



ADA Compliant Excel Docs

Checklist

Here is a quick checklist for creating ADA compliant Excel documents. You can click on each one for a more detailed description

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Style and Appearance

Easy to Read Font

While there is no set rule on which fonts you can and cannot use, you will want to pick a font style that is easy to read. Some popular fonts include: Calibri, Cambria, Arial, Times New Roman, and Verdana. Avoid any fonts that are in cursive (*Blackadder ITC*), fonts that are too thin (*Eras Light ITC*), and fonts that smush the letters together (*Chiller*).

Font size also has no set rule. The best practice for compliance is to keep font size 11 and above.

Emphasized Messages

If you are trying to portray an important message to your students using **Bold**, *Italic*, Underline, CAPS, **Highlight**, or **Color** screen readers will not pick these up. To help the screen reader know that you are giving out important information, put a * in front of the message. So now it will be ***Bold**, **Italic*, *Underline, *CAPS, ***Highlight**, or ***Color**. It is up to your discretion if the message is important enough to earn a * or not.

Here are a couple examples of sentences:

- *ALL homework is due by the end of Friday.
 - This sentence seems very important, it should get a * in front of ALL as it is underlined and in caps.
- There will be **SOME** people who do not want to wake up that early.
 - This sentence is not very important and the word **SOME**, even though it is in caps and bold, was used as a minor emphasis so it does not need a *.
- Messages in color should almost always have a * with it unless the color is the main font of the Excel document. For example, if I put one sentence in red but all my other font is black then it needs a *. If my entire Excel font is in a dark blue, there is no emphasis to be had so it does not need a *.

Color Contrast

Color can be important to overall design but can cause issues for those with visual impairments or those who are colorblind. If you are using color, be sure to pick colors with high contrast. The rule to meet WCAG AA standards is a contrast of 4.5:1 for font below 18 points and 3:1 for font 18 points and above. ***There are ways to check your contrast, which I will describe below, but if you want to avoid having to check each time then focus on having a light color font on a dark background or a dark color font on a light background.** The more contrast, the better!

Checking Contrast

To check the contrast of a color, you will want to use [Deque's Color Contrast Analyzer](#).

This website has three important areas: the foreground color, the background color, and the results.

To change the color of the foreground and background, click on the box below the words "Color."

Foreground Color

Hex: RGB: **Color:** Name: ▼

Adjust Lightness : 100%

This will open a small window where you can pick your color. Click on the little dropper. This will allow you to use the dropper to select the color in your Excel document. It will give you a magnifying circle that you use to hover over the color in your Excel doc. You will want to select the darkest color when using the dropper. Repeat this for the background color (which will be white in most cases).

One	Two	Three	Four	Five
8564	37		345	76
235	236		474	75

Color Contrast Analyzer

Foreground Color

Hex: RGB: Name: ▼

Adjust Lightness:

Background

Hex: RGB:

R G B

Once you have selected both your foreground and background colors, you will see the results. Your goal is to have the ratio be equal to or higher than 4.5:1 if the font is below 18 points and 3:1 if the font is 18 points or above. In the example below, the color we used has a 4.6:1 ratio, which is compliant. Our goal is to meet AA standards. If your color meets AA but does not meet AAA, it is still compliant.

Foreground Color

Hex: RGB: Color: Name:

Adjust Lightness : 100%

Background Color

Hex: RGB: Color: Name:

Adjust Lightness : 50%

Result

Small sample text.

Large sample text.

Contrast Ratio = 4.60:1

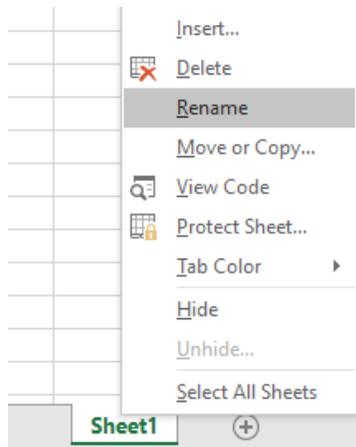
WCAG Standard	Small Text	Large Text, UI Components, & Graphical Objects
AA	Pass	Pass
AAA	FAIL	Pass

Structure and Semantics

Worksheet Names

Every sheet in your Excel document should have a descriptive name, even if you only have one sheet.

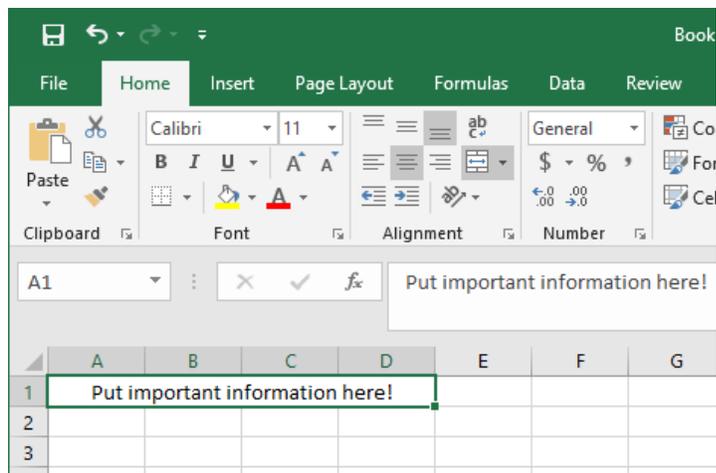
In Excel, right click the sheet tab and choose “rename.” Pick a name that describes what the sheet is about; a name that is brief yet informing.



Cell A1

Cell A1 is the first cell a screen reader hears when opening an Excel document. It is important to ***NEVER** leave this cell blank. This cell should be used for important workbook instructions or an overview of how the workbook is arranged. This would include information about filters, forms, macros, multiple tables, and the number of sheets in the Excel workbook. If you do not want your screen reader student to miss something vital, its best to put it into cell A1!

***Note:** Cell A1 can be merged for easier viewing of detailed instructions.



Blank and Merged Cells

Blank or merged cells can easily cause issues for screen readers. A blank or merged cell can cause confusion and lead to the user losing their place inside of the table. The user would then have to repeat the table to understand why there was a blank or merged cell. Best practice for a blank cell is to put either “N/A” or another type of signifier that tells the screen reader that there is nothing in that cell. You can use blank cells if you are creating a table that the student has to fill in information themselves. Avoid merged cells (with the exception of cell A1).

Here is an example of a non-compliant section. You will notice a few issues here. There is a blank column separating Five and Six, there are five blank cells, and the “Six, Seven, and Eight” cell is merged.

One	Two	Three	Four	Five		Six, Seven, and Eight		
	37	326	345	76		526	2	
235	236			75		4		546
12	2352	52	342	547		56	25	36

Here is the same information but changed for compliance.

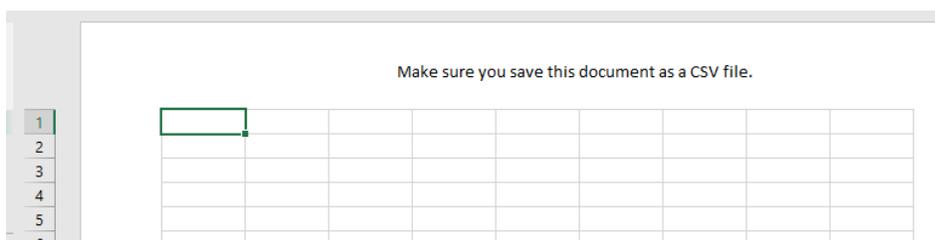
One	Two	Three	Four	Five	Six	Seven	Eight
n/a	37	326	345	76	526	2	n/a
235	236	n/a	n/a	75	4	n/a	546
12	2352	52	342	547	56	25	36

Even as a visual learner the compliant version looks cleaner and easier to read!

Headers and Footers

It is okay to use headers or footers in an Excel document but know that most screen readers will not read these sections. Due to that, any important or vital information you include in a header or footer must be repeated in the body of the document. In most cases you would include this message in cell A1.

In the image below, the message “make sure you save this document as a CSV file” is in the header. Since it is not repeated in the body most screen readers would not hear the instructions. You could see how this could harm their assignment score by turning in the wrong file type. Instead, repeat the message into cell A1.



Hidden or Frozen Columns and Rows

It is best to avoid hidden or frozen rows and columns. The screen reader user will not know that these are being used in the workbook. If you have to use a hidden or frozen row or column, you MUST put an alert in cell A1 to inform the screen reader user.

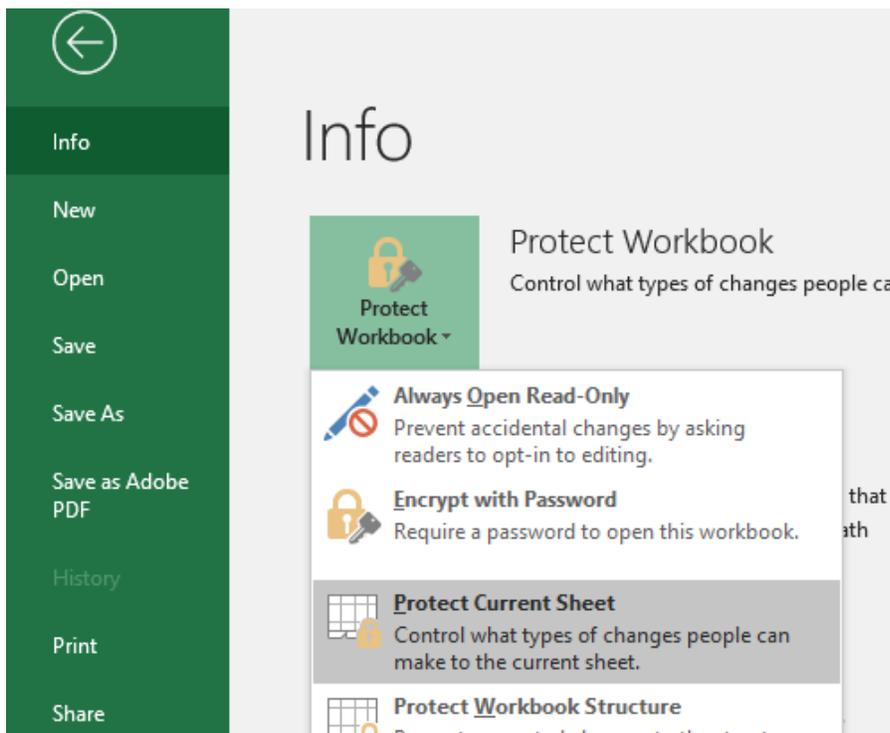
Data Filters

Data filters are highly common in Excel workbooks. If you are utilizing any of these filters, you must inform the student in the body of the document. Cell A1 is a great place to house this important information.

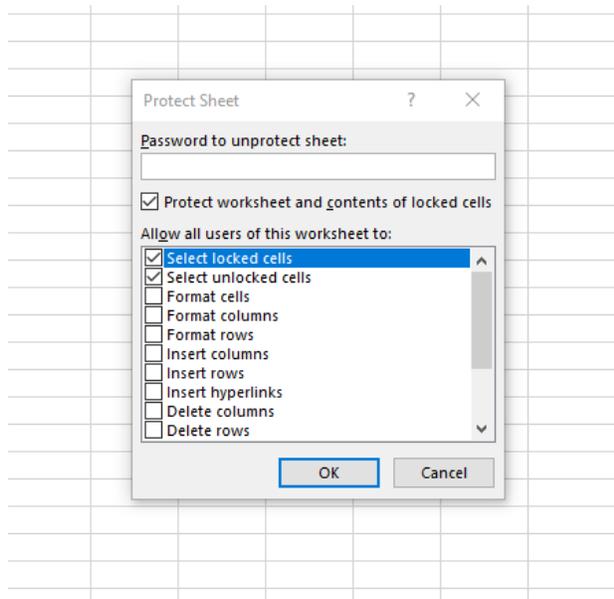
Protected Worksheet

If you are providing the students with a protected worksheet, the options for selecting locked and unlocked cells must be checked. While locking cells prevents edits, it can also prevent screen readers from properly navigating and identifying them. If "Select locked cells" is unchecked when protecting a sheet, users may not be able to interact with locked cells, including those containing hyperlinks or other interactive elements.

To check these options, you will click on File in the top left corner. Once there, click on the Info tab, select Protect Workbook, and choose "Protect Current Sheet."



You will be taken back into your worksheet and will see a new popup. Under the “allow all users of this worksheet to” section, make sure “Select locked cells” and “Select unlock cells” are both checked.



Index Sheet

If you have multiple sheets in your workbook the best practice is to have the first sheet be an index sheet with descriptive hyperlinks to the other sheets. An index sheet, which essentially serves as a table of contents, helps screen readers by providing a concise overview of the workbook's structure and content. This allows screen reader users to navigate the document more efficiently and understand its organization. Below is an example of an index sheet along with a YouTube video on how to create an index.

	A	B	C	D	E	F	G
1	Sheet Number ▼	Sheet Name ▼	Link ▼				
2	1	Index	Index				
3	2	Data Set - Dogs	Data Set - Dogs				
4	3	Data Set - Cats	Data Set - Cats				
5	4	Data Set - Humans	Data Set - Humans				
6	5	Homework Questions	Homework Questions				
7							
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9							
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11							
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36							
37							

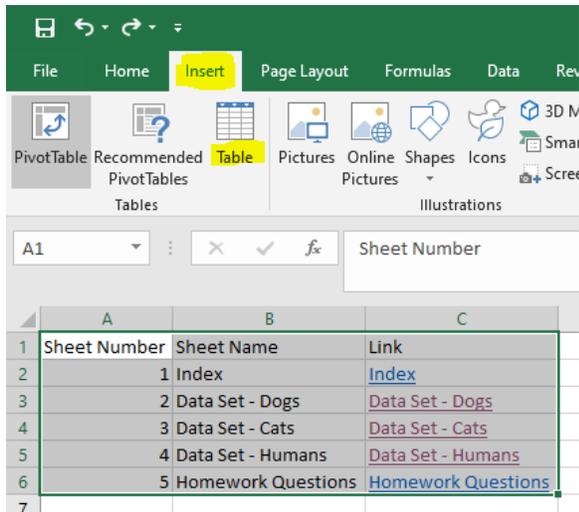
[How to create an index sheet in Excel](#)

Tables

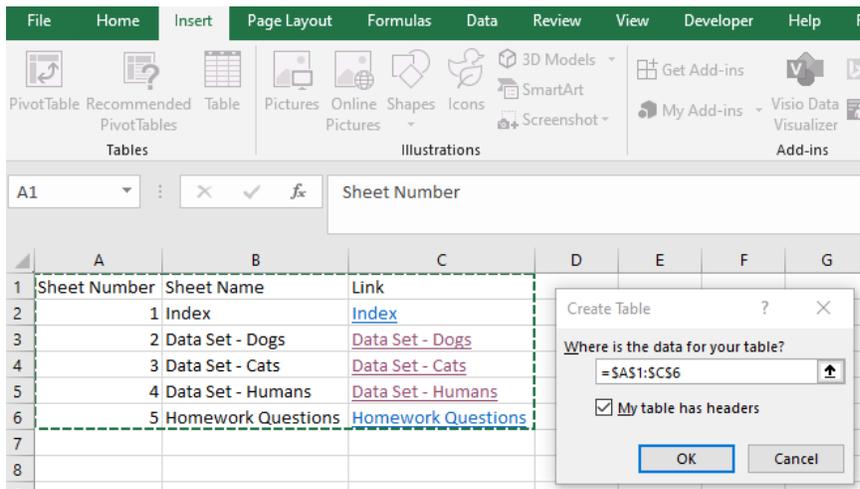
Table Creation Tool

While most of Excel may look like a table, it is not marked as a table until you set it up via the “Table” option under the insert tab.

To mark a table, highlight the entire table (be sure to have a header row). Once highlighted, you will click on the insert tab in the top tool bar and choose Table.



Once you select table, you will see a popup. Verify that “my table has headers” is checked and press okay.



Your table is now correctly marked as a table!

Headers

When it comes to tables, headers are the most important part for screen readers. It gives them vital information while they are moving through the table. Every table must have a header row with meaningful headers.

After creating a table via the table creation tool, if you did not check “my table has headers” then you will need to mark the headers yourself.

Click inside of the table and it will open the design tab in the top tool bar (this tab only appears after clicking inside the table). On the design tab verify that “Header Row” is checked.

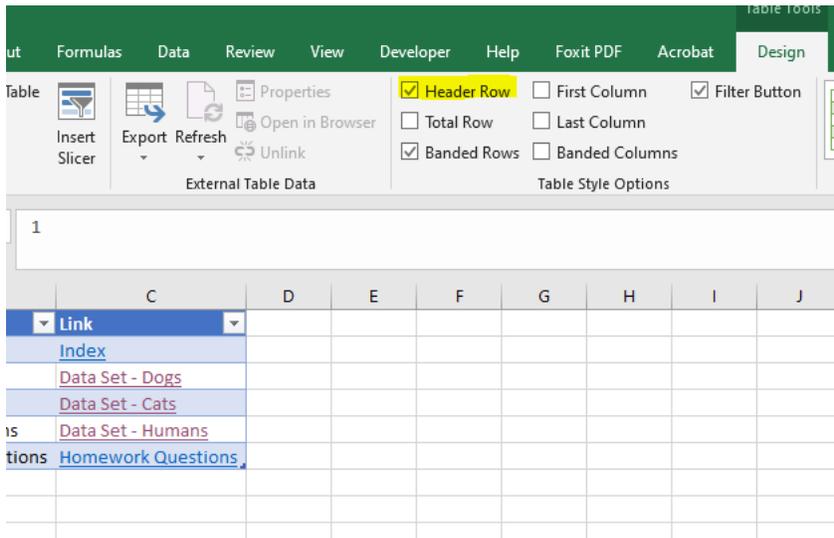


Table Title

Each table will need to have a descriptive title that summarizes what the table is about. To set a table title click inside of the table. This should open the design tab. In the top left you will see a spot for table name. Place your descriptive title there.

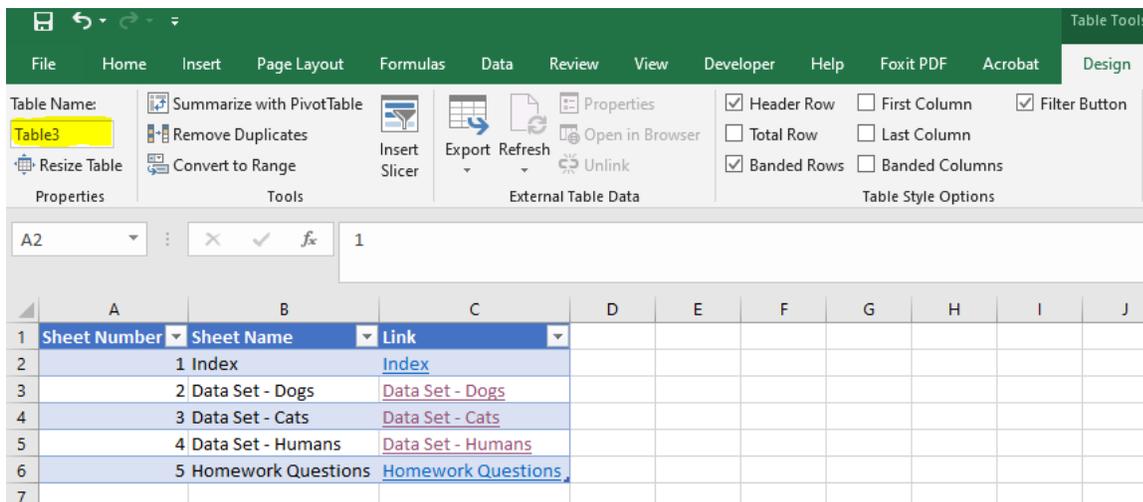


Table Rules

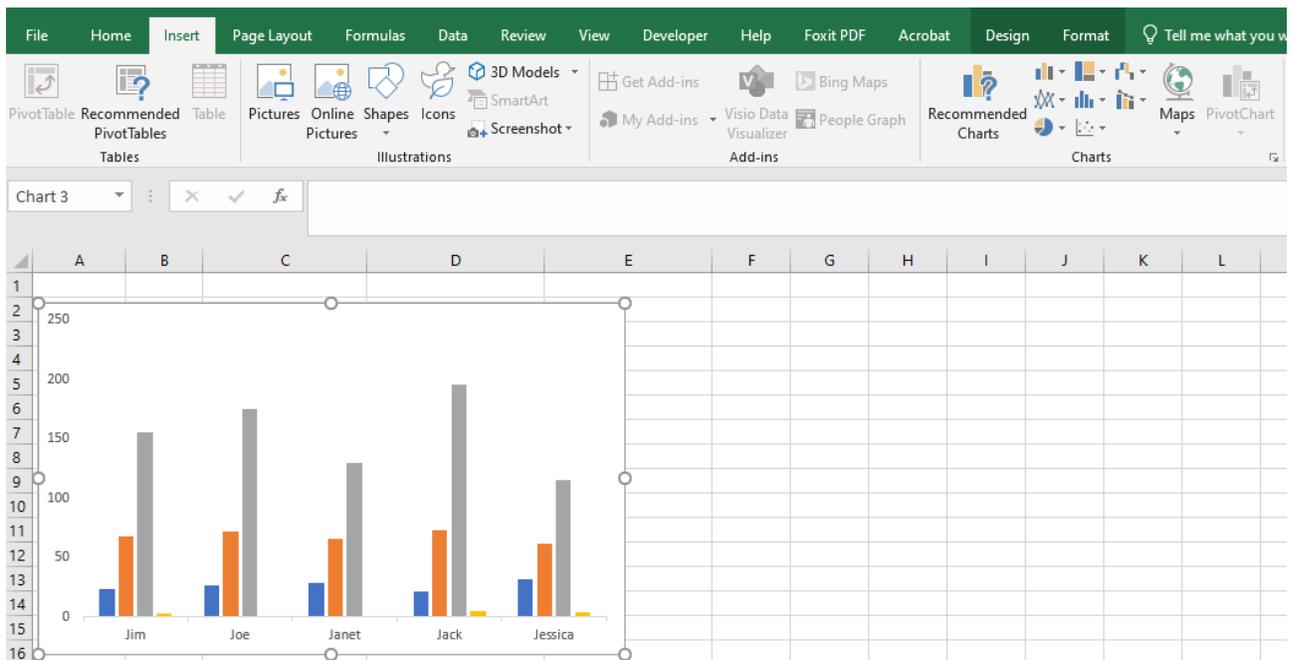
Tables come with a set of general rules that help screen readers effectively read the table. Keep in mind that screen readers can only read one cell at a time.

- Keep a table as basic as you can. The more complex a table is, the easier it is for screen readers to get lost inside of the table. Complex tables should be broken down into simple tables.
- No blank cells.
- No merged cells.
- No blank rows or columns separating table headers and the data.
- Each table should only have one header row and/or one column row.
- If multiple tables are in the same worksheet then a single blank row should separate them and all tables should start in column A. It also helps to inform the user that multiple tables are present. This information can go into cell A1.

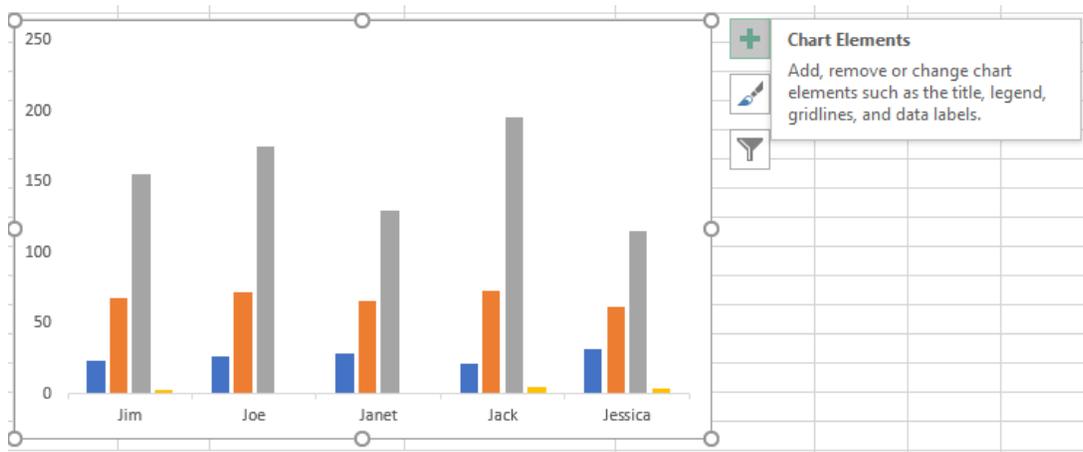
Graphs, Charts, Images, and Other Visuals

Graphs and Charts

You can create graphs and charts in Excel via the charts option under the insert tab in the top tool bar. Below is an example of a graph placed in Excel.

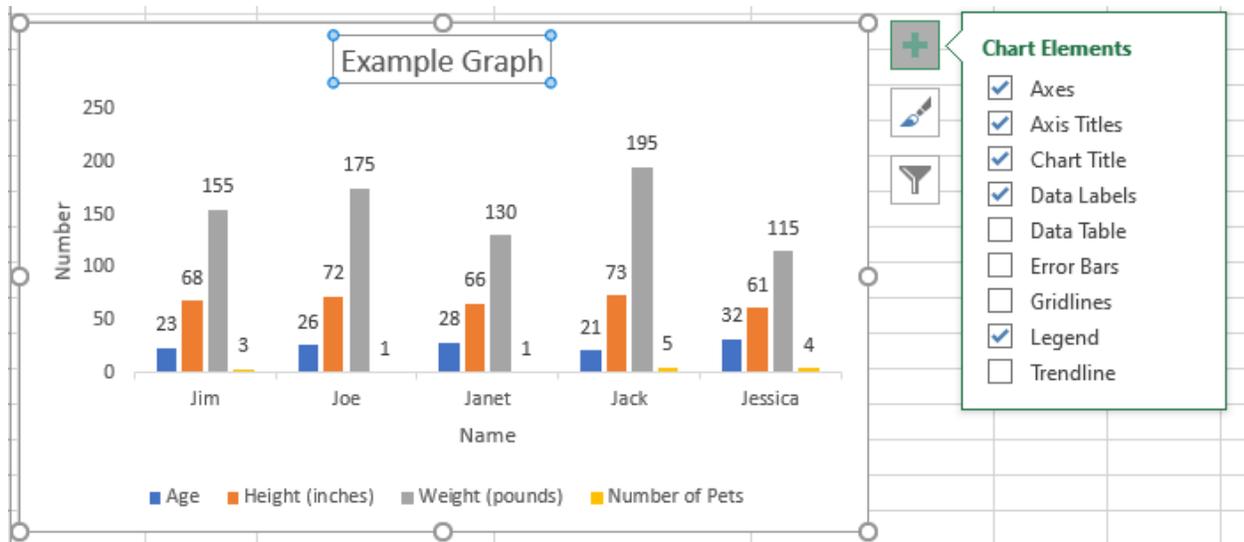


Once you have your graph created, you will need to change the settings so it provides (if applicable): a title, a legend, axis labels, and data labels. You can achieve this by clicking on the graph and choosing the chart elements option.

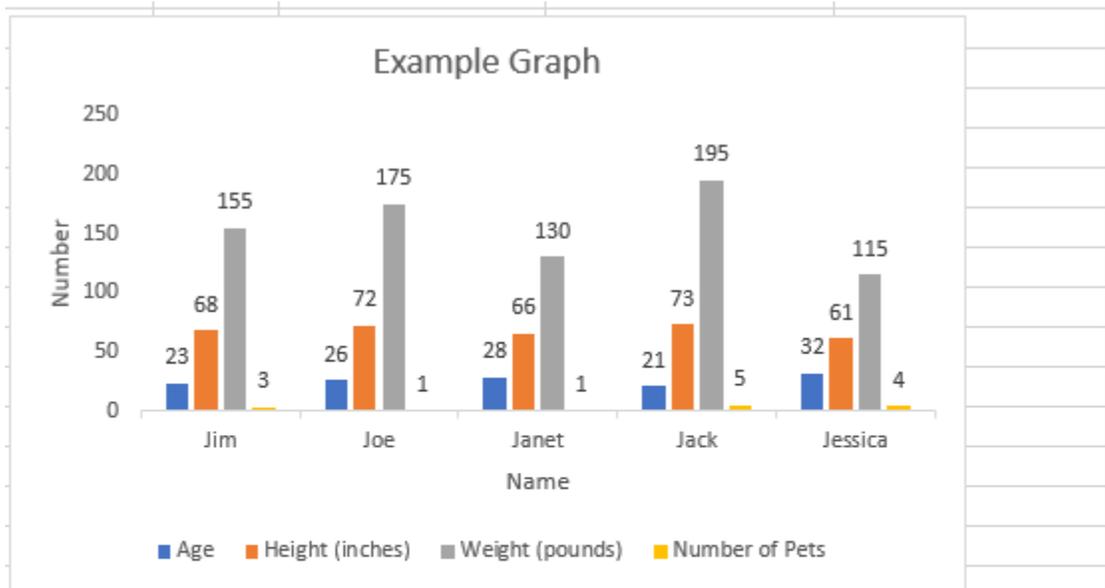


Select the options that are fitting for your graph. Below is an example of a graph with everything checked correctly.

***Note:** After you choose chart title and axis titles, you will need to enter those into the word boxes on the graph. The chart title in the image below is selected to give you an example.



Lastly, you will need to put in alt text to describe the graph. This alt text should be placed in the cell following the table and should be extremely descriptive. The alt text should relay the same information that visual learners see. You may use a data table instead of alt text as long as all of the data is the same and matches the graph. Alt text will still need to be placed, but it should only be the graph title. Right click the graph and choose “edit alt text.” Alt text for this graph would say Example Graph.



The table below is the data for the graph above.

Name	Age	Height (inches)	Weight (pounds)	Number of Pets
Jim	23	68	155	3
Joe	26	72	175	1
Janet	28	66	130	1
Jack	21	73	195	5
Jessica	32	61	115	4

***Note:** When creating graphs or charts, do not rely on color as the sole means of communicating information. Make sure the colors you choose meet the correct contrast ratios (the yellow above would not be compliant).

Images, WordArt, SmartArt, Shapes, Text Boxes, or Other Floating Objects

For this criterion, I am using the word “image” to include WordArt, SmartArt, shapes, text boxes and other floating objects.

Images can be added into Excel via the insert tool bar. Any image that has any relevant information for the learner will need descriptive alt text placed in the cell directly below the image. When writing alt text only include relevant information and describe said information as if you were talking to a blind learner. Once you have the description completed, right click the image and choose “edit alt text” and inform the user that the description will be in the cell below the image.

In the example below, you will see an image followed by a description. In the alt text of the image it says “Description in cell below, a23”.

2			
3			
4			
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21			
22			
23	The image above shows a headshot of a black and white husky dog on his back with his mouth open and tounge hanging out.		

If your image is strictly decorative and has no relevant information then you do not need a description below the image. You should mark the image as decorative in the alt text window (right click the image, choose “edit alt text” and check “mark as decorative”).

Embedded Files

Embedded files should be included on a separate worksheet. You must alert the learner that embedded files are present. Cell A1 on the main worksheet is a great place for this information. Each embedded file needs to be accompanied by explicit text instructions on how the learner can open the file and a short summary of the type of file and its contents. Cell A1 of the embedded file's worksheet is the best place for this information.

Background Images and Watermarks

Do not use background images or watermarks. These are not readable by screen readers and can cause issues for visual learners as well.

Multimedia

Videos

Closed Caption

The video must have closed captions. I would not recommend adding the video directly into the Excel worksheet. Instead, I would link in a video from an outside source, such as YouTube. If your videos are inside of D2L, they cannot be linked into an Excel worksheet. YouTube videos would be best for Excel, just make sure the video you are wanting to use has closed captions.

Descriptive Audio

The video should have descriptive audio. This means that the person speaking is explaining everything they are doing in the video. The narrators typically describe actions, gestures, scene changes, and other visual information. They also describe titles, speaker names, and other text that may appear on the screen. This is important as a blind user will not get this information unless they hear it from the person speaking. Any important information you want a student to receive from a video, it must be spoken aloud.

Audio

If you provide audio only files, such as podcasts or speeches, you must offer a text transcript. This ensures that deaf or hard-of-hearing users can access the content.

Make the transcript accurate, synchronized (if possible), and easy to locate on the same worksheet.

Flashing Content

It is best to avoid flashing content. If you choose to use flashing content then it cannot flash more than 3 times per second.

Forms

Form Instructions

While it is best to create forms in either PDF or Word, if you need to create a form in Excel you should include helpful instructions on navigating and completing the form in cell A1. This is also a great place to put a meaningful title for the form. Try to keep your form as basic and simple as you can. The more complex a form is, the easier it is for a screen reader to get lost. If you have a workbook with more than 1 form, it is best to place the forms on separate worksheets with detailed instructions in cell A1 informing the user.

Input Fields

While it is best to create forms in either PDF or Word, if you need to create a form in Excel you should follow these rules for input fields.

- Every input field must have a label or visible instructions on the screen and should be used to guide users in filling out the form correctly.
- Input fields must be adjacent to the cell containing the question/description.
- Input fields should be shaded to make them more visually discernible, using a color other than yellow.
- Detailed, specific, and clear errors alerts should be used for input fields.
- If an input field is required, the user must be alerted.

Form controls and ActiveX

Form controls and ActiveX must be avoided. These tend to hinder keyboard navigation, lack proper labels, instructions, and error messages, and can cause “keyboard traps” in which a screen reader enters the form control or ActiveX and cannot use the keyboard to get back out.

Links

Those that use assistive technology have the option to view a full list of links available in a PowerPoint. Using descriptive links is important to the user knows where the link is taking them and why. You want to avoid putting in a full URL because a screen reader will read out the “h t t p : / /” and that can be frustrating to the user. Descriptive hyperlinks tell the user what the link is about while also being short and to the point!

***ALL links must be descriptive hyperlinks with the exception of links in the resource section or email addresses.**

Example Hyperlink

For this example, I want to insert a link to our faculty resource page on the MSUTexas website.

Instead of putting in the URL, which looks like this:

<https://msutexas.edu/distance/online-teaching-aids.php>

I am going to put it as a descriptive hyperlink, which looks like this:

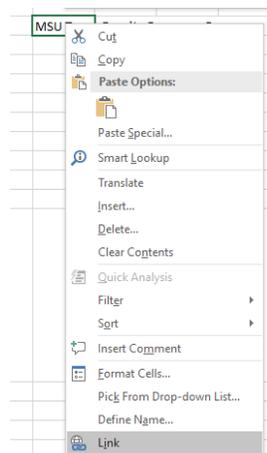
[MSUTexas Faculty Resource Page](#)

This makes it a much shorter link and tells me exactly where I am going.

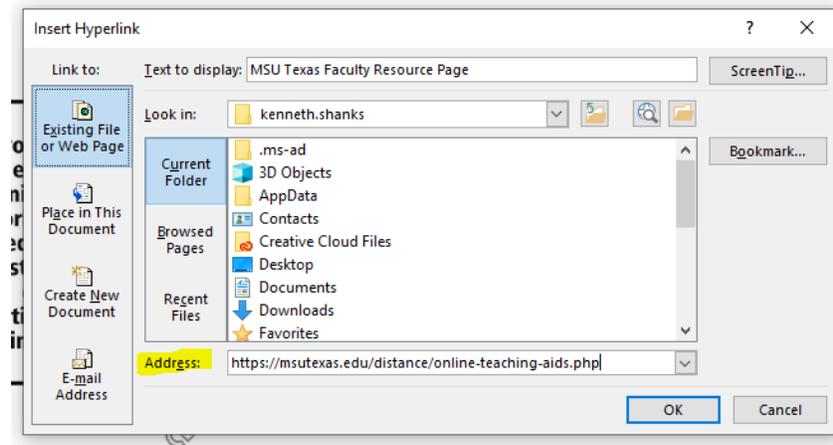
***Note:** Do not use phrases like “Click here” or “Read More” or “Learn More” as your descriptive link.

Inserting a Descriptive Hyperlink

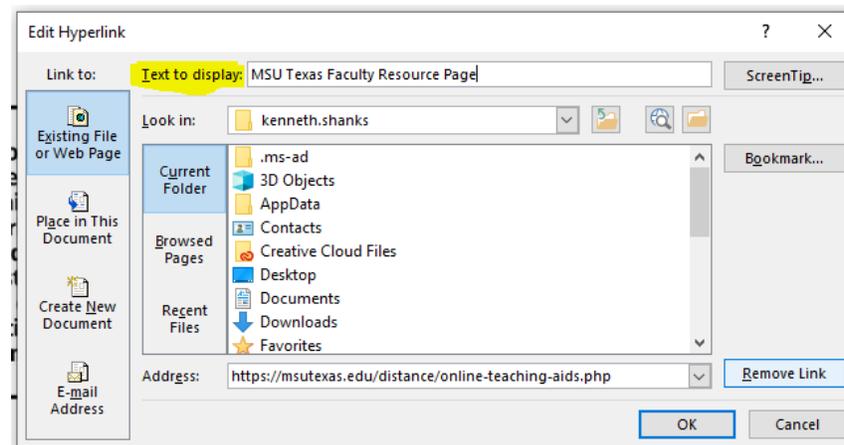
To insert a link, you’ll want to type out the description that you want the link attached to inside of a cell. Once that is in place, highlight the cell and then right click and choose “link.”



A new window will appear. Paste your link into the “address” section and then press okay. Your text will now be a link, appear blue, and underlined.



If you already have the hyperlink in the worksheet, you can change the text that it displayed. Repeat the steps above but instead change the “text to display” section instead of the address section.



Additional Link Rules

- Website and email links must lead to the correct, active web destination or address. Links need to be corrected if they lead to a dead website, a 404 error, or a return to sender email address.
- If you are linking to another section of your Excel workbook, the link must point to the correct cell reference.
- All links must be visually distinguishable from the surrounding text. The normal blue font with underline works for this criterion.

Macros

If you use any macros in your workbook then you will need to follow these rules.

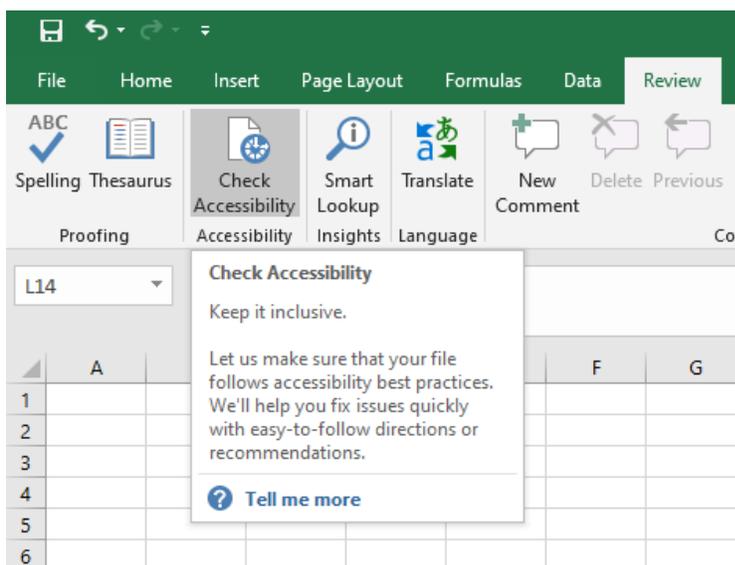
- Each macro used must have a clear and meaningful name that is indicative of its function.
- Each macro must include a clear and complete description of what it does.
- Each macro must have a keyboard shortcut assigned to them and cannot be the same as an existing default shortcut.
 - Here is a great [webpage listing all Excel keyboard shortcuts](#).
- Users must be alerted within the body of the Excel worksheet that macros will be present along with how many, the name of each macro, and a description for each which includes the macro's keyboard shortcut.
 - This is usually best placed in cell A1.

Saving

Accessibility Checker

Excel does have an accessibility checker but it is not very accurate when it comes to all the compliance requirements. While I do recommend using it to see if you missed something, I would not rely solely on it.

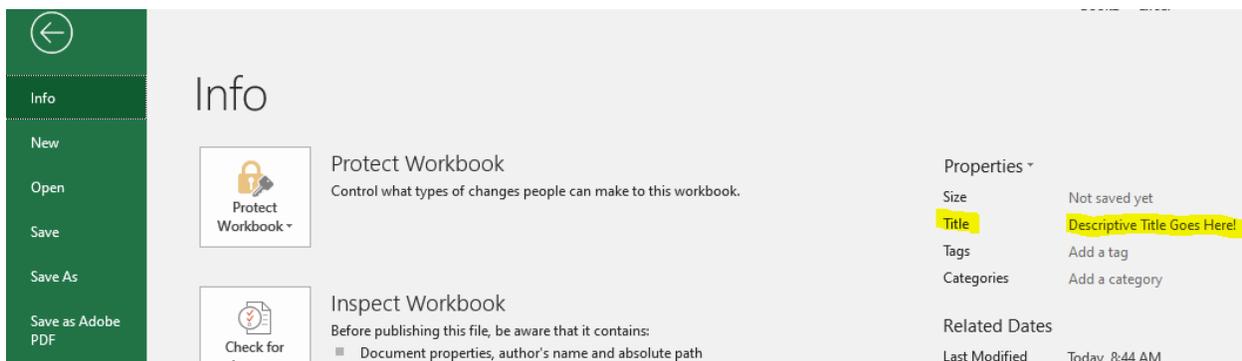
The accessibility checker can be found under the “Review” section on the top tool bar. After selecting “Check Accessibility” your results will show up in a window on the right side. Excel will inform you of any mistakes it catches and give you information on how to correct it.



Title in Properties and Descriptive File Name

Each file must have a descriptive title set in the properties. Document titles allow the user to know what the file is going to be about before they open it. If it is opened in a browser window, the name of that window will be taken from the document title. This will help the student recognize which browser window belongs to the file they just opened.

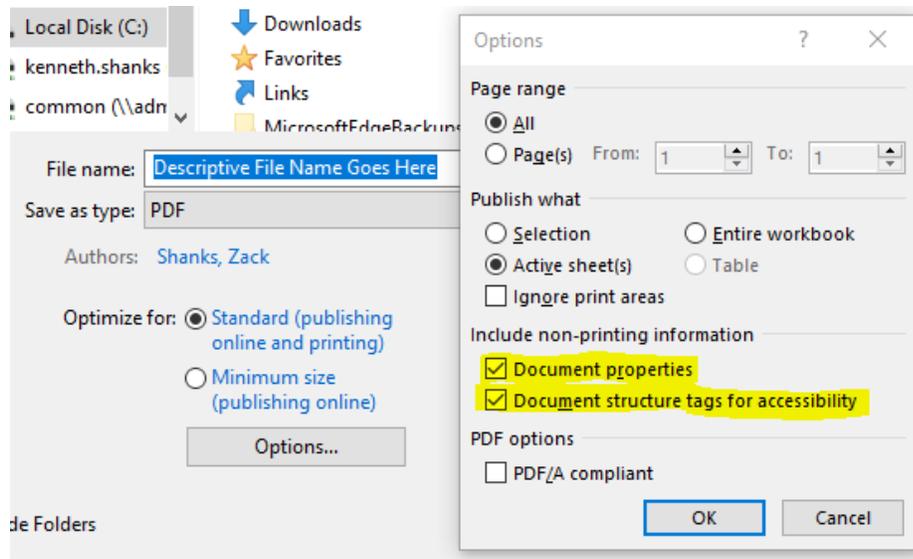
To insert a document title, you go to File on the toolbar. Once this opens, it should default to opening the Info tab. If not, click on the Info tab. You will insert a title on the right side of this screen, in the title box. Do not forget, this needs to be a descriptive title that lets the user know what the file is about based on the title you provide.



***Note:** A descriptive file name will work to complete this criterion but the Ally checker in D2L only checks for document title. To avoid seeing that issue in Ally, use document title over descriptive file name, or use both!

PDF Options

Once you are finished with your Excel document, I recommend saving it both as an Excel document and as a PDF. Either file type can be posted to D2L but PDF is much more universal. To save, go to File -> Save As. Choose your location. First, I save it as an Excel file, as it is easier to come back and make corrections. When you are ready to save it as a PDF, click the drop down next to "Save as type" and choose PDF. After selecting PDF, click into the options menu and verify that "Document properties" and "Document structure tags for accessibility" are checked. Hit save once finished. Saving this way will also save all compliance.



***Do NOT save it through the “Print” option as this does not save compliance.**

Additional Assistance

If you need additional assistance, have ADA related questions, or would like to verify that you created an accessible Excel document, send an email to zack.shanks@msutexas.edu.

Created By:

Office of Accessibility and Instructional Design

Distance Education

Midwestern State University