



# *Guide to Creating Accessible Documents*

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## Guide to Creating Accessible Documents

### About This Guide

Remember that accessibility is a continuum. Try to make the document work for the largest range of users. Write for your audience. This Guide is a supplement to the Document Accessibility Checklist.

This guide was created based on [WebAIM's Accessible Documents](#) course. The Microsoft and Adobe applications described often change. The steps described may vary depending on what version of the application you are using.

### Links to Topics

[Using Google Applications](#)

[Document Content](#)

[Word Document Structure](#)

[Optimizing PowerPoint Presentations](#)

[Evaluating Accessibility](#)

[PDF Accessibility](#)

[Excel](#)

### Using Google Applications

This guide relates to Microsoft applications. Google has fewer accessibility features and does not support tagged PDFs. Google does not have a built-in accessibility checker. Grackle Docs is an add-on that checks accessibility in Google Docs. Google provides this resource on accessibility-- [Make your documents, presentations, and sheets more accessible](#)

### Document Content

#### Alternate Text (Alt Text) for Images

- All meaningful images, graphs & charts, and other non-text content must have alternate text or Alt Text for screen readers.



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- Alt Text must be equivalent (to the image) and effective.
  - Be concise.
  - Alt Text should not be redundant with nearby document text.
  - Avoid phrases such as “graphic of . . .” or “image of . . .”
- Check any auto-generated alt-text.
- Mark images that aren’t necessary for understanding as **decorative**.
  - If you can remove an image and not need to add any text, mark the image as decorative.
- Screen readers only recognize images with a **Wrap Text style of “in line with text.”** To change this, right click image → Wrap Text → In line with text.
- Video: [Improve Accessibility with Alt Text](#)

## Hyperlinks

- Use text that describes the link.
  - The description should be a brief description of the link.
  - The description should make sense when it stands alone (e.g., not “click here”).
- If you want the full URL for printed text, create a hyperlink with text description and use unlinked text to provide the full URL.
- **Reserve underline for linked text.**
- Video: [Create Accessible Links in Word](#)

## Color Contrast & Color Reliance

### Color Contrast

- Color Contrast **requires a manual check**.
- Use a 3<sup>rd</sup> party application to check color contrast (e.g., [Color Contrast Analyzer](#) – download and install on your computer – or [WebAIM Color Contrast Checker](#)).
- For most text, Web Content Accessibility Guidelines (WCAG) require at least a **4.5:1** contrast between the text and its background.
- Large text, such as a Heading in Word, or a slide Title in PowerPoint, must have at least **3:1** contrast. Large text is defined as 18 point or larger, or 14 point and larger if the text is bold.
- Graphical objects should have a **3:1** minimum ratio against adjacent colors.



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### *Color Reliance*

- Do not use color alone to differentiate important information.
- Example: Instead of “The activities listed in red are prohibited,” create a specific list of prohibited activities or add a symbol. E.g., “The activities listed in red and marked with an X are prohibited.”

## Optimizing Writing

### *Six principles*

- Write for your audience.
- Focus on the most important information.
- Use technical or complex terms only when necessary.
- Use active verbs and personal pronouns.
- Explain unknown acronyms and abbreviations.
- Use proper spelling and pronunciations.

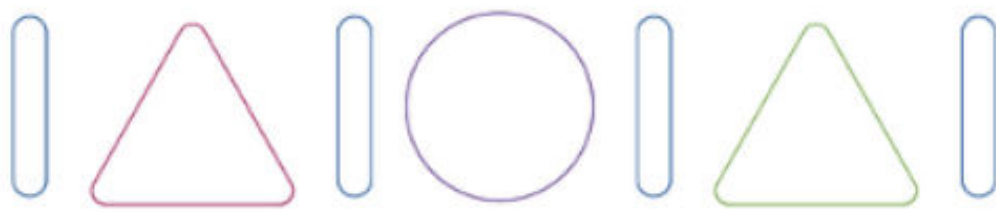
### *Readability*

- Use the Readability Statistics tool. In Word: Tools → Spelling and Grammar → Editor. Readability Statistics are under Insights → Document stats.
- Check the Averages for:
  - Sentences per paragraph – review longer paragraphs if average is more than 5 sentences per paragraph.
  - Words per sentence – review longer sentences if the average is more than 20 words per sentence.
- Check Readability Scores
  - Flesch Reading Ease. Unless your content needs to be complex, review your content if the score is under 50. (This document is 65.5)
  - Flesch-Kincaid Grade Level - For most documents, review the content if the score is over 8. (This document is 6.9)
  - Using legal and medical/disability terms makes the content more complex, so it may be difficult to achieve the recommended scores.
  - Avoid Passive Sentences. Use sentences written in an active voice that directly link the subject with the action. Examples:
    - Passive: The document was created by Megan.



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- Active: Megan created the document.

### Legibility

- Font type and size. Use a sans serif font, such as: Arial, Calibri, or Helvetica. In a Word document, use 12-point text, or larger when possible. For PowerPoint presentations, text should generally be as large as the slide will allow with adequate word and line spacing. Avoid large blocks of italic texts. Reserve underlines for links in electronic texts.
- Text formatting. Left-aligned text is usually the most legible.
- Line length. For most documents, between 60 and 100 characters per line is optimal.
- White space. A document without enough white space may be difficult for some users to read. Line spacing of 1.5 and 2 spaces between paragraphs is recommended. When creating space, avoid using a series of returns because each blank line will be read by a screen reader.
- Additional Resource: WebAIM, [Writing Clearly and Simply](#)

## Word Document Structure

### Headings in Word

- Headings give a structural guide to scan through the document.
- Headings should clearly and succinctly describe a section of the document.
- Use **Heading 1** for the document **title**. Only use Heading 1 once. The “Title” style does not work for navigation.
- Do not skip heading levels. For example, a *Heading 4* should not follow a *Heading 2* -- there should always be a *Heading 3* between a *Heading 2* and a *Heading 4*.
- In Word, **create Headings using Styles or the Styles Pane**.
  - Use the Navigation Panel to review the heading structure. (On Word for Mac, click View → Sidebar → Navigation).
  - You can change the formatting of headings in the Styles Panel with Modify Style or Update to Match Selection. Make changes to heading format in Styles to preserve the existing document structure.
- Video: [Improve Accessibility with Heading Styles](#)



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## Table of Contents

- For longer documents, include a Table of Contents.
- To add a **Table of Contents**, click the References tab, select the Table of Contents tool, select one of the Automatic Table formats.

## Optimizing PowerPoint Presentations.

### Basic Accessibility Principles

- Make sure text is not too small—especially if the presentation will be viewed on a projector.
- Be careful if using background images or patterns displayed under text. Too much visual information can make text difficult to read.
- Transitions and animations should be simple.
- Use clear and simple language.
- Do not use color as the only way to convey information.
- More Information: [BGSU Creating accessible presentations in Microsoft PowerPoint](#)

### Template

- Start with an accessible template. Check accessibility before you begin adding content. Microsoft has [accessible templates](#) online.
- If choosing a slide theme, make sure it has good contrast and a simple background.
- With the **Slide Master** tool, you can make changes to all slides within a presentation (e.g., changing the text size of all slide Titles). You can also make changes to a specific slide layout or create new custom layouts.

### Reading Order

- **“Reading Order”** is the order that an assistive technology user experiences the content.



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- Use the **Selection Pane** (found on the dropdown menu under Arrange on the Home tab) to check the reading order of a slide. The Selection Pane will appear in the right-hand sidebar. The panel shows a list of all the objects on a slide. **Reading order of the items is from the bottom to the top of the list.** (Title will be at the bottom of the list.)
- The default reading order is: (1) Title Placeholder. (2) Other Placeholders (as they are ordered in a slide's Layout). (3) Any objects added to a slide.
- You can hide an element that you don't want to be visible on a slide but needs to be read by the screen reader.
  - To the right of each item is an icon that looks like an eye. Clicking the eye will hide the element on the slide. The element will still be read by the screen reader.
  - For example, every slide should have a title for the screen reader. You can hide a title if you don't want it to be visible on your slide.
- Microsoft Video: [Create slides with an accessible reading order](#)

## Lists & Columns

- Bullets vs. Numbering. *Use numbering* for groups of items that have a specific order or hierarchy, and bullets for groups of items that don't. If changing the order doesn't make a difference, use bullets.
- Do not create columns using the Tab key or the space bar. Use the Columns tool (in Word, on the Layout tab ribbon; in PowerPoint, click the column icon on the Home tab ribbon).

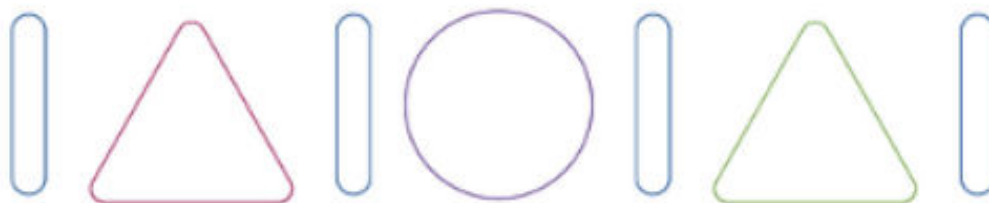
## Tables

- Screen reading software users can move horizontally and vertically through table cells. Properly formatted headers help users read the table.
- To display the tools for tables, click on the table itself. The Table Design and Table Layout tabs should appear.
  - Under Table Design, the first section contains several checkboxes. Two of these checkboxes relate to table headers: "Header Row" for column headers, and "First Column" for row headers. Both boxes are checked by default, as most tables have both types of headers.



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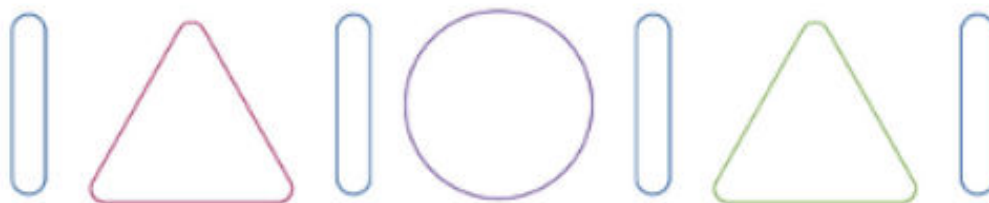
- There is no way to add more than one row or column of headers to a table in Word or PowerPoint. Keep the table structure simple.
- Video: [Insert and format a table in PowerPoint](#)

## Evaluating Accessibility

- Built-in Accessibility Checker. Both Word and PowerPoint contain an accessibility checker that will identify many—but not all—potential issues in a document. After the check is complete, the **Accessibility** panel will open with the **Inspection Results** displayed in the top section.
- Issues are classified as an Error, a Warning, or a Tip.
  - Error = “Content that makes a document difficult or impossible to read and understand for people with disabilities.”
  - Warning = “Content that in most (but not all) cases makes the document difficult for people with disabilities.”
  - Tip = “Content that people with disabilities can understand but that could be presented in a different way to improve the user's experience.”
- [WebAIM's Word and PowerPoint evaluation checklist](#) provides steps for manual evaluation. Use this as a guide but remember there is no “one way” to test accessibility.
- The most common issues in PowerPoint presentations are missing alternative text, missing or repeated slide titles, and incorrect reading order. The accessibility checker will flag these issues.
- Many common issues for Word documents — such as headings that were not created using Styles — need a manual review.
- Filename and Title.
  - Give your document a descriptive filename and title.
    - The Filename be a clear and succinct description of the document.
    - Consider how a screen reader will read your filename. Avoid special characters that a screen reader might miss or misread. Words separated by hyphens (“-”) and words separated by capital letters instead of spaces (“CamelCase”) will be read as individual words. All caps will be read as letters.
    - The document Title should mirror or be like Heading 1.



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- To add the Title on Word or PowerPoint, go to File → Properties → Summary tab, and enter the title in the Title field.
- Video: [Checking Document Accessibility in Word](#).
- Video: [Checking Accessibility in PowerPoint](#).

## PDF Accessibility

- WebAIM has guidelines on [how to create accessible PDFs](#).
- [Adobe PDF Pro guide for accessibility](#) gives step-by-step instructions.
- Scanned images of text are not accessible.
- Video Series: [Acrobat Accessibility Series](#)

## Creating a PDF from Word or PowerPoint

- Start with a well-structured and accessible source document.
- The main benefit of the PDF format is that it will look the same when it is displayed on different devices.
- When converting a document to a PDF, use Adobe Acrobat Pro DC. **Avoid Print to PDF and “Save As” PDF.** You might have Acrobat PDF Maker installed in Word – if so, you will have an Acrobat tab on the ribbon in Word. Otherwise, you can use Acrobat Pro DC. Go to File → Create → PDF From File. On a Mac, you need to use Adobe’s Cloud Service. You will need to be signed into an Adobe account and connected to the internet.

## Optimizing PDF Accessibility

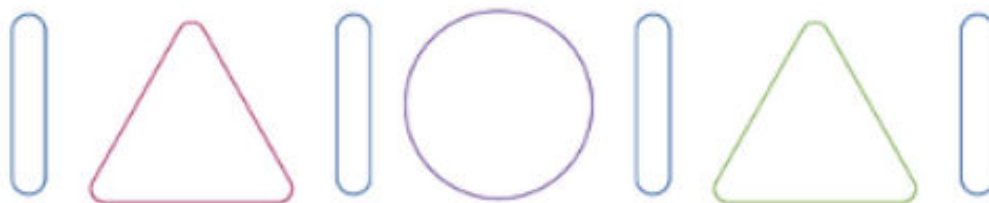
Because people have many different types of disabilities, it is not realistic to expect that a document can be optimized for everyone. Try to optimize a PDF to meet the needs of the widest range of users and avoid common accessibility pitfalls.

### *Edit Source Document When Possible*

- It is often easier to make changes to the source document than to remediate the PDF. PDF remediation requires more advanced knowledge.
- If you do not have access to the source document, find what application was used to create the PDF. Look at File → Document Properties → Description tab



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→ Application. You can export the PDF to the source application to make changes.

### *PDF Structure*

- A PDF has tags that define the document structure to support assistive technology. Screen reading software will only read document elements that are tagged.

### *PDF Remediation*

- **Adobe Acrobat Pro DC is required for PDF Remediation.**
- Three Steps to Follow
  1. Run Accessibility Check and review the report. The Accessibility tool is in the Tools panel.
  2. Repair the document's structure with the Reading Order tool.
  3. Review and repair content order and tags order.
- Common Issues
  - Title. Acrobat may not recognize the title from the source document. You can right click on Title in the error list and select "Fix." Acrobat should then locate the Title text and apply it to the document. You can check this under Properties.
  - Two items that always need a manual check are:
    - i. Logical Reading Order
    - ii. Color contrast
  - Tab Order. You can right click on Tab Order in the error list and select Fix. A box stating "Tab order set to match structure order in all pages successfully" will open. Click OK.
  - Alternative Text. Any figure that does not have alternative text and has not been marked as an artifact (or decorative in Word source document) will be flagged.
- Tagged Content. A notice that says "Tagged Content – Failed" means that an error occurred when the PDF was created. This is rare but can happen.
  - **This is not currently repairable on Mac.**
- Reading Order Tool
  - On the Tools Panel, select Accessibility, then select Reading Order.
  - When possible, fix issues in the source document.



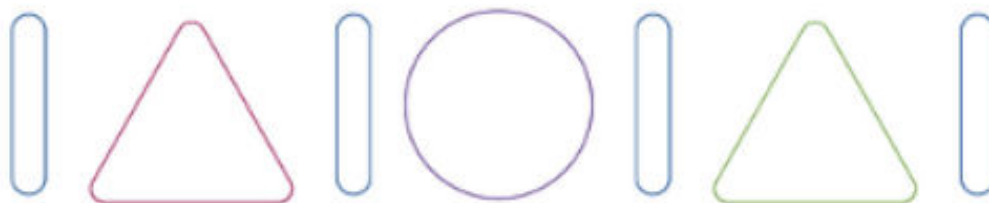
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- On the Reading Order tool, “Show page content groups” and “Page content order” should be selected. (This is the default setting.)
- **First review the structure order, then the content order.**
- Switch to “Structure types” to see what structure type each element is.
  - i. If something needs to be changed, try to change it in the source document (then convert the document to a PDF again).
  - ii. To change a tag, click on the element’s white label, click the appropriate button on the reading order tool.
  - iii. If you have empty tags, they will be read as “blank.” For example, if you use a series of blank lines to create space, the screen reader will read “blank” for each line. Try not to have a lot of empty tags.
  - iv. To remove an element from the tag structure, click on the element’s white label, then click “Background/Artifact.” The element will still be visible in the document view, but it will not be presented to the screen reader.
  - v. By default, footers are not tagged, so the screen reader won’t repeat them on every page. Web AIM recommends making footer text accessible by tagging it on the last page it appears. Select the text by using the mouse to create a box that is bigger than the text. The selected text should then be highlighted. Click the “Text/Paragraph” button in the Reading Order dialog box.
- Switch to “Page content order” on the Reading Order tool.
  - i. Reflow allows visual users to view a PDF with its elements constrained to the visible width of a document. To see the reflow view, go to the View menu → Zoom → Reflow. The keyboard shortcut to enable reflow view is Command + 4 on Mac.
  - ii. When a Word document is converted to a PDF, image elements that are correct in the document’s tags order are incorrect in the page content order. This means that when the PDF is displayed in the Reflow view, an image will be in the correct order for a screen reader, but out of order to a sighted user.
  - iii. To repair the Reading Order, select “Show Order Panel” in the bottom-right corner. To change the position of an element in the order tree, click and drag it with the mouse, or use the cut and paste keyboard shortcuts. (Cut is Command + X on Mac; Paste is Command + V on Mac.)







- iv. Verify the tag order. Changes to the content order should automatically be updated in tag order, but it does not always happen. Open the Tags panel (there is an icon of a tag) and select the Navigation panel. As you go through the tag tree, the related section of the document will be highlighted. Check the tag order to make sure it matches the visual order.
  - v. Also check the nesting of tags (i.e. so that they are in the correct section).
- A good final check is to test the document using the Read Out Loud feature in Adobe Acrobat PC or a screen reader like NVDA or JAWS.
  - Additional Resource: [University of Washington Checking PDFs for Accessibility](#)

## Excel

### A good overview

[Microsoft Make Your Excel Documents Accessible](#)

## Filename & Document Properties

- Use a concise and clear filename.
- Set the title and language under File Properties.

## Text

- Use a **sans-serif font** that is easy to read such as Arial, Calibri, or Helvetica.
- Use at least a 12-point font size.
- Check color contrast. Use at least 4.5:1 for standard text and 3:1 for large text.
- Make sure color is not the only way that information is conveyed.

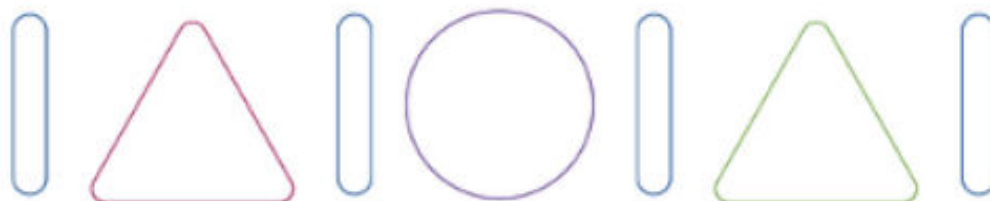
## Sheets

- Have a unique, descriptive name for each sheet. Right click on the tab at the bottom of the sheet, select Rename. The name should be clear, succinct, and unique in the workbook.
- Remove any sheets without data.
- Put descriptive information in the top left cell (usually A1)



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- NOTE: Excel Heading Styles do not work for navigation like headings in Word. They only change the format.

## Tables

- To create a Table: Select the cells on the sheet.
  - Either click Insert → Table **or** Click Format as Table from the Ribbon, then Click the box that says, “My table has headers.”
  - If you don’t check the “My table has headers” box, the line immediately above your table will be assigned as the header.
  - Use descriptive header text for each column of data.
  - If your first column is also considered a header, check the checkbox to the left of First Column in the Table Tools Design Tab. Give descriptive names for each header cell.
- Create a title or caption for the table. For the caption only, use a merged cell that spans the table with the text centered. Some screen readers can identify that cells have been merged and will read the title and the columns that the caption covers, e.g., “Table Title A3 through C3” for a three-column table.
- Do not merge cells within the table. Maintain consistent rows and columns in the table.
- Video: [Create more accessible tables in Excel](#).

## Images

- Images include pictures, shapes, and Smart Art.
- Provide Alt Text if the image has content. Use just a few words. Do not duplicate nearby text. Avoid using the words “image” or “graphic.”
- Some versions of Excel have an option for a Title in the Alt Text box; do not use it. Put the Alt Text in the Description field.
- If an image is used for a link, describe the purpose of the link and the content of the image.

## Links

For Hyperlinks, use descriptive text for the text that is displayed. Right click, select Edit Hyperlink, then edit the text to display.



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## Charts

- Provide the chart data in text format.
  - Alt Text usually cannot provide enough information about a chart. Provide a text summary and a proper data table on the same sheet and near the chart. If not in the same sheet, use a link to the data and a link to get back to the chart.
- Optimize the chart's default elements.
  - Use a minimum of 12-point font.
  - Default colors may not have enough color contrast.
- Follow accessibility principles for non-text chart elements.
  - Replicate any number formatting used in the data text.
  - Use Alt Text – give a high-level description that includes chart type.
  - Have a minimum color contrast ratio of 3:1.
  - Pie chart sections need a color contrast ratio of 3:1 with borders.
- Microsoft video: [Create more accessible charts in Excel](#)

## Pasting Excel Charts in Other Applications

- If pasting an Excel chart into Word, past with Source Formatting & Embed Workbook. Remember to set Wrap Text to “In Line With Text.”
- If pasting an Excel chart into PowerPoint, paste with Source Formatting then expand the size to fit the slide.

## Reading Order

Floating elements such as charts, graphs, or images are read by assistive technology in the order the element was added to the sheet. To change the reading order:

1. Navigate to **Home**.
2. Select **Find and Select**.
3. Choose Selection Pane.
  1. The reading order is from the bottom of the list to the top.
  2. Click and drag items in the **Selection Pane** to the correct order.
    1. Moving items in the Selection Pane does not change the visual layout of items on the sheet.





## Optimizing Workbooks

These techniques are not required by accessibility guidelines, but they can make your spreadsheets more accessible. Use your best judgment based on what you know about the function of the workbook and the audience.

- Increase visual space around the text.
  - Increase Column Width: Highlight the columns, right click on a column, and select “Column Width” from the drop-down menu. Increase the numerical value, e.g., from 10 to 20. Click OK.
  - Increase Row Height: Select the whole sheet with the shortcut Control + A. Right click on a row label, select “Row Height” from the drop-down menu. Increase the row height, e.g., from 15 to 25. Click OK.

### *Columns and Rows*

- Click “Freeze top row” on the View tab on the ribbon.
- Click “Freeze first column” on the View tab.
- To freeze more than one column or row, use “Freeze panes.”

### *Hide unused columns and rows*

- Click on the first column to hide. Use Shift + Control + right arrow to select additional columns. Right click on any highlighted column label and select “Hide” from the drop-down menu.
- Click on the first row to hide. Use Shift + Control + down arrow to select additional rows. Right click on any highlighted row label and select “Hide” from the drop-down menu.
- To unhide all rows and columns, right click the top-left corner to select the entire sheet, select “Unhide.”

### *Delete empty rows between elements on the same sheet.*

Select and delete all but one of the rows between elements.



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## Workbook title

If the workbook will be exported to PDF, a workbook Title is required. Add a workbook title: Click on File → select Properties → Click on the “Summary” tab – fill in the Title field. Click OK.

### *More Information*

WebAIM [Optimizing Spreadsheet Accessibility](#)

## Evaluate Excel Accessibility

- Use Excel’s accessibility checker.
- Use WebAIM’s [Excel Evaluating Accessibility Checklist](#)



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