

Creating Accessible Content in D2L

Learn how to create accessible web content within D2L from scratch. The steps listed in this guide will help ensure the content becomes WCAG 2.1 AA compliant.

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Background

The accessible (and usable) online content is essential. Users with visual impairments rely heavily on assistive technology such as screen readers (JAWS, NVDA, VoiceOver, etc.) to convert text into synthesized speech. This enables the user to listen to and comprehend the content. Users with various permanent, environmental, and/or situational limitations also use a variety of tools to assist them with navigating online content. Creating web (HTML) content in D2L can help such users gain equal access and become independent learners. Why is this important?

1. **Equal Access** - Students should have the opportunity to fully participate in all aspects of the educational environment to become successful and independent learners.
2. **Laws** - Applicable laws include [The Americans with Disabilities Act \(ADA\)](#) and the [Rehabilitation Act of 1973](#) (Sections 504 and Section 508). Both laws have been amended/refreshed in more recent years as technology has advanced. When it comes to online content, Web Content Accessibility Guidelines (WCAG) 2.0 Level AA is cited as the standard in legal cases. The updated standards for [WCAG 2.1](#) are now officially recommended by the World Wide Web Consortium (W3C).
3. **Quality Matters (QM)** - QM is a quality assurance program for online courses and provides guidance on quality course design. CMU is currently subscribed to the QM program. General Standard 8 of the QM rubric addresses a commitment to accessibility and usability for **all** learners.

Getting Started

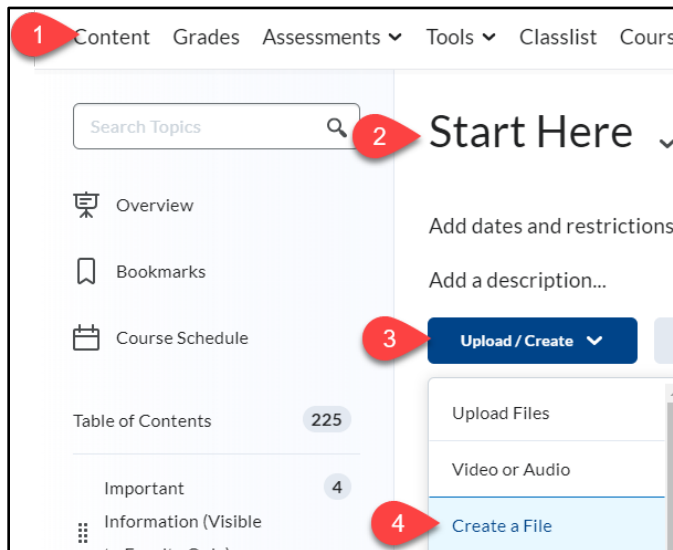
You do not have to learn HTML coding or take a web-content building course to create accessible content. D2L has a built-in **Brightspace (HTML) Editor** which provides a user-friendly WYSIWYG (What-You-See-Is-What-You-Get) interface. You can build your content (sometimes even copy and paste – use the remove formatting option) right in the editor, making sure to follow certain formatting guidelines to make content accessible. You may create new HTML files or remediate existing HTML files. These steps will walk you through creating a new file, but you may use these steps to fix existing files as well.

Create a new file from Content

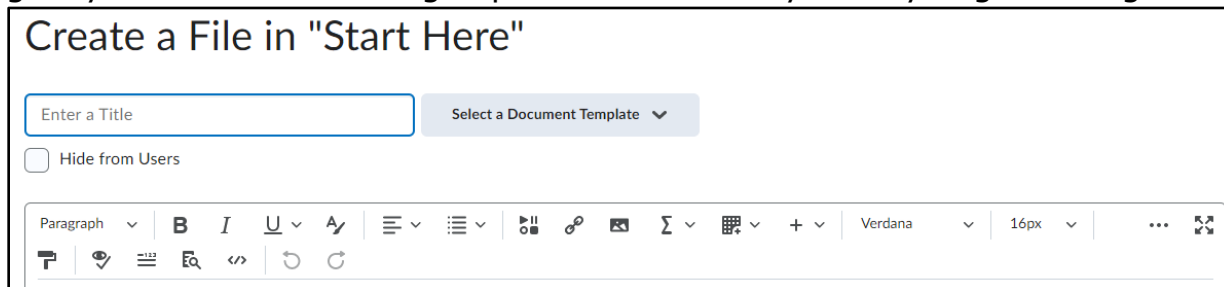
If you're using the CMU Course Template or are working in a course with existing content, you may create a new HTML file:

1. From the course home page, go to **Content**.
2. Navigate to the module to which you wish to add content.

3. Click on the **Upload/Create** button. From the dropdown options, select **Create a File**.



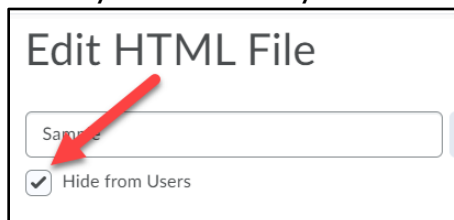
4. This will create an HTML file in the module you selected from the navigation and give you access to the Brightspace editor. Then you may begin adding content.



5. Below the editor, you will have the option to **Save and Close**, **Save**, or **Cancel** your file.



Note: If you're working on a draft and don't want students to access the file yet, checkmark the Hide from User option. You may uncheck this or make it visible once you are ready.



Once you're ready to add content, follow these six guidelines (along with a few other tips) to build accessible content.

Guideline 1: Headings

A consistent heading structure is one of the most important considerations when creating screen reader-friendly, as well as navigable documents. Unfortunately, highlighting the text and applying a different font type, a larger font size, bold formatting, etc. does not make a proper heading. Headings should be formatted using proper heading styles for users using assistive technology. This provides them the ability to navigate the document by heading structure instead of having to read the entire document before coming to the desired section.

Pages should be structured in a hierarchical manner:

- ✓ A **Heading 1** is usually a page title or a main content heading. It is the most important heading, and there is just **one** per HTML file.
- ✓ A **Heading 2** is usually a major section heading.
- ✓ A **Heading 3** is usually a sub-section of the Heading 2.
- ✓ A **Heading 4** is usually a sub-section of the Heading 3, and so on.

Note: D2L supports up to 6 heading levels. Many of your files may only use **Heading 1** and **Heading 2**. Text that is not a heading will use the **Paragraph** style.

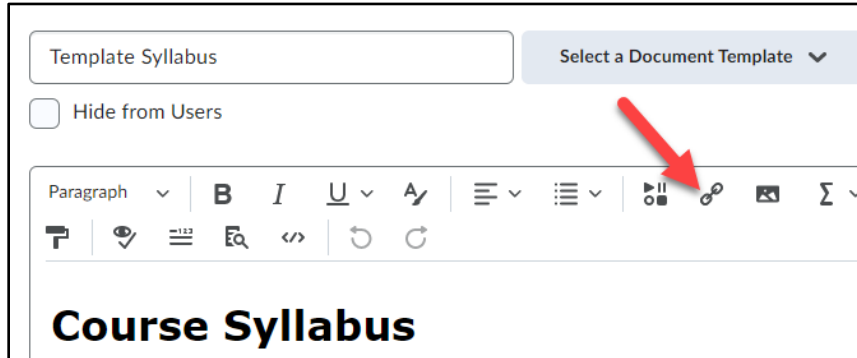
To style a heading, select the text that you would like to designate as a heading (Getting Started is selected in the example). Click on the **Format** dropdown menu (small triangle pointing down next to **Paragraph**) from the toolbar and choose the appropriate heading style (**H1 - Heading 1** in this case since it is the title/main heading of the document).

Check out this quick tutorial on [using Headings in D2L](#).

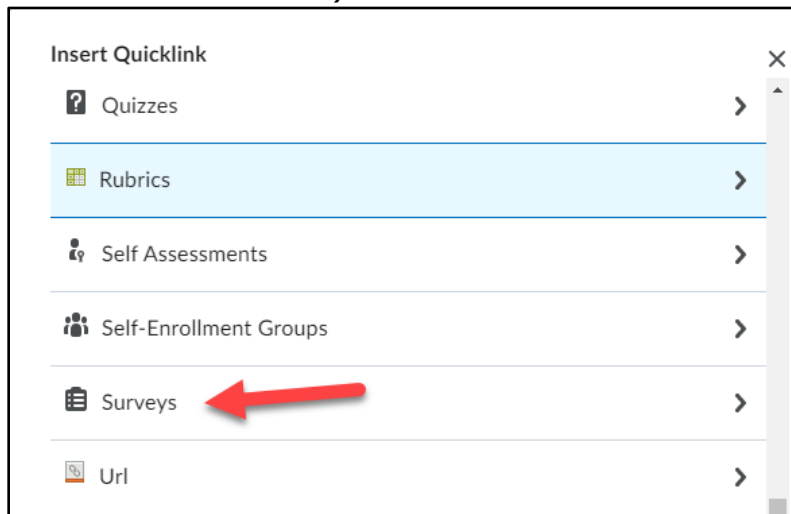
Guideline 2: Hyperlinks

Copying and pasting the complete URL of a web page into a document creates a hyperlink automatically. Even though this is the easiest way to insert a link, the URL serves as the display text for the user and might become confusing for a screen reader or other user. Using **descriptive** link text provides the user with a clear understanding of the link destination. Screen reader users may skim a document by navigating from link to link. It is, therefore, important to avoid using ambiguous link text (such as “click here,” “read more,” or “link”) as it might become difficult to understand out of context.

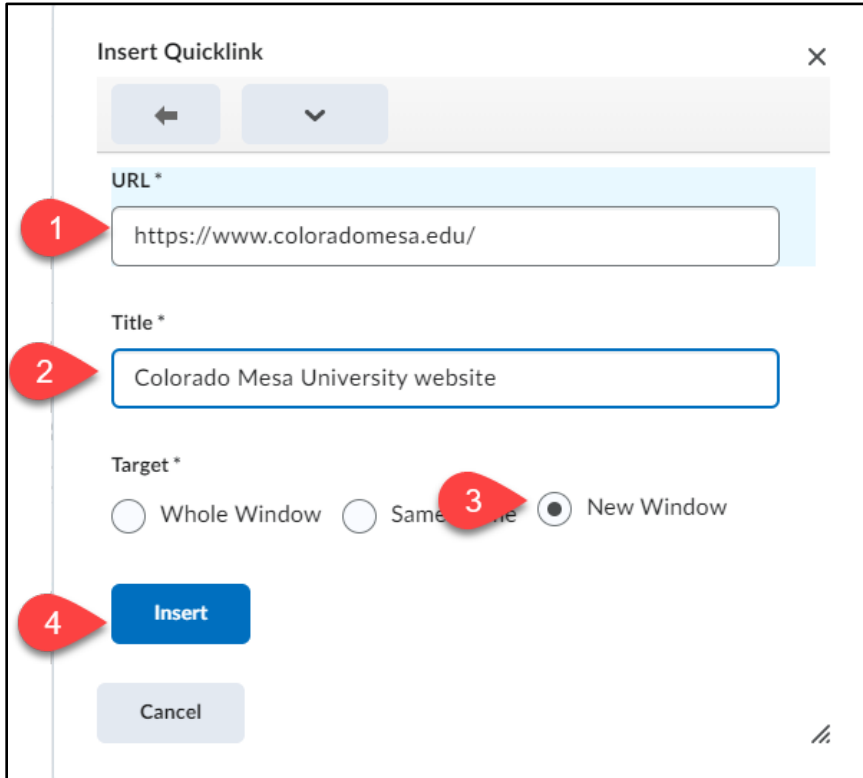
1. Place your cursor where you would like to insert your hyperlink, and then click the **Insert Quicklink** icon on the toolbar.



2. A new window will pop up. Choose the **Url** option. (Since the list is long, you may need to scroll down.)



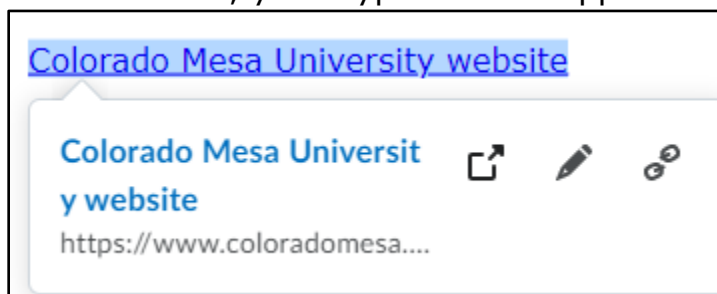
3. In **Insert Quicklink**, enter the **URL** and **Title** (this is the descriptive hyperlink text that appears in the document) and choose your **Target** (behavior on how the link will open up). The recommended practice for Target is **New Window**. Finally, click on the **Insert** button to add the accessible hyperlink to your document.



The screenshot shows the 'Insert Quicklink' dialog box with the following fields and options:

- URL ***: A text box containing 'https://www.coloradomesa.edu/' (Callout 1).
- Title ***: A text box containing 'Colorado Mesa University website' (Callout 2).
- Target ***: Three radio button options: 'Whole Window', 'Same Window', and 'New Window'. The 'New Window' option is selected (Callout 3).
- Buttons**: 'Insert' (Callout 4) and 'Cancel'.

4. Once inserted, your hyperlink will appear in the document.



If you click on the link in the editor, you'll have the option to **open**, **edit**, or **remove** the link.

Guideline 3: Alternative Text for Images

Alternative text is needed for visual images such as pictures, illustrations, images of text (scans), shapes, charts, or other embedded objects. Alt text represents the "Content" or "Function" of the image. This helps a screen reader, as well as users who may have difficulty interpreting visual information, provide meaningful representation of the image to the user.

Alternative text should be:

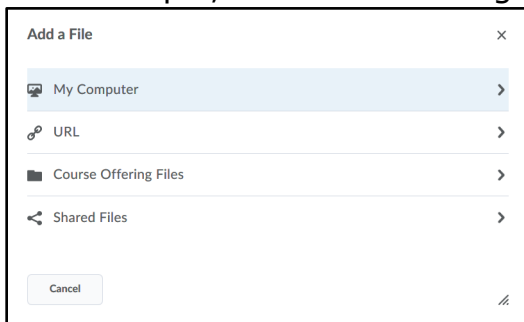
- ✓ **Accurate and equivalent**—present the same content or function as the image.
- ✓ **Succinct**—no more than a few words are necessary; rarely a short sentence or two may be appropriate.
- ✓ **NOT** be redundant—do not provide information that is in the surrounding text.
- ✓ **NOT** use descriptive phrases—screen reading software identifies images, so do not use phrases such as "image of..." or "graphic of..."

To add an image with alt text:

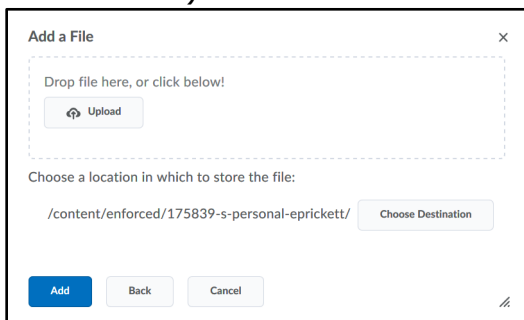
1. Place your cursor where you would like to insert the image, and then click on the **Insert Image** icon on the toolbar.



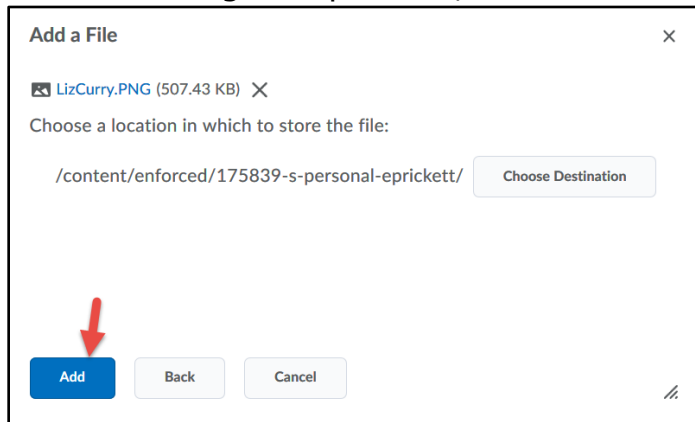
2. In **Add a File**, select the location where your image is currently stored. You may choose from **My Computer**, **URL**, **Course Offering Files**, or **Shared Files**. (For this example, we'll use an image from My Computer.)



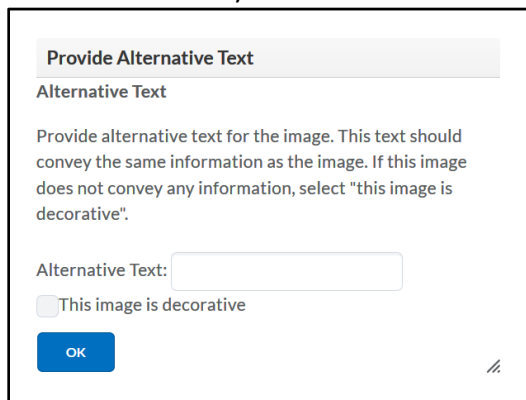
3. In **Add a File**, you have the option to drag and **Drop** the image or **Upload** (browse to the location on your PC). You also have the opportunity to **Choose Destination** for where you'd like to store the file in D2L. (This will open the **Select a Path** dialog. By default, D2L will save the image file in your main file for the course.)



4. Once the image is uploaded, click on the **Add** button.

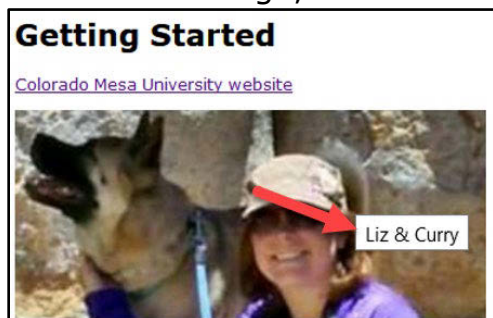


5. A new window will pop up asking you to enter **Alternative Text** for the image. When finished, click on **OK** to insert the image with alt text into your document.



Note: If this image does not convey any information, select **This image is decorative** checkmark. (For example, the screenshots in this document are marked as decorative because they convey the same information found in the text in a visual manner. Adding alt text would be redundant in this instance.)

6. The image now appears in the document. (The alt text will appear as hover over text on the image, so it is useful for users not using screen readers as well.)



Note: When writing alt text, remember to consider the function of the image. What brief description will convey the same functional meaning to non-visual users?

Guideline 4: Lists (Ordered or Unordered)

Lists add important hierarchical structure to a document. Sometimes users create "lists" manually by hitting Tab to indent content. While this provides visual structure for sighted users, it does not provide the document structure needed for assistive technology users.

There are primarily two types of lists used: ordered and unordered. **Numbered** (ordered) lists are used to present a group of items (words, phrases, sentences) that follow a sequence or show an order of importance:

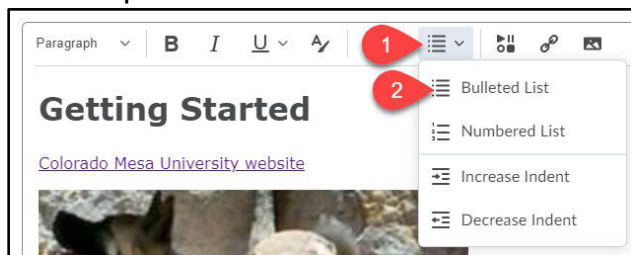
1. Preheat grill with "high" heat setting.
2. Cook hamburgers on "medium" heat setting.
3. Flip hamburgers when juices are visible on the top of the patty.
4. Remove hamburgers when the inside temperature is 160°F.

Bulleted (unordered) Lists

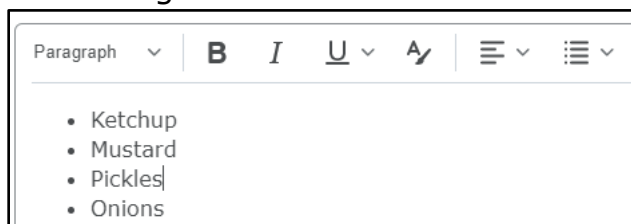
Bulleted (unordered) lists are used for a group of items without a sequence:

- Ketchup
- Mustard
- Pickles
- Onions

1. To start creating a bulleted/unordered list, place your cursor in the desired location and click on the **List** icon on the toolbar. Then, select **Bulleted List** from the dropdown menu.

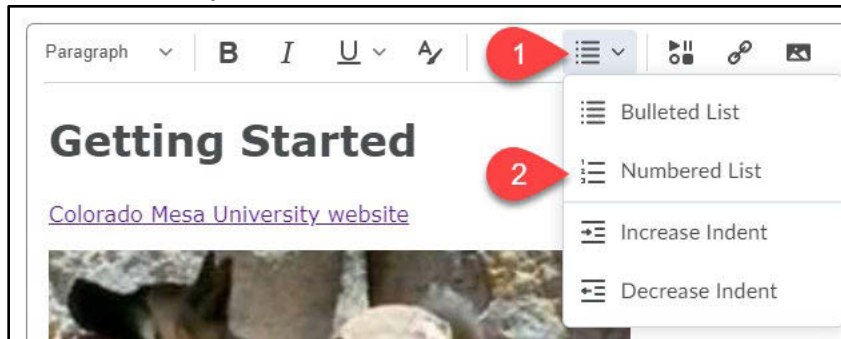


2. Enter your list items and press **Enter** to continue. Finally, your list should look something like this.

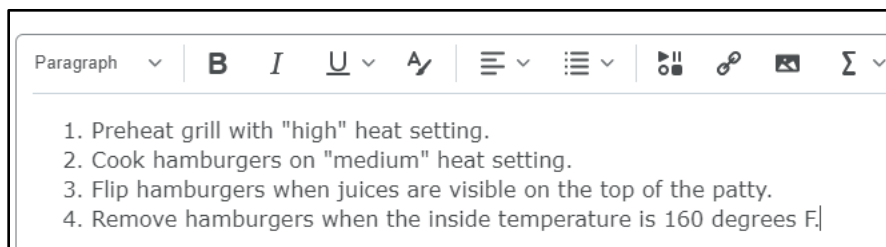


Ordered Lists

1. To create an ordered list, place your cursor in the desired spot, and then select the dropdown menu next to the **List** button on the toolbar. Choose **Numbered List** from the dropdown menu.



2. Enter your list items and press **Enter** to continue. Your list should look something like this.

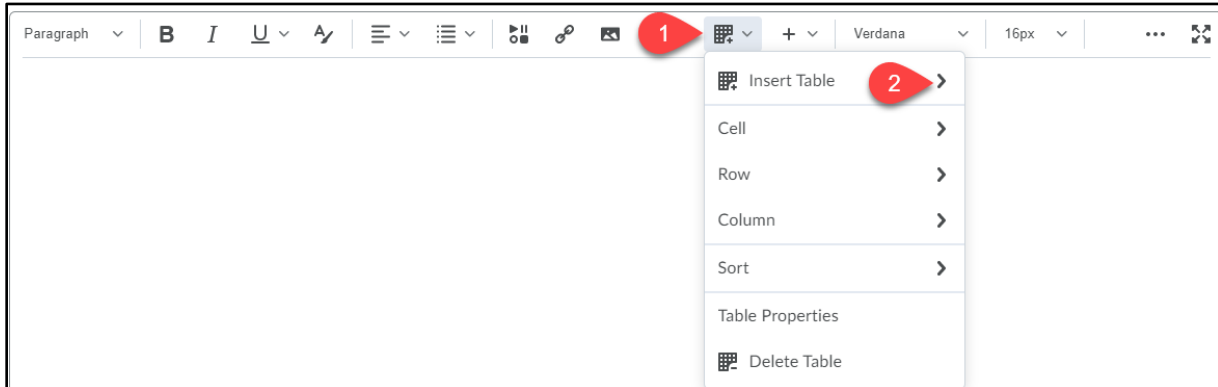


Guideline 5: Tables

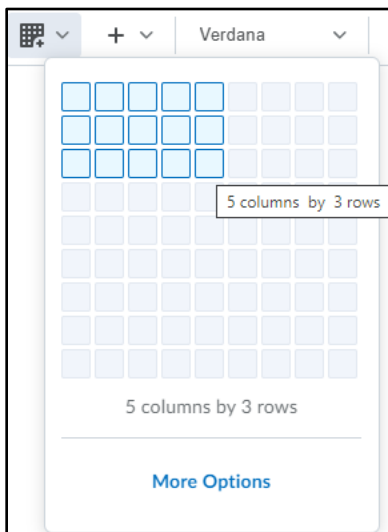
Avoid using tables in your document if the same content can be displayed differently. Tables should not be used for visual enhancement. The purpose of tables is to present information/data in a grid, or matrix, and to have columns or rows that show the meaning of the information in the grid. Screen readers read tables from left to right (one cell at a time) through each row and from the top row to the bottom row. Information should not read from top to bottom in a column. Make sure to include detailed **captions** for tables. These captions should briefly explain what information the table conveys, including important trends and statistics, and how the table is organized. Do not use split or merged cells in your table. Finally, the first row in a table should be identified as a header row.

1. Place your cursor where you would like your table to appear in the document.

2. Click on the **Insert Table** icon on the toolbar. Then, click the forward arrow to expand your options.

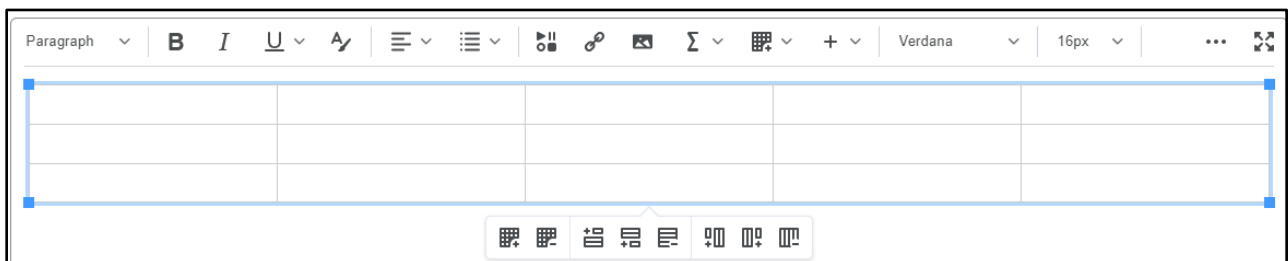


3. Select the number of **columns** and **rows**.



Note: Clicking on **More Options** allows you to set up **Table Properties**.

4. A table with 5 columns and 3 rows is now inserted in your document. You can click and drag any of the four corner squares (handles) in the selected table to expand the view.

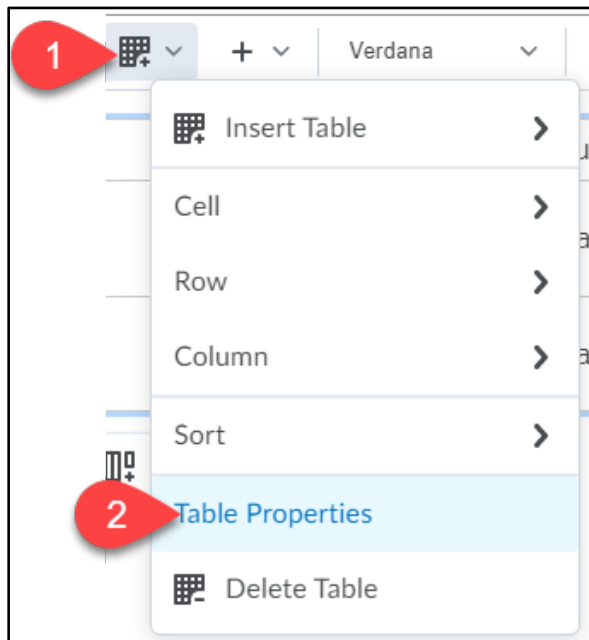


Note: You may adjust the number of columns and rows by using the icons, or you may use the options found in the Insert Table dropdown.

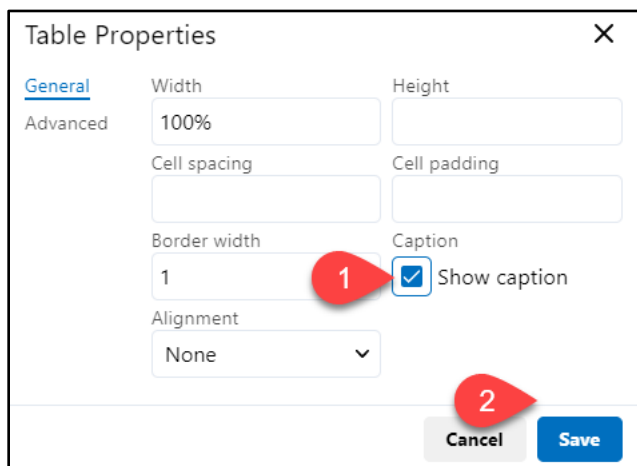
5. You can now enter data in each cell by clicking in the first cell, typing (or pasting) your data and pressing tab to go to the next cell. Once all data is entered, the table should look something like this.

Week	Reading	Video	Assignment	Due
1	Ch 1	Ants	Discussion	March 15
2	Ch 2	Spiders	Quiz	March 22

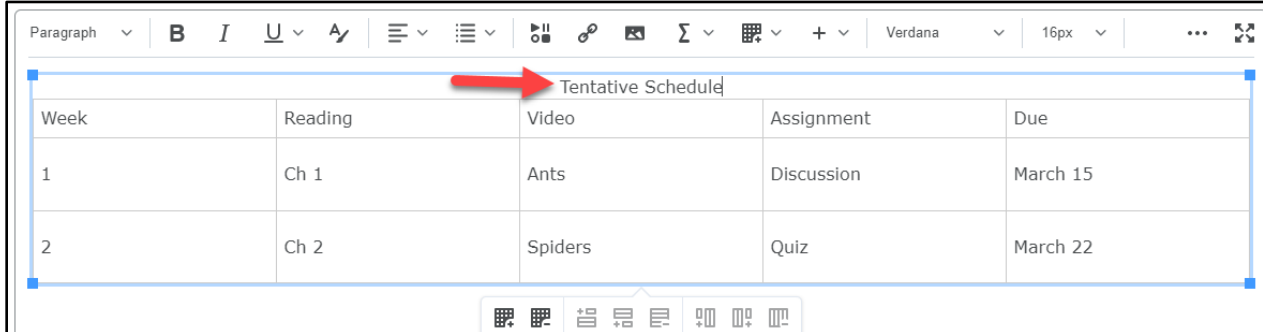
6. Click anywhere inside the table to select the entire table. Click on the dropdown menu next to the **Insert Table** icon on the toolbar, and select **Table Properties**.



7. A new window pops up for **Table Properties**. Checkmark the **Include Caption** box and then click on **Save**.

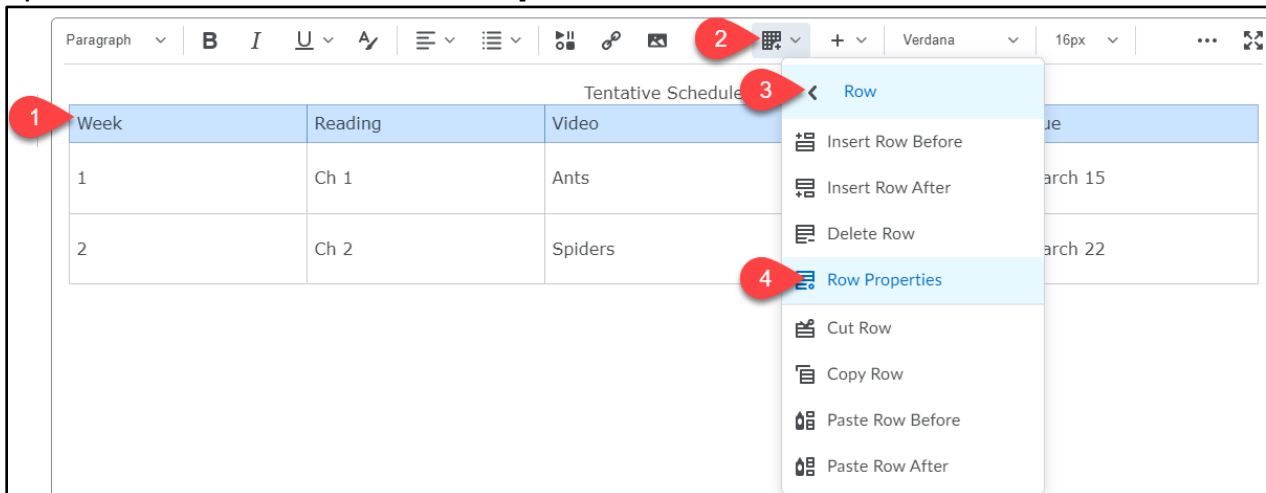


8. A captions row appears above the table so that you may enter a description for the table.



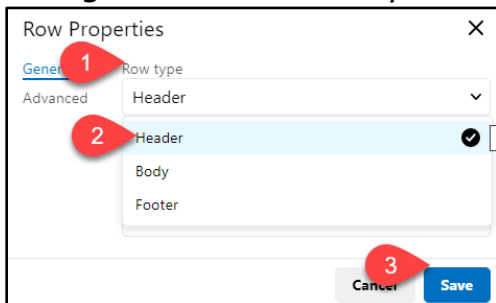
Tentative Schedule				
Week	Reading	Video	Assignment	Due
1	Ch 1	Ants	Discussion	March 15
2	Ch 2	Spiders	Quiz	March 22

9. Finally, select the entire header row (click and drag cursor), click on the dropdown menu next to **Insert Table** on the toolbar, and click on **Row** to expand the Row options. Then click on **Row Properties**.



Week	Reading	Video	Assignment	Due
1	Ch 1	Ants	Discussion	March 15
2	Ch 2	Spiders	Quiz	March 22

10. A new window pops up for **Row Properties**. Change the **Row Type** to **Header** (using the dropdown menu). Click on **Save** to finalize accessibility changes to the table in your document.



Row Properties

General

Row type: Header

Header

Body

Footer

Save

Guideline 6: Color and Contrast

Color

Do not use color (alone) to signify importance or convey meaning in a document. Users with low vision and/or color deficiencies (color blindness) may have difficulty comprehending the content. (Also, not all devices display colors in the same manner.) For example, the following list of items in red are required and the items in green are recommended:

- Calculus Textbook
- Graph Paper
- TI 84 Calculator
- Solutions Manual
- Laptop

This would be difficult for a user with a color deficiency to comprehend. Instead formatting the content as:

The following list of items are **required**:

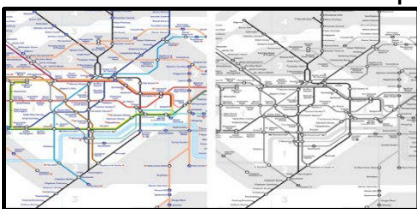
- Calculus Textbook
- TI 84 Calculator
- Solutions Manual

The following list of items are **recommended**:

- Laptop
- Graph Paper

This method of organization would provide a much easier way for anyone to comprehend which materials are mandatory vs optional. Thinking of and removing possible barriers are good practices of universal design.

Another great example of content depending solely on color to convey meaning can be a subway map with different colored routes. While one user might see the map below (on the left) and understand the routes using their color codes, a color deficient user, might see the same map below (on the right) differently. Remember that users' device screens may render colors differently and environmental lighting also impacts color, regardless if the users have visual impairments.



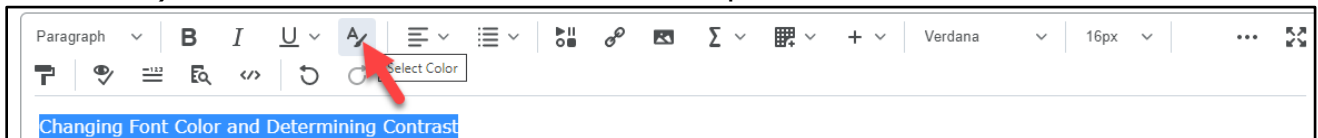
Contrast

Adequate contrast between the text foreground and background is important for users with low vision as well as other conditions. Something like the following text might be difficult to read for most users:

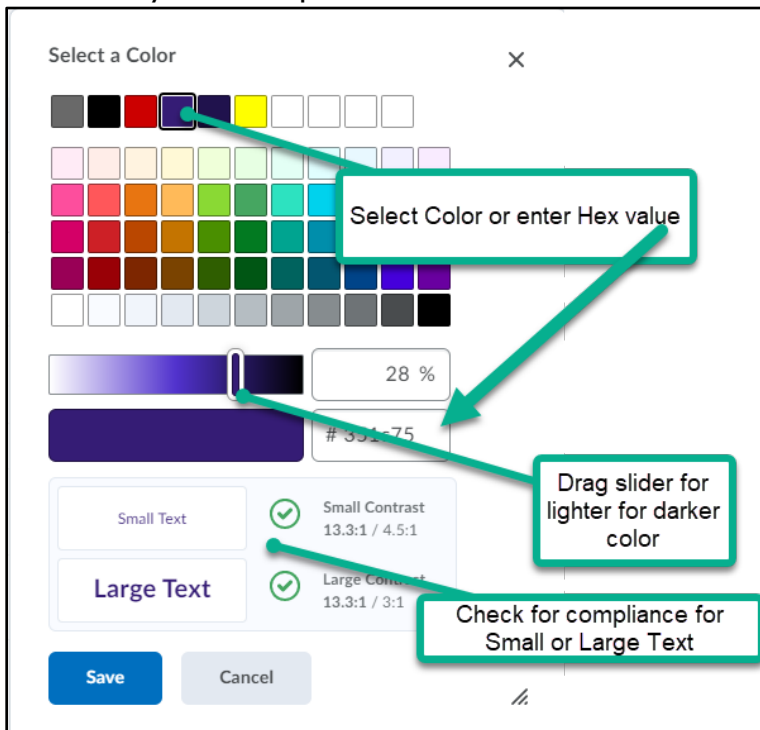
Try reading me...I am difficult.

The WCAG (Web Content Accessibility Guidelines) 2.1 AA Standard indicates that a contrast ratio of 4.5:1 should be used for the text to meet accessibility standards. While this might seem too technical for most of us, D2L's font color tool makes it extremely simple.

1. Select the text (or place the cursor where you would like to start using different font color) and click on the **Select Color** dropdown menu on the toolbar.



2. A new window pops up to **Select a Color**. You can choose a color, and then drag the slider (up or down) to change the shade to lighter or darker. Check the WCAG AA compliance ratio for a green check (changes dynamically) to make sure contrast accessibility standards are met. Remember to click **Save** once you've selected your compliant color.



Adding the accessible file for students to access

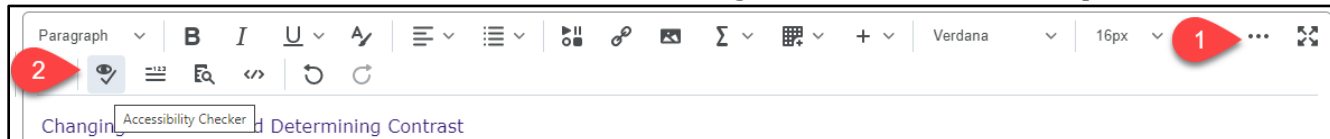
After your document is created and all the accessibility guidelines have been met, make sure to save your web (HTML) document. The following option buttons are located below the HTML editor: **Save and Close**, **Save**, or **Cancel** your file. (Note: Students can only access saved/published files. Only the instructor can access files that are saved as drafts. If you're working on a draft and don't want students to access the file yet, checkmark the **Hide from User** option. You may uncheck this or make it visible once you are ready.)



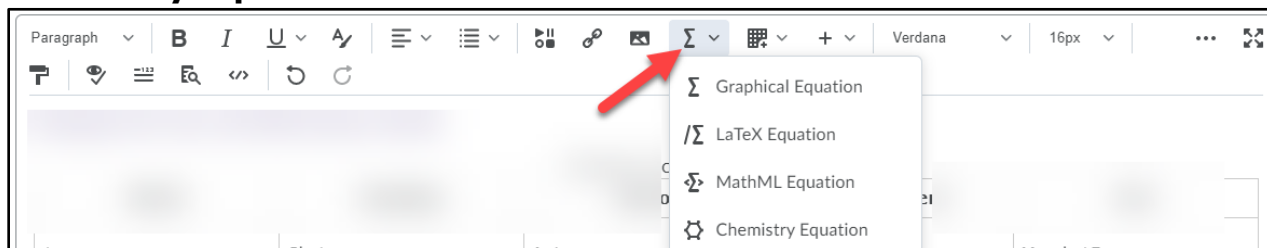
Other Tips

- When possible, use the [Course Syllabus Template](#) and other features of the **Course Template**, which have been designed with accessibility in mind.
- When possible, use the **built-in Brightspace (HTML) editor** to create your course content in D2L. This format is recognized by all web browsers, does not require additional software/applications to read and is easily editable.
- Include **text alternatives of multimedia content**, such as audio or video. Closed-captioning is preferred for videos. If the audio content does not correspond to the visual content (e.g., a visual of an instructor providing lecture without visual aids), then a text transcript is sufficient. Most of our video tools have the option to enable editable, auto-captions.
- **Do not use blinking or flashing multimedia**, as it can cause seizures in individuals with photo-sensitivity. Use animation when it helps convey a concept and not to draw attention to an unchanging object.
- Use relative font sizes and make sure that the text and page layout adjusts when a user changes the font sizes. Users should not have to scroll horizontally. D2L is **responsive**. This means that if you design HTML files correctly, they should automatically resize properly for users, regardless of device screen size or magnification.

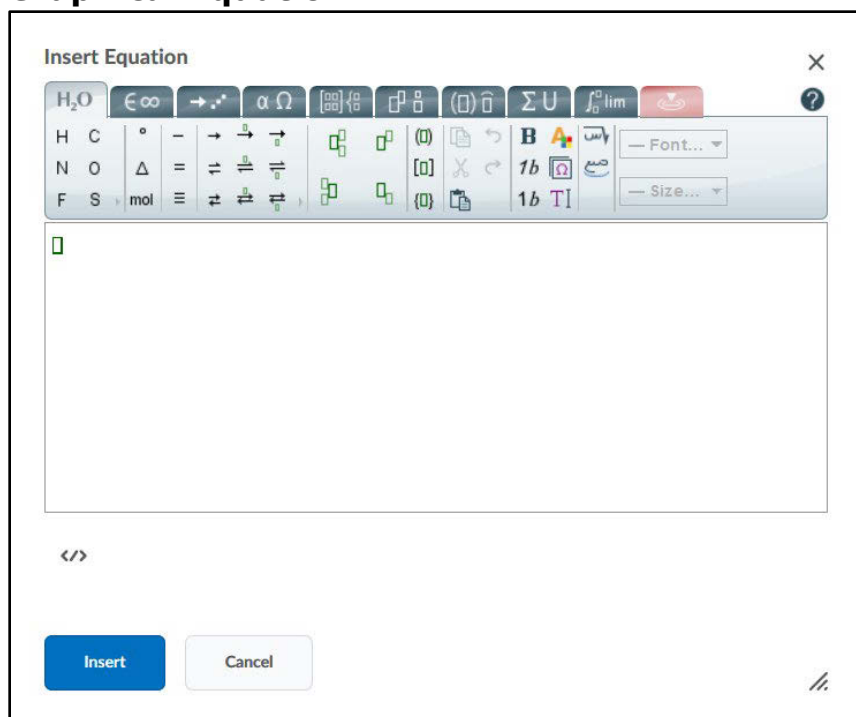
- Check out D2L's HTML editor's built-in **Check Accessibility** feature by clicking the 3 dot icon for **More Actions** and then clicking on the **Accessibility Checker** icon.



- If you include **mathematical and/or scientific notation**, Use the **Equation** icon. This gives you the option to insert a **Graphical**, **LaTeX**, **MathML**, or **Chemistry Equation**.



o Graphical Equation



- **LaTeX Equation**

Insert Equation

×

Insert LaTeX Equation

Which LaTeX commands are supported?

Insert

Cancel

- **MathML Equation**

Insert Equation

×

$$$$

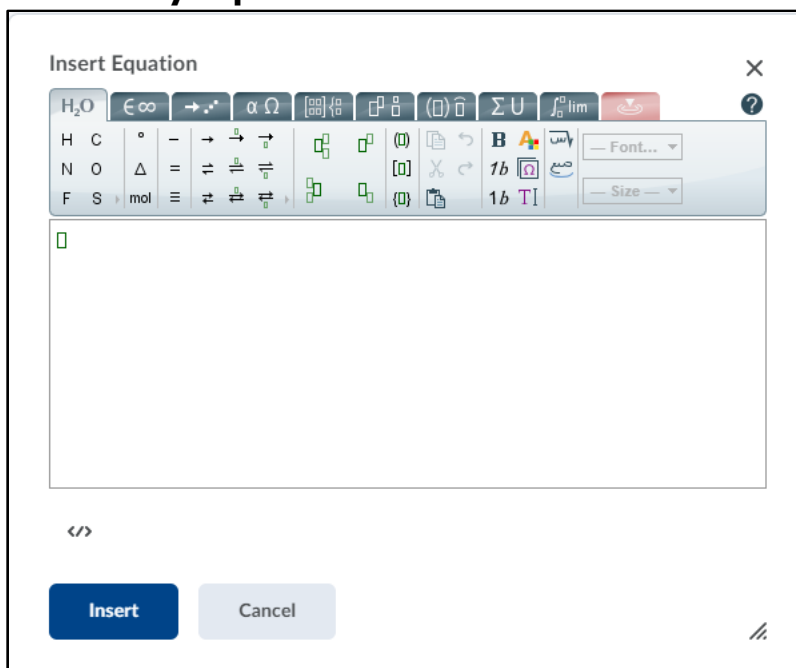
⌕

[Generate a preview](#)

Insert

Cancel

- **Chemistry Equation**



These tools help you render content so that screen reader users are still able to access it.