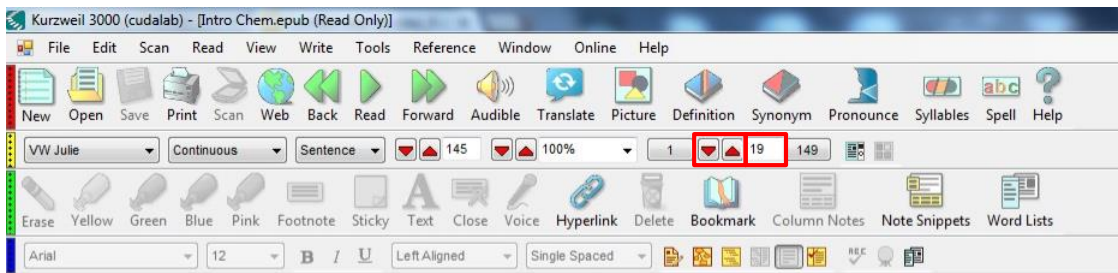
1. Open up EPUB book with Kurzweil 3000



Text Access

2. Go to evaluation pages

- Use previous/next page buttons OR type in page number



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2006/09/18 21:34:57 -0500

4.1. Foundation

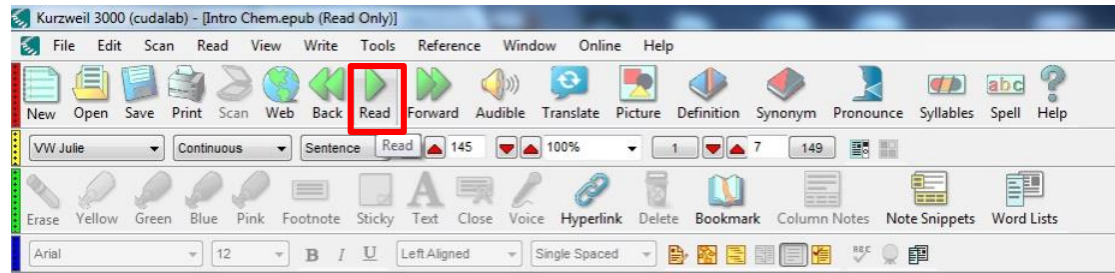
We begin as a starting point with the atomic molecular theory. We thus assume that most of the common elements have been identified, and that each element of the elements are all known, and that, as a consequence, it is possible via mass composition measurements to determine the molecular formula for any compound. Finally, we assume an understanding of common chemical and physical properties, and that these chemical and physical properties are periodic functions of the atomic number.

4.2. Goals

The atomic molecular theory is extremely useful in explaining what it means to form a compound from its component elements. That is, a compound consists of a ratio of elements. However, our knowledge of these atoms is very limited. The only property we know at this point is the relative mass of each atom. Consequently, we cannot predict chemical and physical properties as expressed in the Periodic Table. Why are elements which are very dissimilar in atomic mass nevertheless very similar in

Text Access

3. Click on READ



slowly and meticulously. Each sentence contains substance to be studied and understood. You should, at each step in the analysis, challenge yourself as to outline the concept development study, making sure you understand how each piece of the argument contributes to the development of a concept or model.

It is very important to understand that scientific models and theories are almost never "proven," unlike mathematical theorems. Rather, they are logically developed many times in these concept development studies when a conclusion is not logically required by an observation and a line of reasoning. Instead, we may arrive. Scientists most commonly abide by the principle of *Occam's razor*, one statement of which might be that the explanation which requires the least assumptions is the best.

One very important way to challenge your understanding is to study in a group in which you take turns explaining the development of the model. The ability to explain the concept. Use the questions at the end of the concept development studies to practice your skill at explaining technical arguments clearly and concisely.

1.3. Updates in the 2012 Edition

The 2012 editions of these Concept Development Studies were completely rewritten with two goals in mind. The first was to make these more readable, let them be more manageable in individual units. Both of these goals were based on the invaluable input of my students and of the high school teachers I have worked with in the 2012 edition. Further new modules will be added in the next edition.

Text Access

● Amount of Material to Be Evaluated

*** Sample 10% of the pages ***

Ex. If the book has 150 pages in total
 $150 \text{ pages} \times .10 = 15 \text{ pages}$

You will check 15 pages for text adjustment

Note: The checklist
will decide most of
these values for you.

Text Access: Checkpoint 2 Text to Speech

Pass =

15/15 pages pass for text to speech. Pages 10-15 and 65-75 were used for this checkpoint. All evaluated pages were read correctly and completely by Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

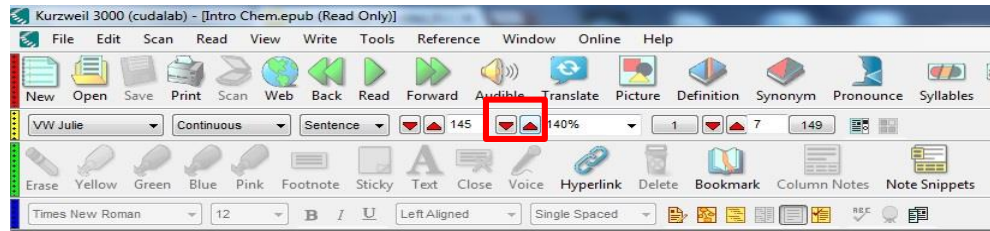
0/15 pages pass for text to speech. Pages 10-15 and 65-75 were used for this checkpoint. All evaluated pages failed because Kurzweil 3000 would skip random segments of the text, as well as, title and section headers. Kurzweil 3000 was used to access and evaluate this text.

3. Text Adjustment (Size)

☑ The text allows the user to adjust the font size

STEPS:

1. Open the EPUB file with Kurzweil 3000
2. Use the Zoom buttons to increase/decrease font size
 - Range = 75% to 200%
3. Do not check for text reflow in this checkpoint



slowly and meticulously. Each sentence contains substance to be studied and understood. You should reproduce the reasoning leading to the next conclusion. One good way to do this is to outline the contribution each argument contributes to the development of a concept or model.

3. Text Adjustment (Size)

● Amount of Material to Be Evaluated

*** Sample 5% of the pages ***

Ex. If the book has 150 pages in total

150 pages x .05 = 7.5 pages

Round up to the next whole number (Always round up)

You will check 8 pages for text adjustment

Note: The checklist
will decide most of
these values for you.

Text Adjustment: Checkpoint 3 A, Compatible (Size)

Pass =

8/8 pages pass for text size adjustment. Pages 7 through 15 were used for this checkpoint. All evaluated pages successfully allowed the user to adjust the font size from 75% to 200%. Kurzweil 3000 was used to access the content of the book.

Fail =

0/8 pages pass for text size adjustment. Pages 7 through 15 were used for this checkpoint. All evaluated pages allowed the user to adjust the font size from 75% to 150% zoom but would not increase font to 200%. Kurzweil 3000 was used to access the content of the book.

3. Text Adjustment (Color)

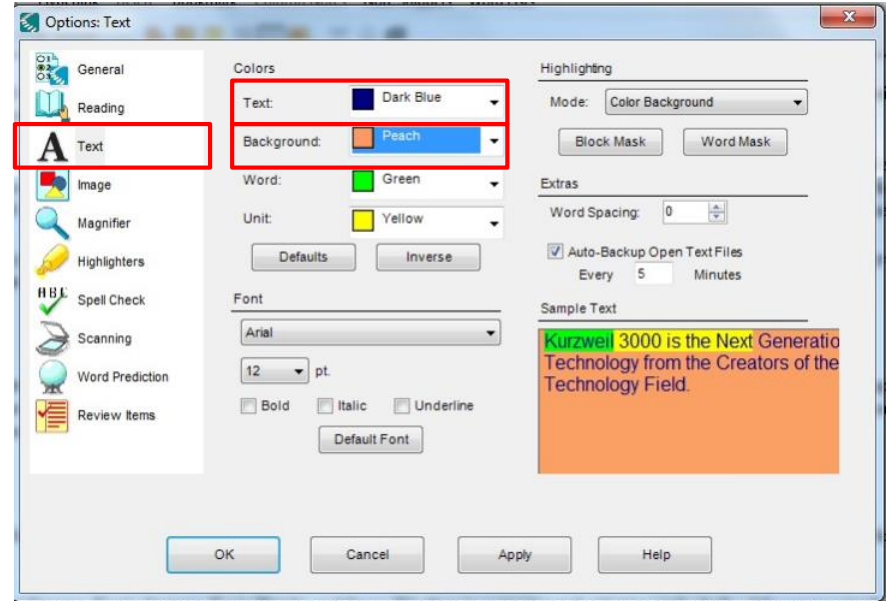
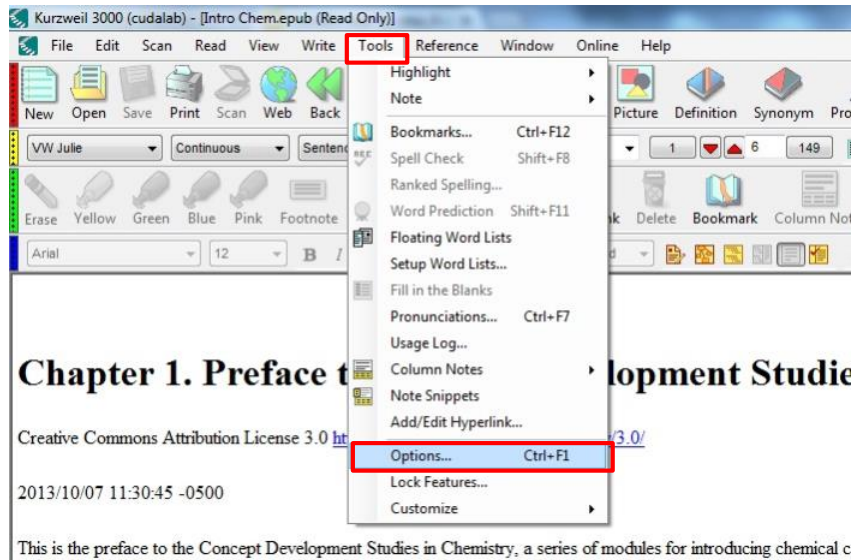
- ☒ The resource allows the user to adjust the font/background color

STEPS:

1. Open up EPUB book with Kurzweil 3000
2. Click on Tools> Options> Text
3. Change font and background color from dropdown
4. Click on Apply> OK
5. Go to the next page to see the change

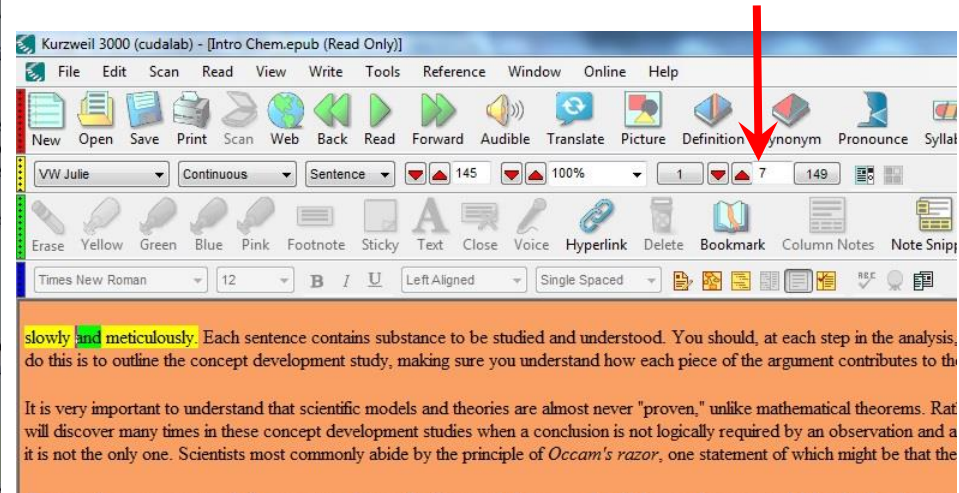
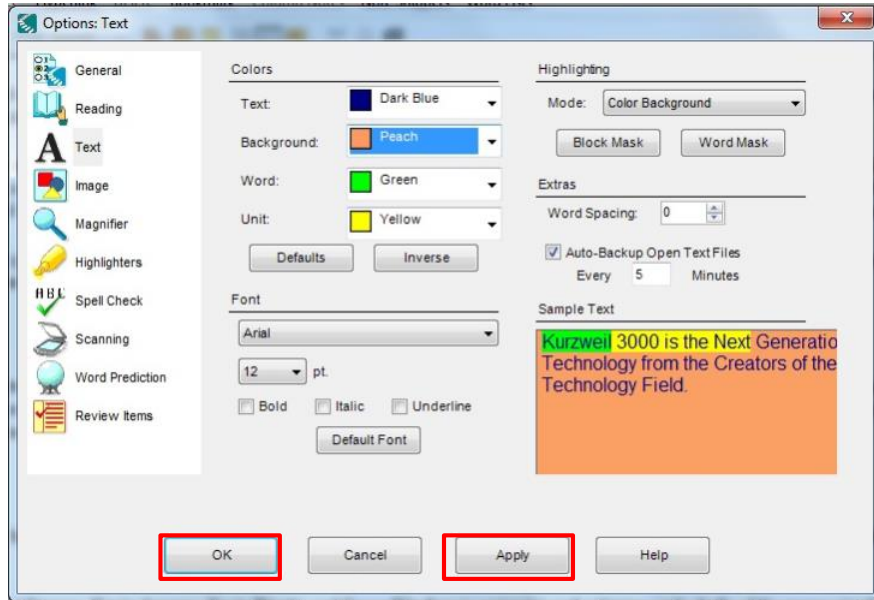
3. Text Adjustment (Color)

1. Open up EPUB book with Kurzweil 3000
2. Click on Tools> Options> Text
3. Change text and background color from dropdown



3. Text Adjustment (Color)

4. Click on Apply > OK
5. Go to the next page to check for the change



3. Text Adjustment (Color)

● Amount of Material to Be Evaluated

*** Sample 5% of the pages ***

Ex. If the book has 150 pages in total

150 pages x .05 = 7.5 pages

Round up to the next whole number (Always round up)

You will check 8 pages for text adjustment

Note: The checklist
will decide most of
these values for you.

Text Adjustment: Checkpoint 3 B, Adjust font and colors

Pass =

8/8 pages pass for adjustment of the font colors. Pages 7-15 were used for this checkpoint. All evaluated pages allowed the user to change the background color and the text color. Kurzweil 3000 was used to access and evaluate this text.

Fail =

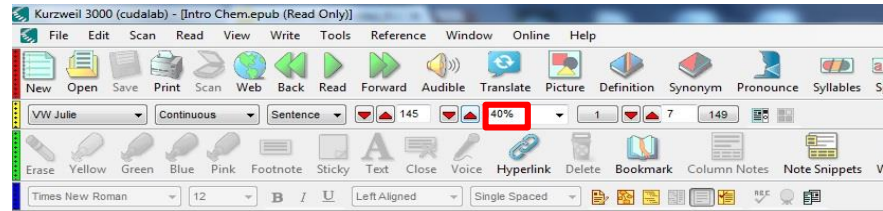
0/8 pages pass for adjustment of the font colors. Pages 7-15 were used for this checkpoint. All evaluated pages failed to allow the user to change the background color and the text color. After making color selections in the menu the pages turned black. Kurzweil 3000 was used to access and evaluate this text.

4. Reading Layout (Reflow)

- ☑ 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

STEPS:

1. Open the EPUB file with Kurzweil 3000
2. Use the Zoom buttons to increase/decrease font size
3. Check if the text reflows between 75% to 200%

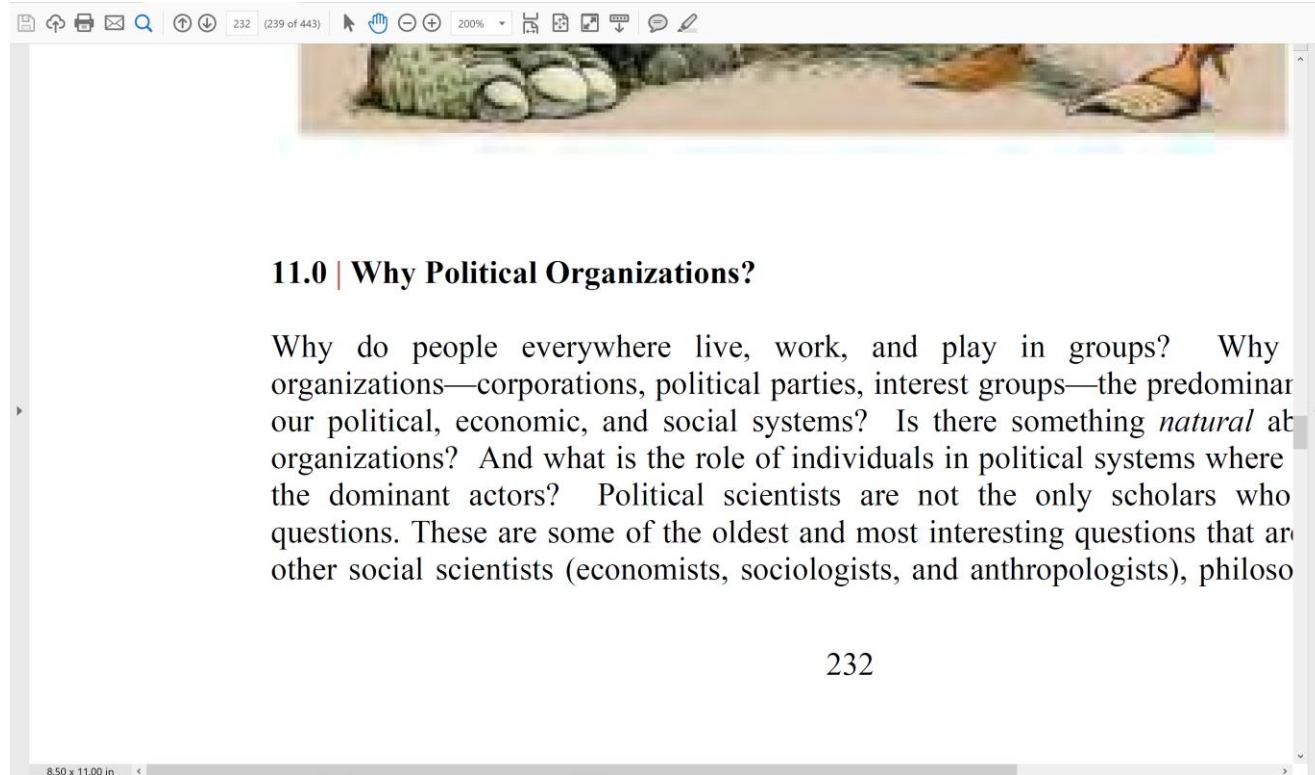


slowly and meticulously. Each sentence contains substance to be studied and understood. You should reproduce the reasoning leading to the next conclusion. One good way to do this is to outline the argument contributes to the development of a concept or model.

Text Adjustment vs. Reflow

Passes for text adjustment because text is adjustable up to 200%

BUT it does not reflow, therefore it fails for reflow.



Reading Layout: Checkpoint 4 A, Reflow the Text

Pass =

8/8 pages pass for reflow of the text. Pages 7 through 15 were used for this checkpoint. All evaluated pages successfully reflowed the text when the font size was changed between the range of 75% to 200% without text being cutoff or requiring horizontal scrolling. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/8 pages pass for reflow of the text. Pages 7 through 15 were used for this checkpoint. All evaluated pages failed to reflow the text when the font size was changed between the range of 75% to 200%. All evaluated pages resulted in text being cutoff or requiring horizontal scrolling at 150% zoom and higher. Kurzweil 3000 was used to access and evaluate this text.

4. Reading Layout (Page # match)

- ☒ If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material

STEPS:

1. Open the EPUB file with Kurzweil 3000
2. Use the Zoom buttons to increase/decrease font size range between 75% to 200%
3. Check the page number while adjusting the font size
4. Compare page number and text content to the PDF version of the text

Reading Layout: Checkpoint 4 B, Page # match printed material & reflow of text

Pass =

8/8 pages pass for page number match. Pages 7 through 15 were used for this checkpoint. All evaluated pages page numbers and text content match the corresponding page numbers and content of the PDF version of the text. Adobe Acrobat was used to access the PDF and Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/8 pages pass for page number match. Pages 7 through 15 were used for this checkpoint. All evaluated pages page numbers matched the corresponding page numbers of the PDF version of the text. However, the text content did not match and the section numbers were different. Adobe Acrobat was used to access the PDF and Kurzweil 3000 was used to access and evaluate this text.

N/A =

There was no PDF or printed version of this text available. Kurzweil 3000 was used to access and evaluate this text.

5. Reading Order

- ☑ Reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology

STEPS:

1. Open the EPUB file with Kurzweil 3000
2. Locate 5 pages (include page # in the reports) that contains a more complicated layout
3. Use the READ function to check if the reading order is logical (please refer to checkpoint #2 for instructions on READ)

Reading Order: Checkpoint 5, Digital Resource Layout

Pass =

5/5 pages pass for reading order of the digital resource layout. Pages 25 through 30 were used for this checkpoint. All evaluated pages were successfully read in a logical manner that corresponded to the visual layout of the page. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/5 pages pass for reading order of the digital resource layout. Pages 25 through 30 were used for this checkpoint. All evaluated pages failed to be read in a logical manner that corresponded to the visual layout of the page. Text content was skipped within paragraphs and the section headers and sub-headers were skipped as well. Kurzweil 3000 was used to access and evaluate this text.

6. Structural Markup / Navigation Text

- ☒ 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

****Kurzweil cannot check for this, mark N/A on the reports****

Structural Markup: Checkpoint 6 A, Navigation Text

N/A =

Kurzweil 3000 is not able to evaluate this checkpoint. Kurzweil 3000 was used to access and evaluate this text.

6. Structural Markup / Lists

- ☒ The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology

****Kurzweil cannot check for this, mark N/A on the reports****

Structural Markup: Checkpoint 6 B, Lists

N/A =

Kurzweil 3000 is not able to evaluate this checkpoint. Kurzweil 3000 was used to access and evaluate this text.

6. Structural Markup / eReader Application

- ☒ 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

**** We are not using an additional e-Reader application,
mark N/A on the reports****

Structural Markup: Checkpoint 6 C, eReader Application

N/A =

We are not using an additional ereader application in this evaluation. Kurzweil 3000 was used to access and evaluate this text.

7. Tables

- ☒ Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology

****Kurzweil cannot check for this, mark N/A on the reports****

Structural Markup: Checkpoint 7, Table Markup

N/A =

Kurzweil 3000 is not able to evaluate this checkpoint. Kurzweil 3000 was used to access and evaluate this text.

8. Hyperlinks (Within Book and Live Links)

- ☒ **Functionality**: Links (e.g. website or email addresses) within the text of the digital resource are rendered as active that allows them to be activated
- ☒ Check that the link redirects to the correct location, if it does not then it would fail
- ☒ If the link does nothing when clicked on then it would fail

8. Hyperlinks (Within Book and Live Links)

- ☒ **Descriptive**: The link is descriptive enough for the users to know where the link will take them.
- ☒ If the link appears as an URL = fail this sub category.
- ☒ Check both within-book links and live hyperlinks for both functionality and descriptiveness

8. Hyperlinks

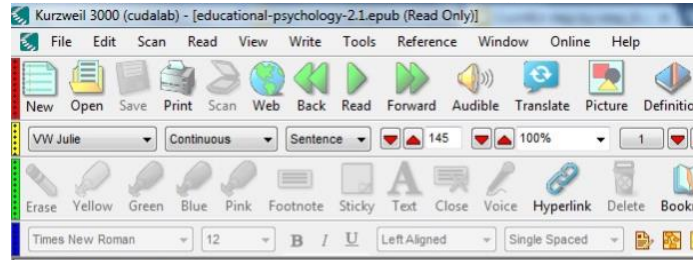
1. Open the EPUB file with Kurzweil 3000
2. Double Click on hyperlinks & see if it takes you to the correct location (section of book/website)

****If nothing happens then the link doesn't work**



this happen are described in this book in the chapters ahead.

1.3. Teaching is different from in the past



Attributions

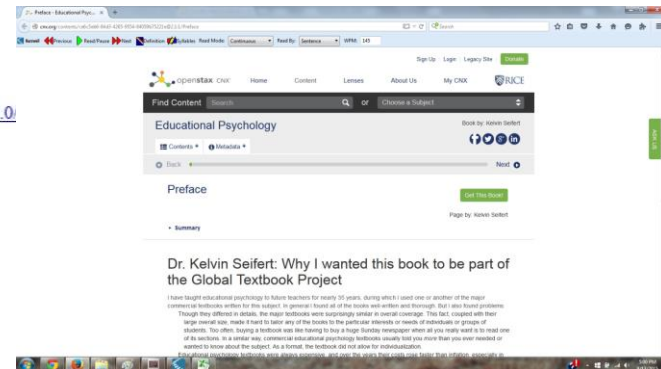
Collection: Educational Psychology

Edited by: Kelvin Seifert

URL: <http://cnx.org/content/col11302/1.2/>

Copyright: Kelvin Seifert

License: <http://creativecommons.org/licenses/by/3.0/>



8. Hyperlinks

Check for functionality & descriptive link

● Amount of Material to Be Evaluated

*** Sample 30 in-book links ***

10 from the beginning of the book

10 from the middle of the book

10 from the end of the book

Ex. Links that takes you to a certain chapter

*** Sample 20 website hyperlinks ***

Hyperlink that takes you somewhere outside of the book

Ex. Links to a live website



this happen are described in this book in the chapters ahead.

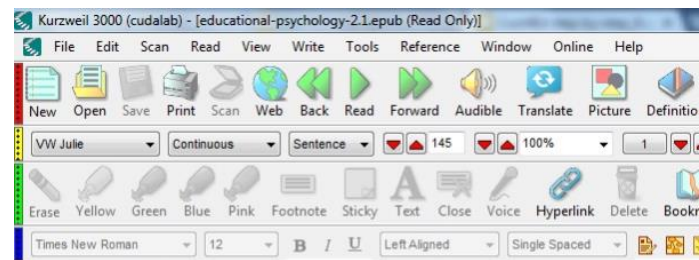
1.3. Teaching is different from in the past

In the past decade or two teaching has changed significantly, so much in fact knowledge, and skills needed to prepare for a teaching career. The changes

To see what we mean, look briefly at four new trends in education, at how t

① **increased diversity:** there are more differences among students than

② **increased instructional technology:** classrooms, schools, and te



Attributions

Collection: Educational Psychology

Edited by: Kelvin Seifert

URL: <http://cnx.org/content/col11302/1.2/>

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Hyperlinks: Checkpoint 8, Within-book Hyperlinks

Pass =

30/30 within book hyperlinks pass for functionality and descriptiveness. Pages 5 through 54 were used for this checkpoint. Links were found on pages 5(4), 12(7), 27(8), 36(4), 44(3), and 54(4). All evaluated links redirected to the correct location when selected and were descriptive enough to inform the user where the link would go. Kurzweil 3000 was used to access and evaluate this text.

Fail =

30/30 within book hyperlinks pass for functionality and 0/30 within book links pass for descriptiveness. Pages 5 through 54 were used for this checkpoint. Links were found on pages 5(4), 12(7), 27(8), 36(4), 44(3), and 54(4). All evaluated links pass functionality because they redirected to the correct location when selected. All evaluated links failed descriptiveness because they were in the form of a URL address. Kurzweil 3000 was used to access and evaluate this text.

Hyperlinks: Checkpoint 8, Hyperlink Functionality (Live)

Hyperlink (Live on Internet) =

This is a combined average of the following two subsections (functionality and descriptiveness). Kurzweil 3000 was used to access the text for this evaluation and Google Chrome was used to access the links online.

Pass =

30/30 within book hyperlinks pass for functionality. Pages 5 through 54 were used for this checkpoint. Links were found on pages 5(4), 12(7), 27(8), 36(4), 44(3), and 54(4). All evaluated links redirected to the correct location when selected. Kurzweil 3000 was used to access the text for this evaluation and Google Chrome was used to access the links online.

Fail =

0/30 within book hyperlinks pass for functionality. Pages 5 through 54 were used for this checkpoint. Links were found on pages 5(4), 12(7), 27(8), 36(4), 44(3), and 54(4). All evaluated links failed functionality because they were non-responsive when selected. Kurzweil 3000 was used to access the text for this evaluation and Google Chrome was used to access the links online.

Hyperlinks: Checkpoint 8, Hyperlink Descriptiveness (Live)

Pass =

30/30 within book hyperlinks pass for descriptiveness. Pages 5 through 54 were used for this checkpoint. Links were found on pages 5(4), 12(7), 27(8), 36(4), 44(3), and 54(4). All evaluated links were descriptive enough to inform the user where the link would go. Kurzweil 3000 was used to access the text for this evaluation and Google Chrome was used to access the links online.

Fail =

0/30 within book hyperlinks pass for descriptiveness. Pages 5 through 54 were used for this checkpoint. Links were found on pages 5(4), 12(7), 27(8), 36(4), 44(3), and 54(4). All evaluated links failed descriptiveness because they were in the form of a URL address. Kurzweil 3000 was used to access the text for this evaluation and Google Chrome was used to access the links online.

9. Color & Contrast (Color Redundancy)

- ✓ Color redundancy (information is not conveyed by color alone) needs to be checked manually
- ✓ Consider the amount of failing content in each chapter/section when determining the score

Changes in classrooms has several other effects. One, for example, is that it can tempt teachers to think that what is taught is equivalent to what is learned—even if they are different. If I assign a reading to my students about the Russian Revolution, it would be nice to assume not only that they have read the same words, but also learned and read all of what I assigned; others may have read everything but misunderstood the material or remembered only some of it; and still others, unfortunately, may have read this picture, if asked confidentially. There are ways, of course, to deal helpfully with such diversity of outcomes; for suggestions, see especially [Section 10.4](#)—“Instructional strategies I adopt, they cannot include assuming that what I teach is the same as what students understand or retain of what I teach.”

as dependent on sequencing and readiness

Even teaching and learning creates a secondary issue for teachers, that of educational **readiness**. Traditionally the concept referred to students' preparedness to go to start school; for example, if he or she was in good health, showed moderately good social skills, could take care of personal physical needs (like eating lunch or going to the bathroom), and so on. [Table 2.6](#) shows a similar set of criteria for determining whether a child is “ready” to learn to read (Copple & Bredekamp, 2006). At older ages (such as in high school), a student must first have certain prerequisite experiences, such as studying advanced algebra or calculus. To begin work in a field, one must also mention also studying educational psychology!).

E.g.
Links are presented
with color (blue) and
underline.

*** Sample 5% of the pages ***

Color and Contrast: Checkpoint 9 A, Color Redundancy

Pass =

5/5 pages pass for color redundancy. Pages 1 through 3 and 12 through 13 were used for this checkpoint. The evaluated pages were color redundant. The only text content that required color redundancy were links which were both underlined and in brackets.

Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/5 pages pass for color redundancy. Pages 1 through 3 and 12 through 13 were used for this checkpoint. The evaluated pages were color not redundant. The only text content that required color redundancy were links which were not distinguishable from surrounding text aside from their blue coloring. Kurzweil 3000 was used to access and evaluate this text.

9. Color & Contrast (Contrast Ratio)

- ☒ The visual presentation of text and images of text in the digital resource has a contrast ratio of at least 4.5:1 (AA)

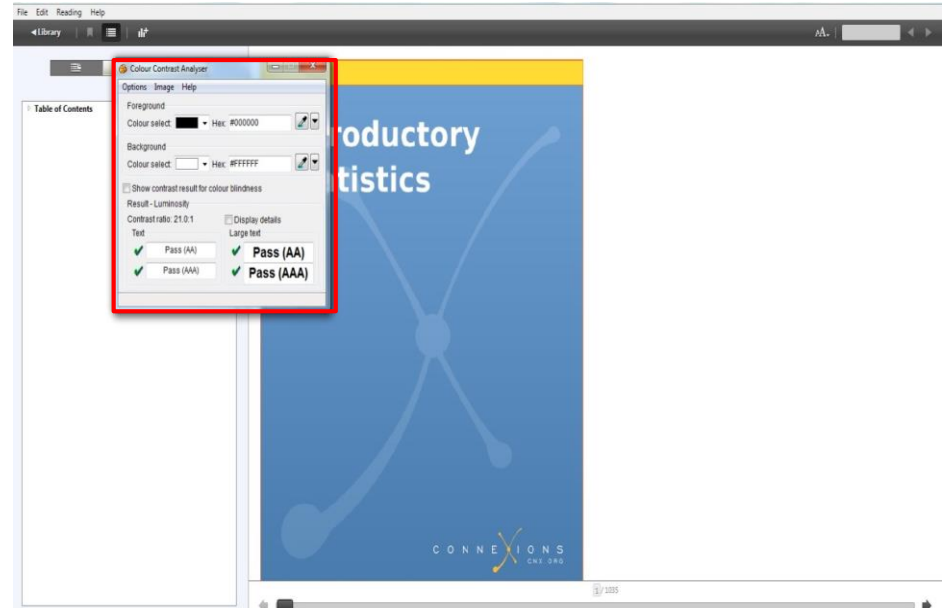
STEPS:

1. [Download Colour Contrast Analyzer Tool](#)
2. Open the document you want to evaluate
3. Open the application
4. Make sure you are in the **Result --Luminosity** mode.
5. Click the **Foreground eye dropper** tool, hover over and click the foreground color to select it.
6. Click the **Background eye dropper** tool, hover over and click the background color.
7. Check and compare the ratio to 4.5:1

9. Color & Contrast (Contrast Ratio)

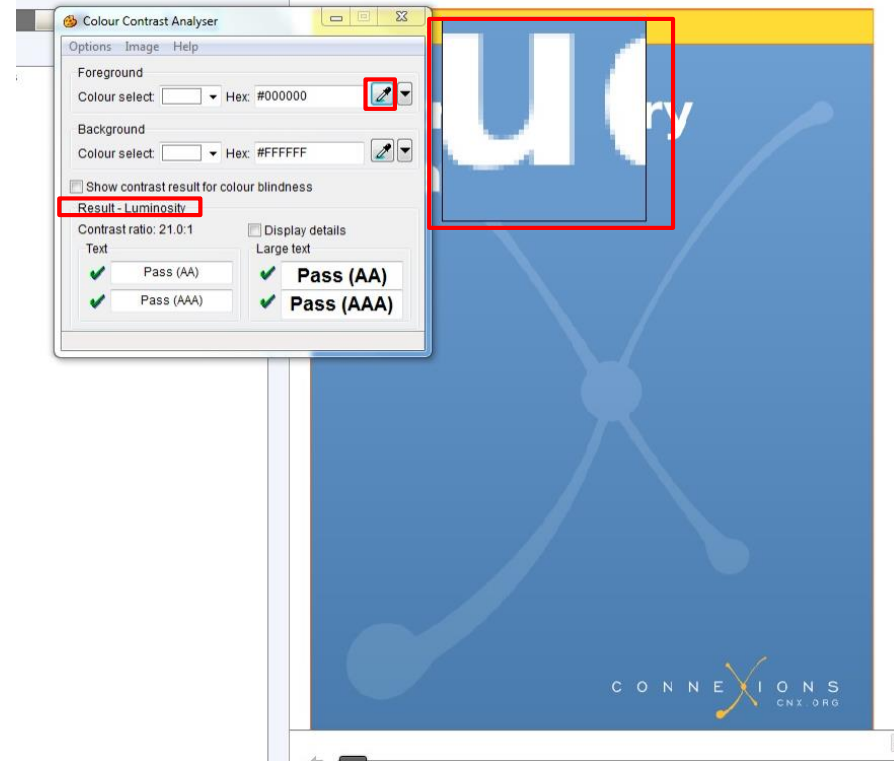
Colour Contrast Analyzer (CCA)

1. Download Colour Contrast Analyzer Tool
2. Open the document you want to evaluate
3. Open the application



9. Color & Contrast (Contrast Ratio)

4. Make sure you are in the **Result -- Luminosity** mode.
5. Click the **Foreground eye dropper** tool, hover over and click the foreground color to select it.



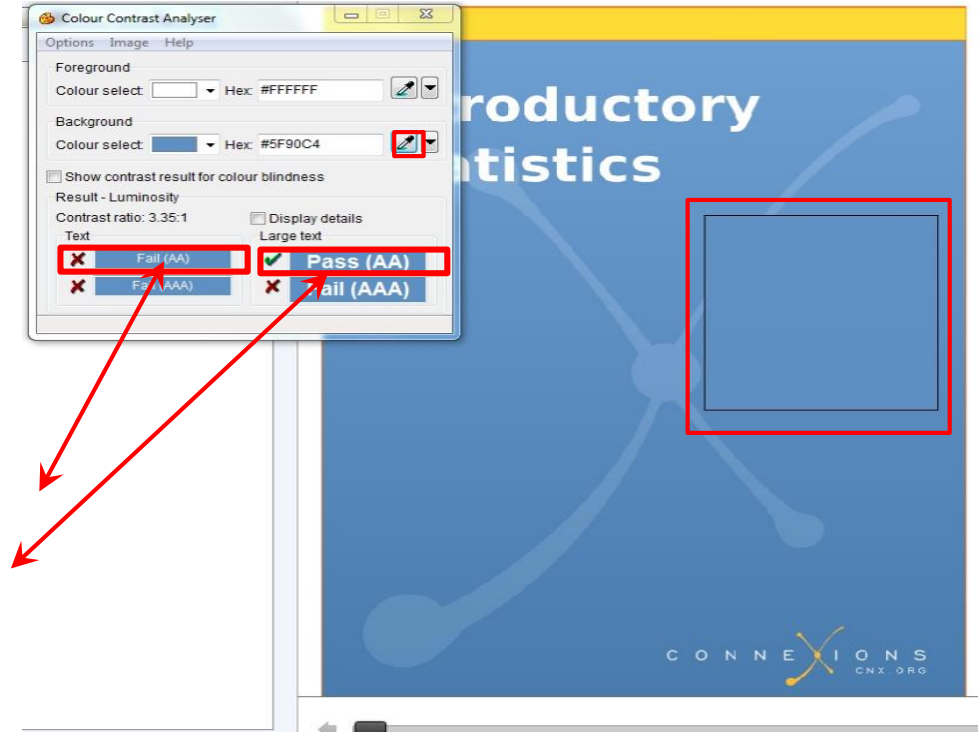
9. Color & Contrast (Contrast Ratio)

6. Click the **Background eye dropper** tool, hover over and click the background color.

7. Determine if the text is greater than 18 points (e.g. Header).

Small text: Check under "Text" (AA)

Large text (18+): Check under "Large text" (AA)

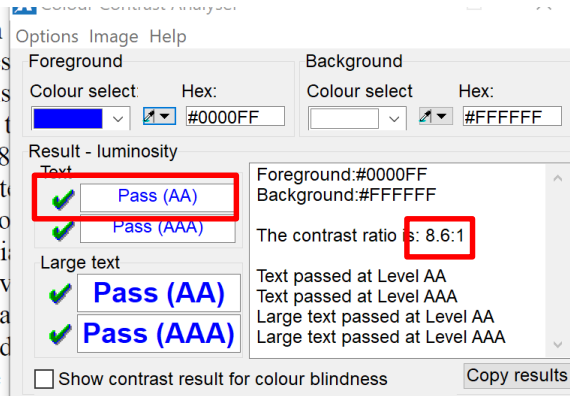


Reporting Contrast results

When content passes, report the color combination but not the ratio:

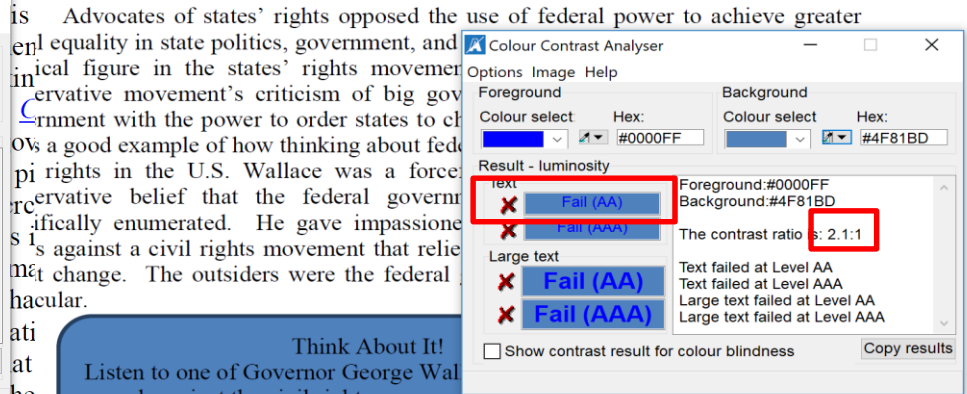
“The blue text on white background passed.”

The first era of federalism of federalism that describes equal sovereigns. Each is Supreme Court endorsed [Board of Port Wardens](#) (18 could require that ships enter the Constitution gives the nation the states. The Philadelphia commerce. The Court developed for local or national regulation their nature national, or adj justly be said to...require national and require local Doctrine assumes that the national and state governments have separate responsibility. For example, the national government would have exclusive power



When content fails, report the color combination and the ratio:

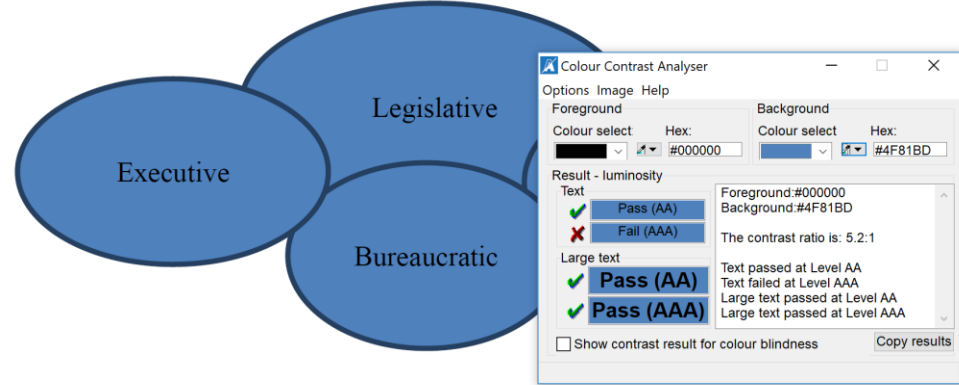
“The blue text on blue background fails with a ratio of 2.1:1.”



Think About It!
Listen to one of Governor George Wallace's speech against the civil rights movement:
<http://www.youtube.com/watch?v=QW6ikSCDaRQ&feature=endscreen&NR=1>

Example Simple Image

When content passes, report the color combination but not the ratio:
“The simple image was found on page 45 and the black on white background passed with the Colour Contrast Analyzer.”



“The simple image found on page 91 passed with the black text on the blue background.”

9. Color & Contrast (Contrast Ratio)

- Provide color combinations for passing and failing content
- Provide contrast ratios only for failing content
- Amount of Material to Be Evaluated

Contrast Ratio

*** Sample 10% of the pages ***

Color and Contrast: Checkpoint 9 A, Headers

Contrast =

This is a combined average of the following three subsections (Header, Text, and Simple Images). Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

A) Contrast – Headers =

Pass =

3/3 Header color combinations pass for color contrast. Pages 1 through 31 were used for this checkpoint. The passing header color combinations were black text on a white background, black text on a light green background, and dark blue text on a light grey background. Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

Fail =

1/3 Header color combinations pass for color contrast. Pages 1 through 31 were used for this checkpoint. The passing header color combination was black text on a white background. The failing header color combinations were light green text on a light blue background with a contrast ratio of 1.27:1, and light orange text on a light blue background with a contrast ratio of 1.18:1. Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

Color and Contrast: Checkpoint 9 B, Text

B) Contrast – Text =

Pass =

3/3 Text color combinations pass for color contrast. Pages 1 through 31 were used for this checkpoint. The passing text color combinations were black text on a white background, black text on a light green background, and dark blue text on a light grey background. Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

Fail =

1/3 Text color combinations pass for color contrast. Pages 1 through 31 were used for this checkpoint. The passing text color combination was black text on a white background. The failing text color combinations were light green text on a light blue background with a contrast ratio of 1.27:1, and light orange text on a light blue background with a contrast ratio of 1.18:1. Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

Color and Contrast: Checkpoint 9 C, Simple Images

C) Contrast – Simple Images =

Pass =

2/2 Simple images pass for color contrast. Pages 1 through 31 were used for this checkpoint. Simple images were found on pages 24 and 30. The passing color combinations for simple images was black on a white background. Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

Fail =

1/2 Simple images pass for color contrast. Pages 1 through 31 were used for this checkpoint. Simple images were found on pages 24 and 30. The passing color combination for the simple image on page 24 was black on a white background. The failing color combination for the simple image on page 30 was light green on a light blue background with a contrast ratio of 1.27:1. Kurzweil 3000 was used to access the text for this evaluation and the Colour Contrast Analyzer tool was used to determine contrast ratios.

10. Language

- ☒ The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology
- ☒ 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

****Kurzweil cannot check for this, mark N/A on the reports****

Language: Checkpoint 10 (A: Markup, B: Passage Markup)

N/A =

Kurzweil 3000 is not able to evaluate this checkpoint. Kurzweil 3000 was used to access and evaluate this text.

11. Images

- ☒ 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)
- ☒ A non-decorative image is an image that is directly related and relevant to the text content

11. Images

- ☒ Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology
- ☒ Decorative images are images that are not related in any way to the content of the text
- ☒ Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology

Picture Examples

Non-Decorative

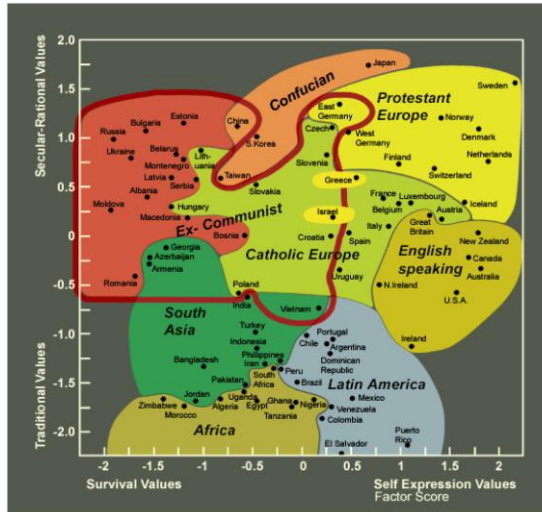
Adds something to the content and can easily be described

																H							He
Li	Be															B	C	N	O	F	Ne		
Na	Mg															Al	Si	P	S	Cl	Ar		
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr						
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe						
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn						
Fr	Ra	Ac																					

Noble gases

Complex

Adds something to the content and takes more than one sentence to explain



Decorative

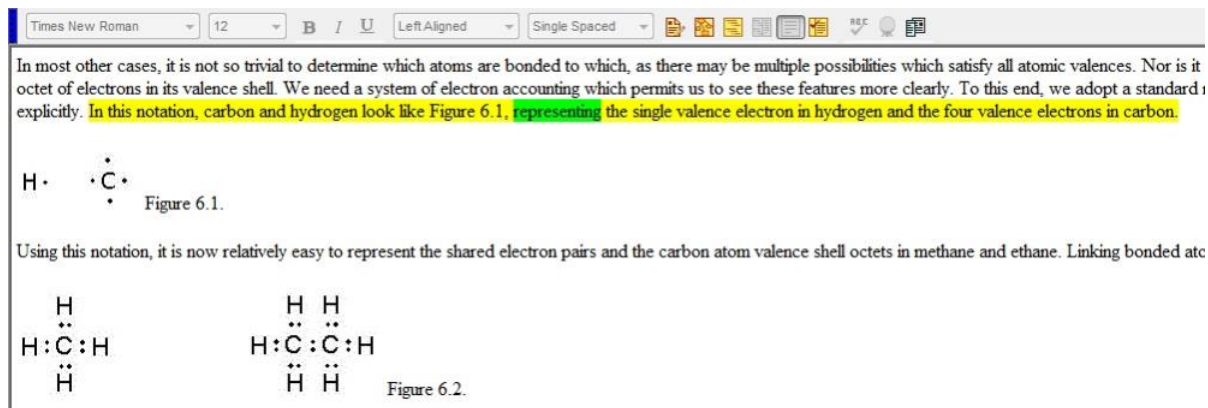
Does not add to the knowledge gained in a section.



11. Images

STEPS:

1. Open up EPUB book with Kurzweil 3000
2. Locate an image
3. Select the sentence right before the image
4. Click READ
5. Check if the reader reads the image or skips past it



11. Images (Additional Manual Check)

- Check manually: Make sure the descriptions for the images are descriptive enough for both non-decorative images and complex images.
- Amount of Material to Be Evaluated for non-decorative and complex images:
*** Sample 10% of the pages***
- Rule of thumb: if the image cannot be described in one sentence, it's complex!

Images: Checkpoint 11 A, Non-Decorative Images

Pass =

3/3 non-decorative images pass. Pages 7 through 50 were used to evaluate this checkpoint. There were only three non-decorative images within the evaluated pages and they were found on pages 9, 24, and 48. All images have adequate descriptions that are sufficiently read by Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/3 non-decorative images pass. Pages 7 through 50 were used to evaluate this checkpoint. There were only three non-decorative images within the evaluated pages and they were found on pages 9, 24, and 48. All images failed to provide descriptions that were sufficiently read by Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Images: Checkpoint 11 B, Decorative Images

Pass =

3/3 decorative images pass. Pages 7 through 50 were used to evaluate this checkpoint. There were only three decorative images within the evaluated pages and they were found on pages 9, 24, and 48. All images and subtext related to the images were not read by Kurzweil 3000 but were skipped. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/3 decorative images pass. Pages 7 through 50 were used to evaluate this checkpoint. There were only three decorative images within the evaluated pages and they were found on pages 9, 24, and 48. All images were read by Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Images: Checkpoint 11 C, Complex Images

Pass =

3/3 complex images pass. Pages 7 through 50 were used to evaluate this checkpoint. There were only three complex images within the evaluated pages and they were found on pages 9, 24, and 48. All images had longer text descriptions that were sufficiently read by Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/3 complex images pass. Pages 7 through 50 were used to evaluate this checkpoint. There were only three complex images within the evaluated pages and they were found on pages 9, 24, and 48. All images failed to provide longer text descriptions that could be sufficiently read by Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

12. Multimedia

- ☒ A synchronized text track (e.g. open or closed captions) is provided with all video content
- ☒ A transcript is provided with all audio content
- ☒ Audio/video content is delivered via a media player that is compatible with assistive technology

Note: No examples have been found for this format

1. Find multimedia

Opera | narendra modi - YouTube | Impressed with Narendra | x

www.youtube.com/watch

YouTube IN

Subscribe to NDTV

NDTV

THE BILL CLINTON INTERVIEW

Impressed with Narendra Modi's economic policies: Bill Clinton to NDTV

NDTV

Subscribe

Click on a Video that you would like to watch.

Visit Advertiser's Site

Samsungmobileindia

Subscribe 15K

Visit Advertiser's Site

ISIS terror group manages to infiltrate recruiters into India?

by NDTV

8,001 views

Should India interfere in the Israel-Palestine conflict?

by NDTV

18,254 views

PM Modi at BRICS - more dominant role for India?

by NDTV

3,000 views

america - hype or

CC BY NC ND

Multimedia: Checkpoint 12 A, Text Track

Multimedia (Text track) present:

Pass =

3/3 multimedia pass for text track. The entire text was used for this checkpoint. Only three multimedia were found and they were on page 24, 37, and 67. All multimedia included a text track that could be enabled by the user. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/3 multimedia pass for text track. The entire text was used for this checkpoint. Only three multimedia were found and they were on page 24, 37, and 67. The multimedia did not include a text track that could be enabled by the user. Kurzweil 3000 was used to access and evaluate this text.

Multimedia (text track) not present:

N/A =


There were no multimedia found within this text. Kurzweil 3000 was used to access and evaluate this text.

12. Multimedia (Transcript)

1. Find multimedia
2. Search for availability of a transcript

Why look at art?

Total energy points **266**



0:54 / 0:00

Why look at art? This was the question we posed to several of our colleagues at a conference for museum professionals. Special thanks to Laura Mann, Anna Velez, an anonymous professional, and David Torgersen whose voices and insights are included here.

Options Share Info



Options Share

1/4x 1/2x **1x** 1 1/2x 2x ⌚

☒ Interactive transcript

☐ Embedded questions

12. Multimedia (Transcript)

Why look at art? This was the question we posed to several of our colleagues at a conference for museum professionals. Special thanks to Laura Mann, Anna Velez, an anonymous professional, and David Torgersen whose voices and insights are included here.

 Options ▾  Share ▾  Info

0:00 [MUSIC PLAYING]

0:05 SPEAKER 1: I think it's important

0:07 that people look at art because we live in a visual world.

0:11 And understanding, and looking at,

0:14 and thinking about the way images

0:16 communicate in all kinds of ways is important to being alive

0:21 today.

0:22 SPEAKER 2: If one has heightened visual acumen, which

0:26 you get from spending time looking at things, whether it's

Multimedia: Checkpoint 12 B, Transcript

Multimedia (Transcript) present:

Pass =

3/3 multimedia pass for transcript. The entire text was used for this checkpoint. Only three multimedia were found and they were on page 24, 37, and 67. All multimedia included a transcript of the audio content that could be enabled by the user. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/3 multimedia pass for transcript. The entire text was used for this checkpoint. Only three multimedia were found and they were on page 24, 37, and 67. The multimedia did not include a transcript of the audio content that could be enabled by the user. Kurzweil 3000 was used to access and evaluate this text.

Multimedia (Transcript) not present:

N/A =

There were no multimedia found within this text. Kurzweil 3000 was used to access and evaluate this text.

12. Multimedia Assistive Player

- ☒ Audio/video content is delivered via a media player that is compatible with assistive technology

** We are not using an assistive player, mark N/A on the reports**

Multimedia: Checkpoint 12 C, Assistive Player

N/A =

We are not using as assistive player for this evaluation. Kurzweil 3000 was used to access and evaluate this text.

13. Flickering

- ☒ Resources should not contain anything that flashes more than three times in any one-second period
- ☒ If any content within the eBook flashes more than 3 times in a 1 seconds period then Fail this checkpoint

Note: No examples have been found for this format

If there is no flickering = Pass this checkpoint

Flickering: Checkpoint 13, Flickering

Pass =

No content was found to flicker during the evaluation of this text. The entire text was used for this checkpoint. Kurzweil 3000 was used to access and evaluate this text.

Fail =

During the evaluation of this text certain content was found to flicker. The entire text was used for this checkpoint. Pages 7, 10, 23, 44, and 53 would blink multiple times when scrolling. Kurzweil 3000 was used to access and evaluate this text.

14. STEM

STEM: Science, Technology, Engineering, and Math

- ✓ **Markup**: STEM content is marked up in a manner that is compatible with Kurzweil 3000
- ✓ **Notation Markup**: The resource conveys both the notation (presentation) and meaning (semantics) of the STEM content

14. STEM

For BOTH Markup and Notation:

1. Select a STEM content in the text
 2. Use Kurzweil 3000 to read the STEM content
 3. Repeat the steps to check for 10 STEM content in each subsection (figures, graphs, tables, and equations)
- Only evaluate 10 each and if there are not 10 then indicate how many were evaluated and the reason
 - Check the entire eBook for STEM content

STEM Figures

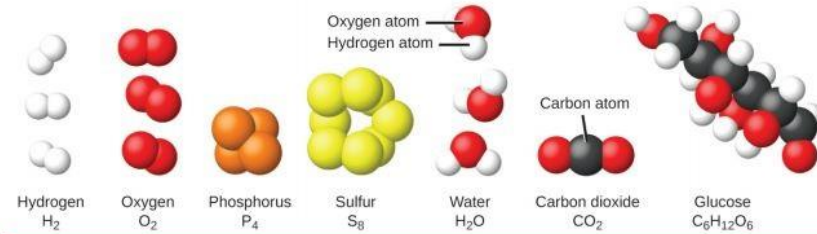


Figure 1.11 The elements hydrogen, oxygen, phosphorus, and sulfur form molecules consisting of two or more atoms of the same element. The compounds water, carbon dioxide, and glucose consist of combinations of atoms of different elements.

Markup

Markup Notation

Enzymes can be regulated in ways that either promote or reduce their activity. There are many different kinds of molecules that inhibit or promote enzyme function, and various mechanisms exist for doing so. In some cases of enzyme inhibition, for example, an inhibitor molecule is similar enough to a substrate that it can bind to the active site and simply block the substrate from binding. When this happens, the enzyme is inhibited through **competitive inhibition**, because an inhibitor molecule competes with the substrate for active site binding (Figure 6.17). On the other hand, in noncompetitive inhibition, an inhibitor molecule binds to the enzyme in a location other than an allosteric site and still manages to block substrate binding to the active site.

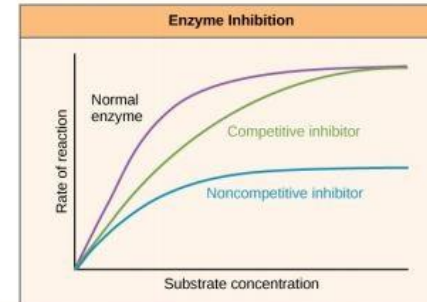
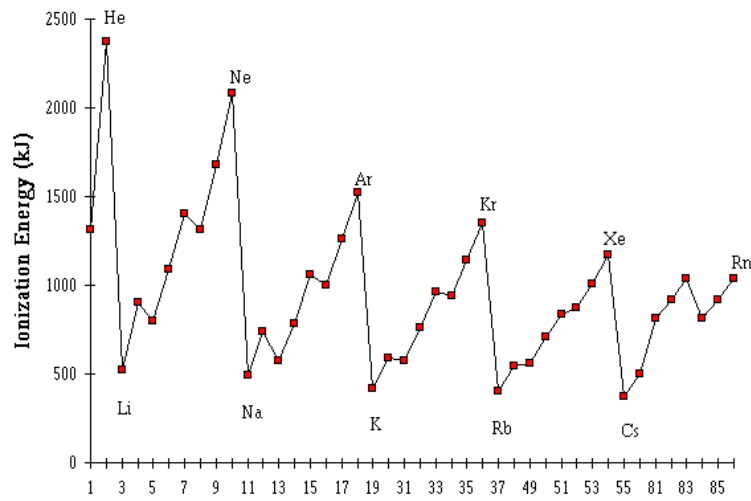


Figure 6.17 Competitive and noncompetitive inhibition affect the rate of reaction differently. Competitive inhibitors affect the initial rate but do not affect the maximal rate, whereas noncompetitive inhibitors affect the maximal rate.

Some inhibitor molecules bind to enzymes in a location where their binding induces a conformational change that reduces the affinity of the enzyme for its substrate. This type of inhibition is called **allosteric inhibition** (Figure 6.18). Most allosterically regulated enzymes are made up of more than one polypeptide, meaning that they have more than one protein subunit. When an allosteric inhibitor binds to an enzyme, all active sites on the protein subunits are changed slightly such that they bind their substrates with less efficiency. There are allosteric activators as well as inhibitors. Allosteric activators bind to locations on an enzyme away from the active site, inducing a conformational change that increases the affinity of the enzyme's active site(s) for its substrate(s).

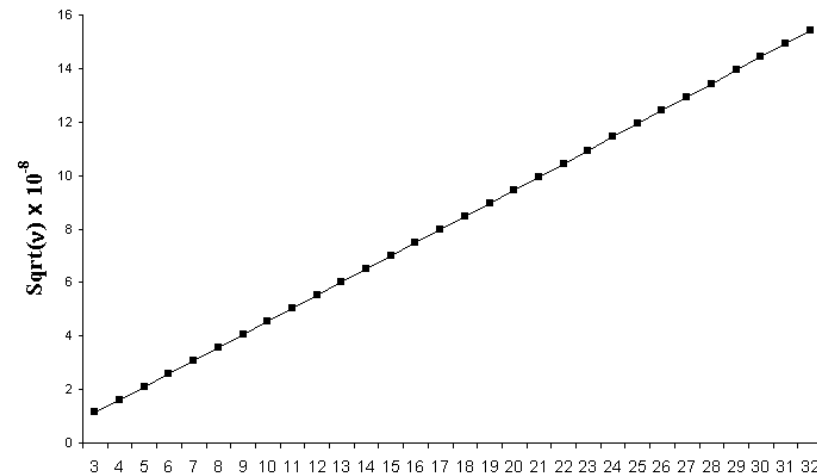
Classifying STEM

Remember, the markup will tell you how to classify content. If it is marked as Figure, it is a Figure.



Atomic Number

Figure 4.3.



Atomic Number

Figure 4.2. X-ray Frequencies Versus Atomic Number

Table 2.1. Mass Relationships for Hydrogen, Nitrogen, Oxygen Compounds

Compound	Total Mass	Mass of Hydrogen	Mass of Nitrogen	Mass of Oxygen	"Expected" Relative Atomic Mass of Hydrogen	"Expected" Relative Atomic Mass of Nitrogen	"Expected" Relative Atomic Mass of Oxygen
Nitric Oxide	15.0 g	-	7.0 g	8.0 g	-	7.0	8.0
Ammonia	8.5 g	1.5 g	7.0 g	-	1.5	7.0	-
Water	9.0 g	1.0 g	-	8.0 g	1.0	-	8.0

14. STEM Markup

Successive Ionization Energies (kJ/mol)

	Na	Mg	Al	Si	P	S	Cl	Ar
IE ₁	496	738	578	787	1012	1000	1251	1520
IE ₂	4562	1451	1817	1577	1903	2251	2297	2665
IE ₃	6912	7733	2745	3231	2912	3361	3822	3931
IE ₄	9543	10540	11575	4356	4956	4564	5158	5770
IE ₅	13353	13630	14830	16091	6273	7013	6542	7238
IE ₆	16610	17995	18376	19784	22233	8495	9458	8781
IE ₇	20114	21703	23293	23783	25397	27106	11020	11995

Table 4.1



Figure 6.2

The STEM content should have a label, description or tag

STEM: Checkpoint 14 A, Markup

If STEM is present:

Pass =

10/10 STEM figures/graphs/equations/tables pass for markup. The STEM figures were found on pages 23(4), 44(2), and 43(4). All figures included a markup that was able to be read using Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/10 STEM figures/graphs/equations/tables pass for markup. The STEM figures were found on pages 23(4), 44(2), and 43(4). All figures failed to provide a markup that was able to be read using Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

If STEM is not present:

N/A =

There were no STEM Figures/*Tables/Graphs/Equations* found within this text. Kurzweil 3000 was used to access and evaluate this text.

14. STEM Notation Markup

STEM: Science, Technology, Engineering, and Math

- ☒ STEM content is marked up in a manner that is compatible with assistive technology
- ☒ The resource conveys both the notation (presentation) and meaning (semantics) of the STEM content
- ☒ Including but not limited to:
 - Figures
 - Graphs
 - Tables
 - Equations

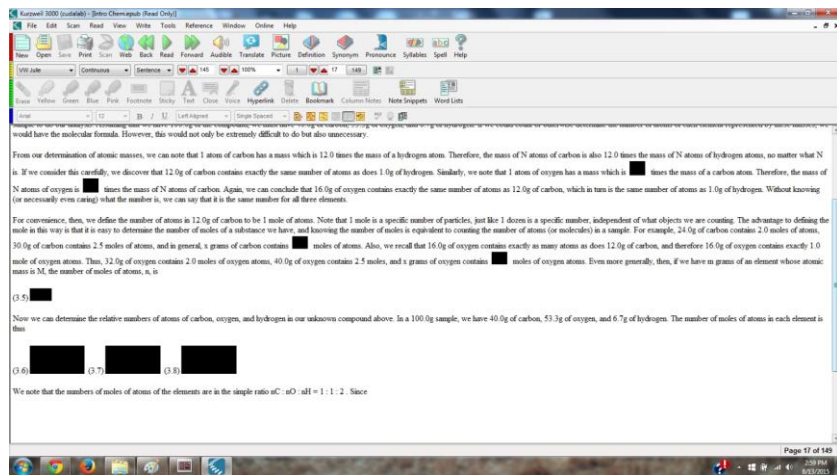
14. STEM Notation Markup

STEPS:

1. Open up EPUB book with Kurzweil 3000
2. Locate a STEM content
3. Select the sentence right before the content
4. Click READ
5. Check if the reader reads the image or skips past it
6. If it reads it, check if it reads the content correctly

14. STEM Notation Markup

Sometimes in Kurzweil you will see these black boxes in the content, those are usually STEM content that we can't access. In this case, pay attention to how much of the STEM content shows correctly, take this into account when giving it the score.



0 [Redacted]

The masses of oxygen appearing in these compounds are in simple whole number ratios. The simplest explanation for this fixed unit of mass is the different compounds have differing numbers of atoms. The mass ratios make it clear that the ratios must be the result of the simple ratios in which atoms combine into molecules. If the molecular formula of oxide A is NO , then oxide B has formula N_2O , and oxide C has formula N_2O_2 .

Table 2.2. Possible Molecular Formulae for Nitrogen Oxides

	Oxide C is NO	Oxide B is N_2O	Oxide A is NO
Oxide A is	NO_4	N_2O_2	NO
Oxide B is	NO_2	NO	N_2O
Oxide C is	NO	N_2O	N_2O_2

We don't have a way (from these data) to know which of these sets of molecular formulae is correct.

14. STEM Notation Markup

To check the content in these black boxes, you may open the same book with Adobe Digital Editions > check and compare the content.

2.4. Observation 2: Multiple Mass Ratios

Significant insight into the above problem is found by studying different compounds formed from the same elements. For example, there are actually three oxides of nitrogen, that is, compounds composed only of nitrogen and oxygen. For now, we will call them oxide A, oxide B, and oxide C. Oxide A has oxygen to nitrogen mass ratio 2.28 : 1, oxide B has oxygen to nitrogen mass ratio 1.14 : 1, and oxide C has oxygen to nitrogen mass ratio 0.57 : 1.

The fact that there are three mass ratios might seem to contradict the Law of Definite Proportions, which on the surface seems to say that there should be just one ratio. However, each mass combination gives rise to a completely unique chemical compound with very different chemical properties. For example, oxide A is very toxic, whereas oxide C is used as an anesthesia. It is also true that the mass ratio is not arbitrary or continuously variable: we cannot pick just any combination of masses in combining oxygen and nitrogen, rather we must obey one of only three. So there is no contradiction: we simply need to be careful with the Law of Definite Proportions to say that **each unique compound** has a definite mass ratio of combining elements.

These new mass ratio numbers are highly suggestive in the following way. Notice that, in each case, we took the ratio of oxygen mass to a nitrogen mass of 1, and that the resultant ratios have a very simple relationship:

$$\begin{aligned} 2.28 : 1.14 : 0.57 &= 2 : 1 : 0.5 \\ &= 4 : 2 : 1 \end{aligned}$$

The masses of oxygen appearing in these compounds are in simple whole number ratios when we take a

Table 2.2. Possible Molecular Formulae for Nitrogen Oxides

Assuming that:	Oxide C is NO	Oxide B is NO	Oxide A is NO
Oxide A is	$N O_4$	$N O_2$	NO
Oxide B is	$N O_2$	NO	$N_2 O$
Oxide C is	NO	$N_2 O$	$N_4 O$

We don't have a way (from these data) to know which of these sets of molecular formulae we can assert that either one of them or one analogous to them is right.

Similar data are found for any set of compounds formed from common elements. For two oxides of carbon, one with oxygen to carbon mass ratio 1.33:1 and the other with ratio 2.66:1. The second oxide must have twice as many oxygen atoms, per carbon atom, as does the first. The statement of this observation is the **Law of Multiple Proportions**. <ext:rule>

When two elements combine to form more than one compound, the mass of element A which combines in the second compound with the same given mass of element B has a simple whole number ratio to the mass of element A which combines in the first compound with a given amount of element B.

<ext:rule> This sounds confusing, but an example clarifies this statement. Consider carbon and oxygen. Let carbon be element B and oxygen be element A. Take a fixed given mass of element B, say 1 gram. The mass of oxygen which combines with 1 gram of carbon to form the first compound is 1.33 grams. The mass of oxygen which combines with 1 gram of carbon to form the second compound is 2.66 grams. These masses are in ratio $2.66 : 1.33 = 2 : 1$, a simple whole number ratio.



The masses of oxygen appearing in these compounds are in simple whole number ratios when we take a fixed unit of mass of oxygen. The simplest explanation for this fixed unit of mass is that the different compounds have differing numbers of atoms. The mass ratios make it clear that the ratios must be the result of the simple ratios in which atoms combine into molecules. If the molecular formula NO, then oxide A has formula $N O_2$, and oxide C has formula $N_4 O$.

Table 2.2. Possible Molecular Formulae for Nitrogen Oxides

Assuming that:	Oxide C is NO	Oxide B is NO	Oxide A is NO
Oxide A is	$N O_4$	$N O_2$	NO
Oxide B is	$N O_2$	NO	$N_2 O$
Oxide C is	NO	$N_2 O$	$N_4 O$

We don't have a way (from these data) to know which of these sets of molecular formulae

14. STEM Notation Markup

If the image itself does not contain an Alt tag but the content/text around it does have a notation (presentation) and meaning (semantics) of the STEM content with good description then we may PASS it with a note included.



Figure 1.15 Biologists may choose to study *Escherichia coli* (*E. coli*), a bacterium that is a normal resident of our digestive tracts but which is also sometimes responsible for disease outbreaks. In this micrograph, the bacterium is visualized using a scanning electron microscope and digital colorization. (credit: Eric Erbe; digital colorization by Christopher Pooley, USDA-ARS)

14. STEM Mark-up vs. Notation Mark-up

This equation would fail for markup (none present), but it could pass for notation mark up if it was read correctly by Kurzweil.

Every chemical reaction involves a change in free energy, called delta G (ΔG). The change in free energy can be calculated for any system that undergoes such a change, such as a chemical reaction. To calculate ΔG , subtract the amount of energy lost to entropy (denoted as ΔS) from the total energy change of the system. This total energy change in the system is called **enthalpy** and is denoted as ΔH . The formula for calculating ΔG is as follows, where the symbol T refers to absolute temperature in Kelvin (degrees Celsius + 273):

$$\Delta G = \Delta H - T\Delta S$$

The standard free energy change of a chemical reaction is expressed as an amount of energy per mole of the reaction product (either in kilojoules or kilocalories, kJ/mol or kcal/mol; 1 kJ = 0.239 kcal) under standard pH, temperature, and pressure conditions. Standard pH, temperature, and pressure conditions are generally calculated at pH 7.0 in biological systems, 25 degrees Celsius, and 100 kilopascals (1 atm pressure), respectively. It is important to note that cellular conditions vary considerably from these standard conditions, and so standard calculated ΔG values for biological reactions will be different inside the cell.

STEM: Checkpoint 14 B, Markup Notation

If STEM is present:

Pass =

10/10 STEM figures/graphs/equations/tables pass for markup notation. The STEM figures were found on pages 23(4), 44(2), and 43(4). All figures included text descriptions that were able to be read using Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/10 STEM figures/graphs/equations/tables pass for markup notation. The STEM figures were found on pages 23(4), 44(2), and 43(4). All figures failed to provide text descriptions that were able to be read using Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

If STEM is not present:

N/A =

There were no STEM Figures/*Tables/Graphs/Equations* found within this text. Kurzweil 3000 was used to access and evaluate this text.

15. Interactive Elements

☒ Keyboard

Interactive elements allow for keyboard-only operation
WITH and WITHOUT assistive tech

STEPS:

1. Use the TAB key to navigate the menu
2. Items that are selected will have a box around the link
3. Use the ENTER key to select a link or other item

***As Applicable:

If there is no Interactive Elements, mark N/A on the report***

Campus structures can be navigated through using the “Tab” key and selected using the “Enter” key



Interactive Elements: Checkpoint 15 A, Keyboard

If interactive elements are present:

Pass =

1/1 interactive elements pass for keyboard operation. There was only one interactive element found within this text and it was found on page 45. The interactive element allowed for keyboard only operation using the “Tab” and “Enter” keys to navigate and select components. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/1 interactive elements pass for keyboard operation. There was only one interactive element found within this text and it was found on page 45. The interactive element did not allow for keyboard only operation using the “Tab” and “Enter” keys to navigate and select components. The user was required to use a mouse to interact with the element. Kurzweil 3000 was used to access and evaluate this text.

If interactive elements are not present:

N/A =

There were no interactive elements found within this text. Kurzweil 3000 was used to access and evaluate this text.

Interactive Elements

☒ Markup

Each interactive element conveys information to assistive technology regarding the element's

☒ name

☒ type

☒ status

***As Applicable:

If there is no Interactive Elements, mark N/A on the report***

Interactive Elements: Checkpoint 15 B, Mark-up

If interactive elements are present:

Pass =

1/1 interactive elements pass for markup. There was only one interactive element found within this text and it was found on page 45. The interactive element provided information regarding the name, type, and status in a manner that was accessible to Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/1 interactive elements pass for keyboard operation. There was only one interactive element found within this text and it was found on page 45. The interactive element failed to provide information regarding the name, type, and status in a manner that was accessible to Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

If interactive elements are not present:

N/A =

There were no interactive elements found within this text. Kurzweil 3000 was used to access and evaluate this text.

Interactive Elements

☒ Text prompts

The following are conveyed with assistive technology:

☒ Instructions

☒ Prompts

☒ Error messages

***As Applicable:

If there is no Interactive Elements, mark N/A on the report***

Interactive Elements: Checkpoint 15 C, Text Prompts

If interactive elements are present:

Pass =

1/1 interactive elements pass for keyboard operation. There was only one interactive element found within this text and it was found on page 45. The interactive element provided instructions, prompts, and error messages in a manner that was accessible to Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

Fail =

0/1 interactive elements pass for keyboard operation. There was only one interactive element found within this text and it was found on page 45. The interactive element failed to provide instructions, prompts, and error messages in a manner that was accessible to Kurzweil 3000. Kurzweil 3000 was used to access and evaluate this text.

If interactive elements are not present:

N/A =

There were no interactive elements found within this text. Kurzweil 3000 was used to access and evaluate this text.