How to create accessible documents with Word and PDF

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Welcome

- This session has captions and is recorded
- Please use the Q&A to ask questions and chat for general correspondance
- Slides, a recording, and a transcript will be made available via email in the coming days
- I welcome any feedback, follow-up questions, or suggested topics for future training

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About AbilityNet

W3C® Web Accessibility Initiative WAI

Strategies, standards, resources to make the Web accessible to people with disabilities

ABILITYNET TECH4GOOD AWARDS

The Future of Accessibility and Inclusive Design

TECHSHAREPRO

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Agenda

- Applying accessibility principles to documents
- Creating accessible templates in Word
- Creating accessible content with Word
- PDF accessibility
- Accessible forms options

Example documents

- Inaccessible Word document
- More accessible Word document
- PDF version

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Poll 1

How much experience do you have with document accessibility?

- None or little experience
- Moderately experienced
- Very experienced

Applying accessibility principles to documents

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Accessibility principles: POUR

Perceivable: Content is presented in ways that can be perceived by all

Operable: User interface components and navigation must be operable

Understandable: Information and the operation of user interface must be understandable

Robust: Content is reliable and compatible with assistive technology and standards

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Remember, some documents:

- Convey information visually – so they need to be perceivable if accessed through assistive technology
- Are interactive – so they need to be operable
- Request user inputs – so they need to minimise user errors
- Will have different levels of support for assistive technology

Choosing the correct document format will influence the effort involved to make it accessible

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International accessibility standards

Web Content Accessibility Guidelines (WCAG) 2.1 Level AA

ETSI EN 301 549

- Aligned to WCAG 2.1 AA
- Section 10 covers non-web documents

Note – not all WCAG requirements transfer to documents

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Characteristics of accessible documents

- Searchable text
- Navigational aids (bookmarks, headings, table of contents)
- Metadata e.g. title and document language
- Programmatic document structure e.g. tags
- Logical reading order
- Interactive form fields that can be tabbed to with keyboard
- Alternative text for non-text elements
- Appropriately formatted tables

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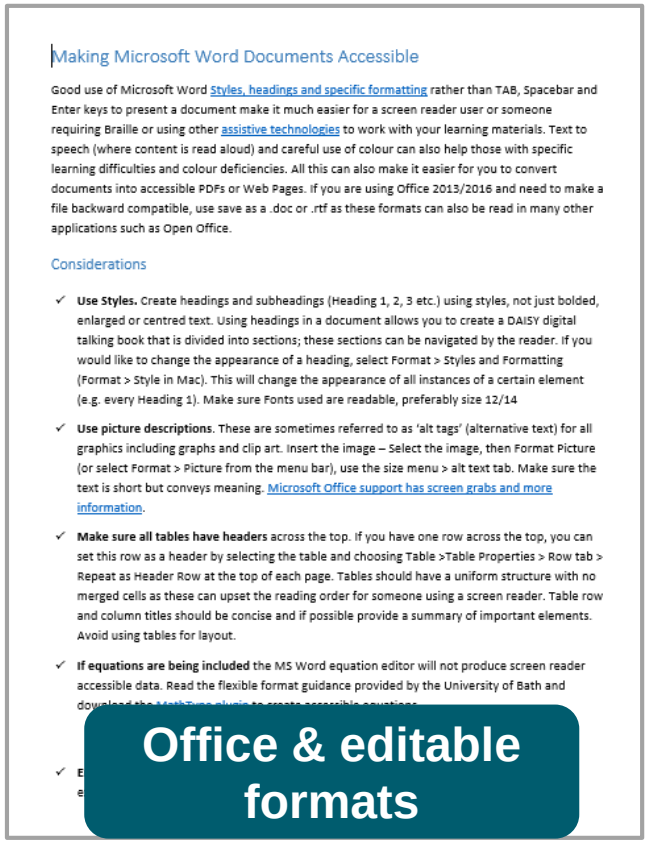
What types of document format are available?



Making Microsoft Word Documents Accessible

Good use of Microsoft Word Styles, headings and specific formatting rather than TAB, Spacebar and Enter keys to present a document make it much easier for a screen reader user or someone requiring Braille or using other assistive technologies to work with your learning materials. Text to speech (where content is read aloud) and careful use of colour can also help those with specific learning difficulties and colour deficiencies. All this can also make it easier for you to convert documents into accessible PDFs or Web Pages. If you are using Office 2013/2016 and need to make a file backward compatible, use save as a .doc or .rtf as these formats can also be read in many other applications such as Open Office.

Considerations

- ✓ **Use Styles.** Create headings and subheadings (Heading 1, 2, 3 etc.) using styles, not just bolded, enlarged or centred text. Using headings in a document allows you to create a DAISY digital talking book that is divided into sections; these sections can be navigated by the reader. If you would like to change the appearance of a heading, select Format > Styles and Formatting (Format > Style in Mac). This will change the appearance of all instances of a certain element (e.g. every Heading 1). Make sure Fonts used are readable, preferably size 12/14
- ✓ **Use picture descriptions.** These are sometimes referred to as 'alt tags' (alternative text) for all graphics including graphs and clip art. Insert the image – Select the image, then Format Picture (or select Format > Picture from the menu bar), use the size menu > alt text tab. Make sure the text is short but conveys meaning. Microsoft Office support has screen grabs and more information.
- ✓ **Make sure all tables have headers** across the top. If you have one row across the top, you can set this row as a header by selecting the table and choosing Table >Table Properties > Row tab > Repeat as Header Row at the top of each page. Tables should have a uniform structure with no merged cells as these can upset the reading order for someone using a screen reader. Table row and column titles should be concise and if possible provide a summary of important elements. Avoid using tables for layout.
- ✓ **If equations are being included** the MS Word equation editor will not produce screen reader accessible data. Read the flexible format guidance provided by the University of Bath and download the MathType plugin to create accessible equations.

Office & editable formats

Towards an Open Authoring Tool for Accessible Slide Presentations

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Abstract. Creating and sourcing accessible Open Educational Resources is a challenge. Although slides are one of the primary forms of educational resources, there has been little focus on what is required to make slides containing different media accessible and how to encourage authors to improve accessibility. This paper examines the components within slide presentations that impact accessibility and will evaluates six different approaches for encouraging authors to add accessibility issues. Authors indicated a preference for being encouraged and guided to resolve issues rather than allowing for automatic corrections.

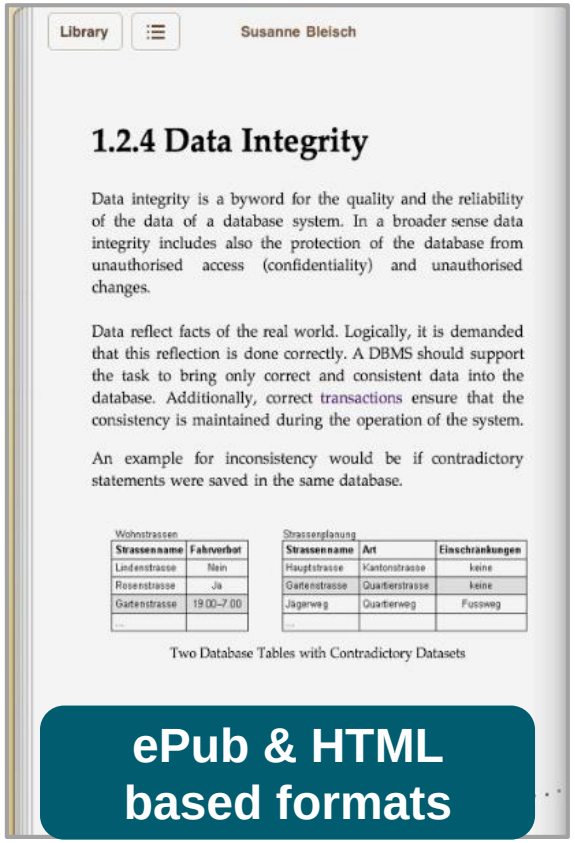
Keywords: Open Educational Resources · OpenCourseWare · Slide Presentations · Accessibility · Inclusive Design · Slide Authoring · SlideWiki.

1 Introduction

Open Educational Resources (OERs) are openly licensed and freely available learning materials that can be used in e-learning contexts and beyond. One of the key advantages of OERs is that the license allows for the content to be reused, remixed, and repurposed [8]. Often, OERs are published on the Web in the form of OpenCourseWare (OCW), with resources organized into courses and complemented by tools for collaboration and evaluation. Learners may include those with disabilities who encounter barriers to their accessibility needs and preferences. These needs and preferences should be addressed by OCW systems that aim to be inclusive and accessible to all.

To ensure OERs are accessible, it is important to provide teachers and learn-

PDF - print focused formats



Library Susanne Bleisch

1.2.4 Data Integrity

Data integrity is a byword for the quality and the reliability of the data of a database system. In a broader sense data integrity includes also the protection of the database from unauthorised access (confidentiality) and unauthorised changes.

Data reflect facts of the real world. Logically, it is demanded that this reflection is done correctly. A DBMS should support the task to bring only correct and consistent data into the database. Additionally, correct transactions ensure that the consistency is maintained during the operation of the system.

An example for inconsistency would be if contradictory statements were saved in the same database.

Wohnstrassen

Strassenname	Fahrverbot
Lindenstrasse	Nein
Rosenstrasse	Ja
Gartenstrasse	19.00–7.00
...	

Strassenplanung

Strassenname	Art	Einschränkungen
Hauptstrasse	Kantonstrasse	keine
Gartenstrasse	Quartierstrasse	keine
Jägerweg	Quartierweg	Fussweg
...		

Two Database Tables with Contradictory Datasets

ePub & HTML based formats

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Accessibility pros and cons for document formats

Format	Pros	Cons
Word Office format - *docx	• Easiest to make accessible • Compatible with wide range of assistive tech & devices • Can be personalised by the user	• Interactive features & complex tables are not accessible • Accessibility compromised by security settings
PDF	• All users get the same view & difficult to edit • Interactive activities & complex tables can be made accessible	• Creating / fixing accessible PDFs requires specialist skills and tools • Cannot be personalised by the user
HTML based format e.g. web page, ePub	• All users get the same view but can be personalised. • Compatible with wide range of assistive tech & devices • Interactive activities & complex tables can be made accessible	• Accessibility may need specialist skills or tools that are not accessible out of the box. • No default viewer at the moment for ePub

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Poll 2

What document formats does your organisation post online or share?

- Editable documents (e.g. Word)
- Presentations (e.g. PowerPoint)
- Spreadsheets (e.g. Excel)
- Locked documents (e.g. PDFs)
- Other – please state in chat pane

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Questions?

Creating accessible templates to avoid potential issues

Word template: Styles and structure

Set up styles for:

- **Headings 1 – 6:** use outline level to set heading level
- **Normal text**: think about paragraph and line spacing, font style and colour
- **Bulleted and numbered lists**: ensure there are styles for common types of text

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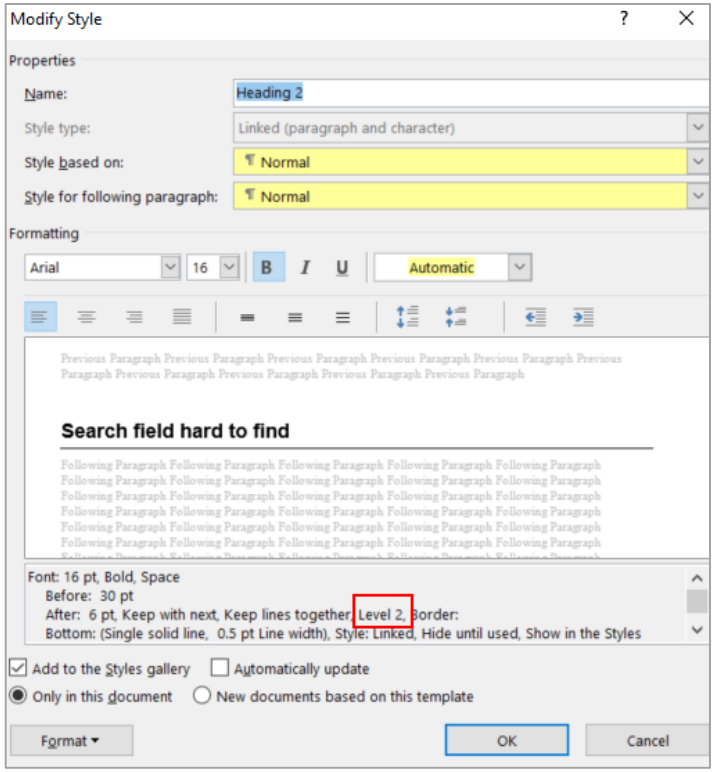
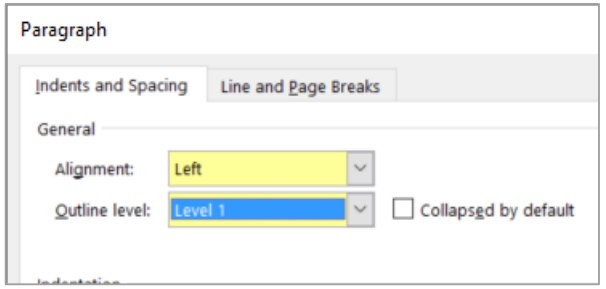
Example: Setting heading level in Word

- On the Home tab, in the Styles group, select a heading style, for example, Heading 1 or Heading 2.

- Do not use headings only for styling.





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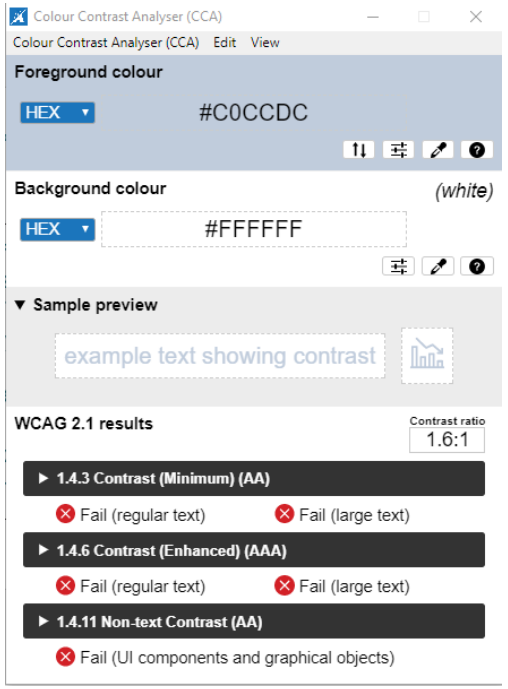
Font size, style and colour

- Text size of 12 point or higher will benefit most users, but Word documents allow easy text-resizing
- Avoid overly-decorative fonts and continuous capitalisation as they can be difficult to read
- Provide at least a 4.5:1 colour contrast between text and background (3:1 for large text) – TPGi colour contrast analyser



Decorative content

Headers and footers

- Use built in tools to add headers, page numbers etc. so they are ignored by assistive technology

Background images

- Ensure background graphics are marked as decorative

Accessible template requirements

- Style and structure
- Accessible text defaults
- Logical reading order
- Sufficient colour contrast
- Decorative content is marked as such

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Questions?

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Adding content to documents

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Poll 3

Does your organisation check accessibility when documents are created?

- Yes
- No
- Sometimes
- Don’t know
- We have a policy but it’s not policed

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Types of content we need to make accessible

- Text
- Lists and headings
- Images
- Form fields
- Tables
- Media
- Links
- Charts

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What do we mean by accessible text?

- It is not an image.
- You can select and copy it.
- When you select all text / convert to a text document, it has the correct reading order.

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Example: What can we do wrong with lists?

- **Use Styles.** Create headings and subheadings (Heading 1, 2, 3 etc.) using styles, not just bolded, enlarged or centred text. This will change the appearance of all instances of a certain element (e.g. every Heading 1). Make sure Fonts used are readable, preferably size 12/14
- **Use picture descriptions**. These are sometimes referred to as 'alt tags' (alternative text) for all graphics including graphs and clip art. Insert the image – Select the image, then Format Picture (or select Format > Picture from the menu bar), use the size menu > alt text tab. Make sure the text is short but conveys meaning. Microsoft Office support has screen grabs and more information.
- **Make sure all tables have headers** across the top. Table row and column titles should be concise and if possible, provide a summary of important elements. Avoid using tables for layout.

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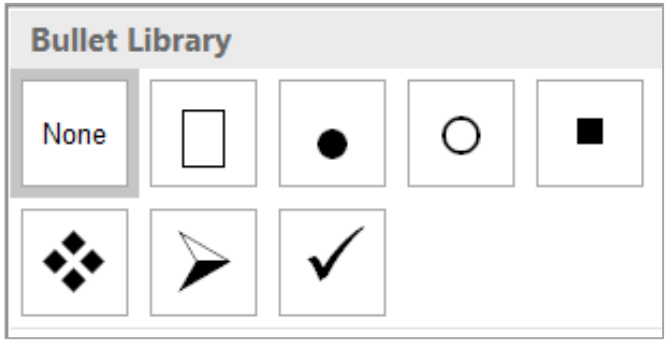
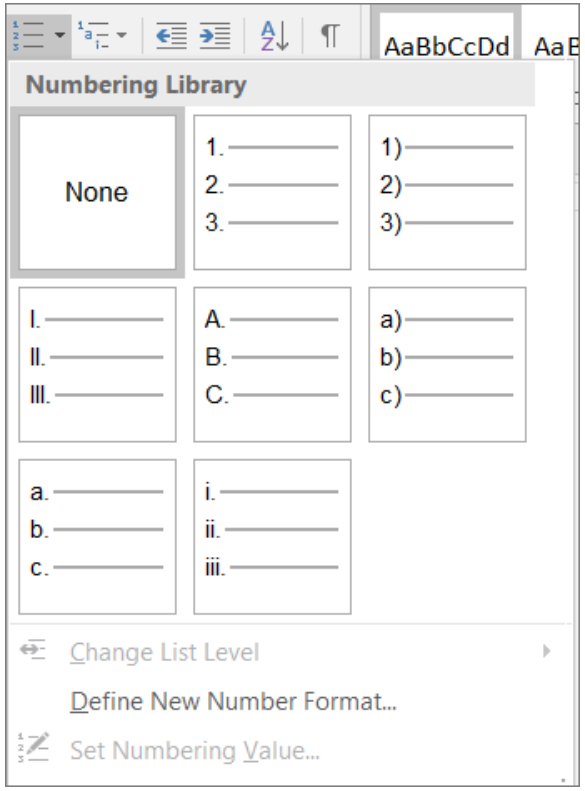
Formatting – Bullets and lists

- Use bullets and ordered lists as opposed to images, clip-art, etc to create lists.
- List paragraph styles can be used to adapt spacing and fonts





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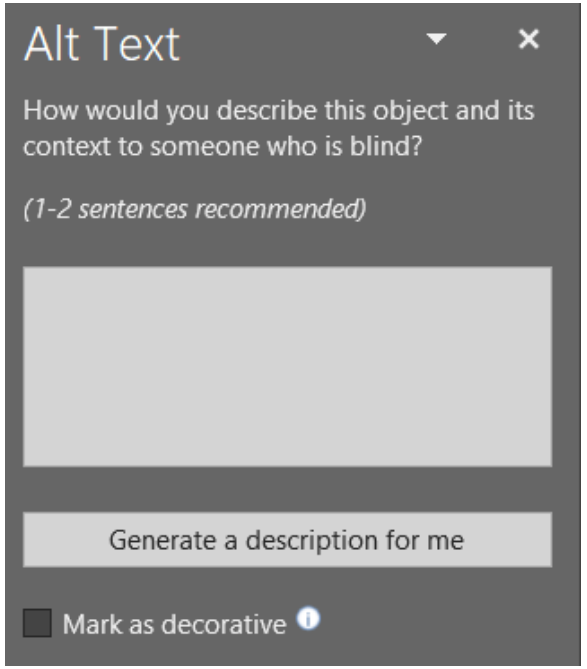
Adding ALT text to graphics in Word

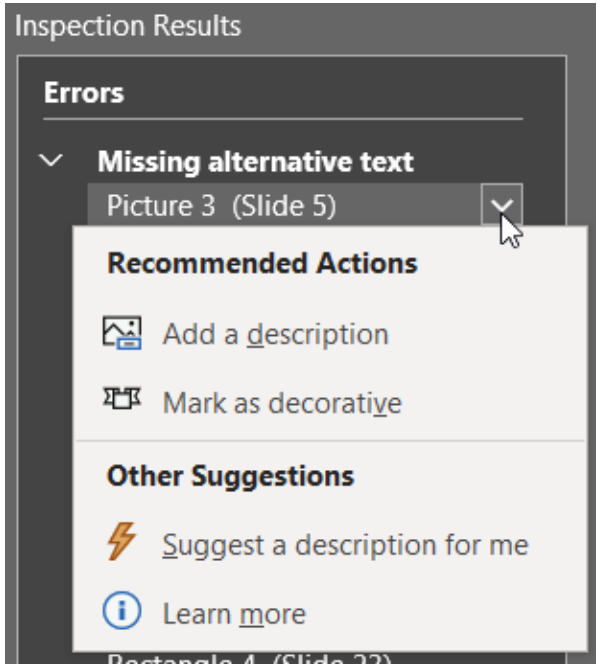
From the images

- Right click an image
- Edit Alt Text
- Type a description or mark as decorative

From accessibility checker

- Select dropdown on graphic and choose appropriate option





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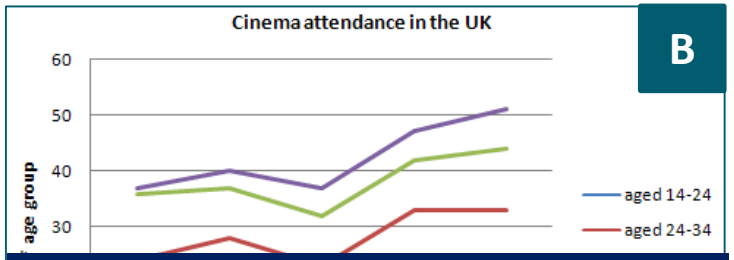
Example: Images and alternative descriptions

A

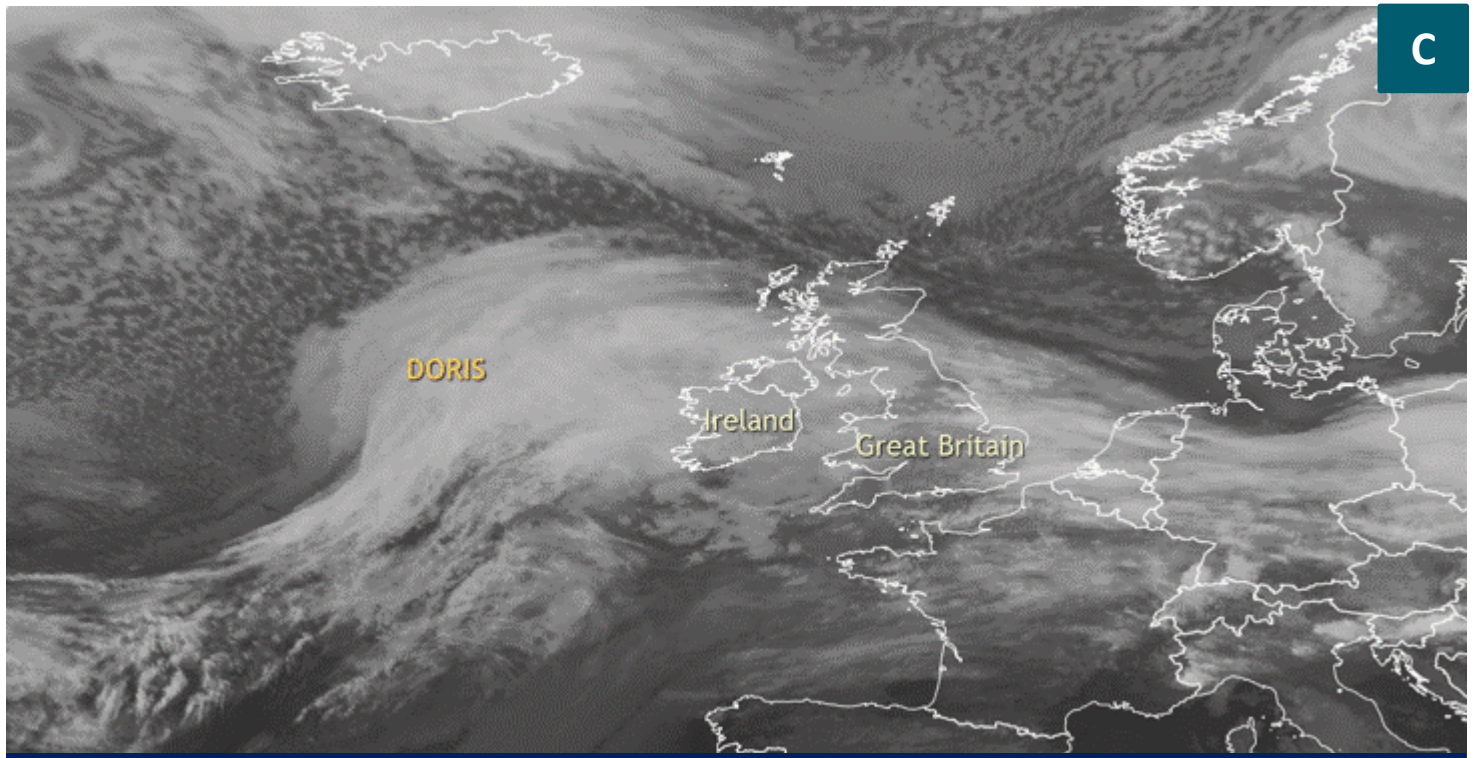
An empty beach

B



Colour line graph for cinema attendance in UK between 1990 and 2010 by age group.

C



Animation of satellite images of storm Doris crossing UK and Ireland.

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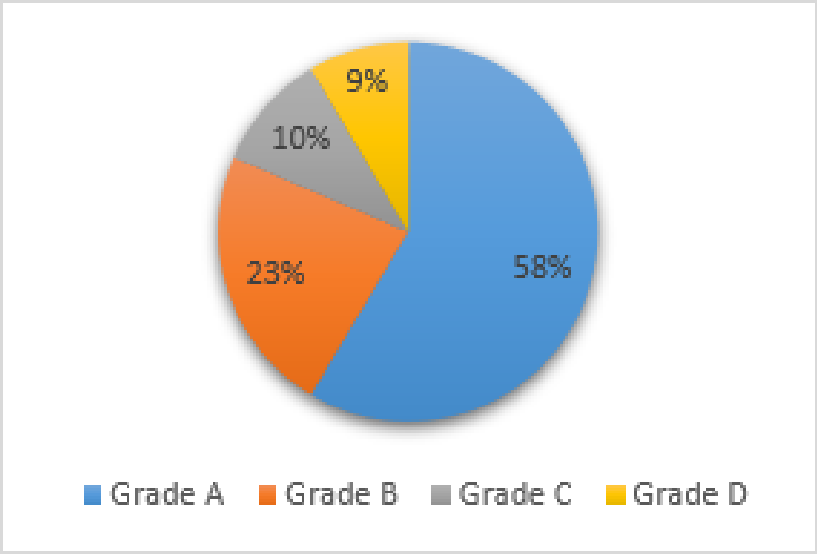
Charts and SmartArt

- For charts and SmartArt, alt text can be added for the entire image
- Save imported charts as images and add alt text before conversion to PDF
- Provide longer descriptions if necessary for complex charts and diagrams



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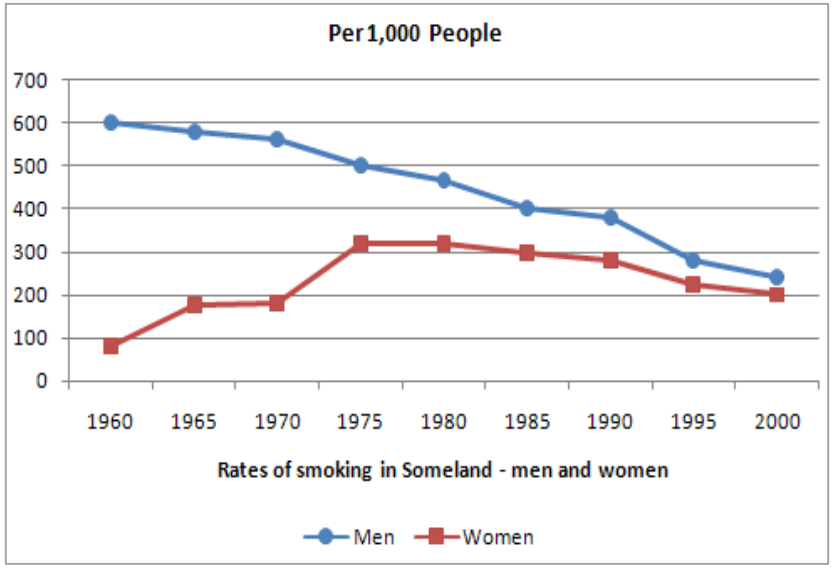
Use of colour

Ensure that colour is not the only way that information is communicated.

- links should have some decoration (e.g. underlined) and charts shouldn't rely on colour vision.



The role of this link is communicated by colour

The role of this link is communicated by colour and decoration

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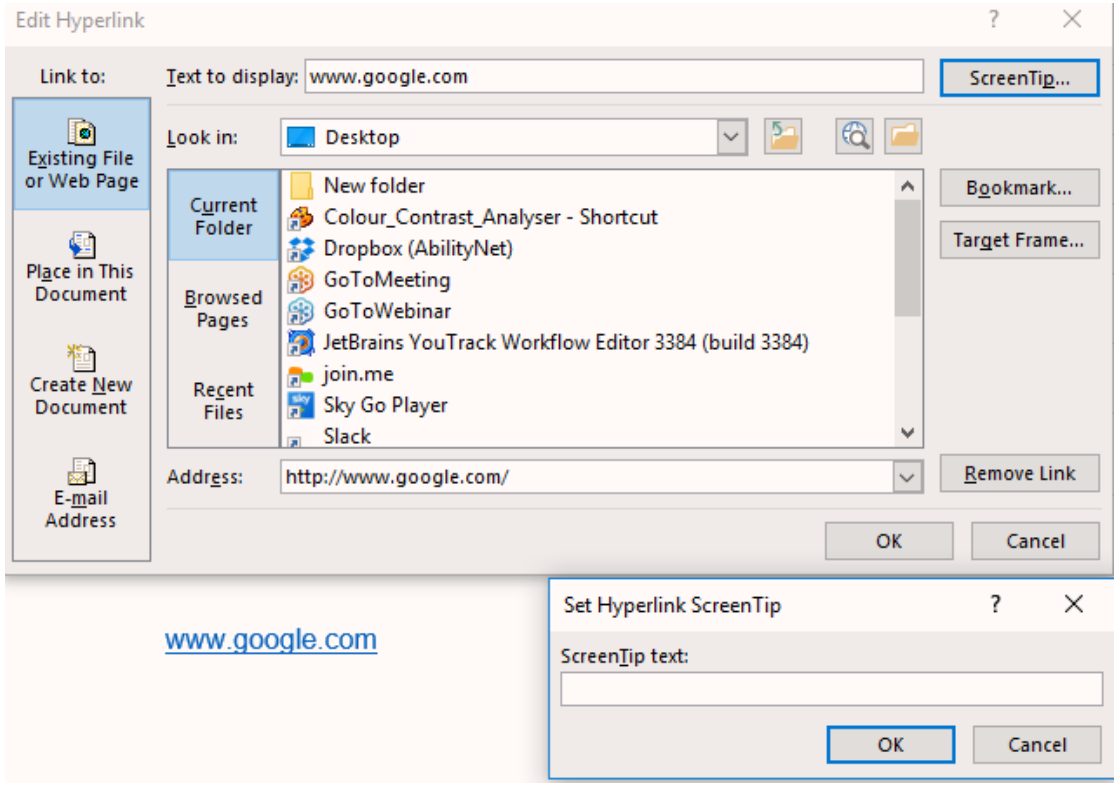
Links

Ensure that the purpose of links is obvious and self-evident from tabbing onto them.

- Where possible, enter a meaningful name into the text to display field.
- Use the screentip pop-up to provide a tooltip for users.



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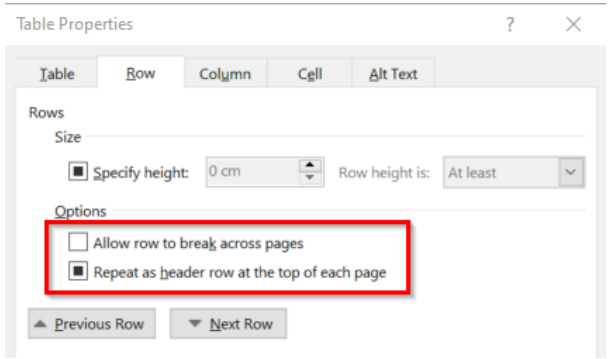
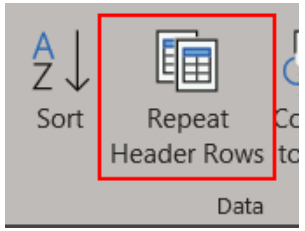
Formatting – Tables

Use table headers:

- Table Design > Table Style Options
- Select Header Row and First Column (if first column is acting as a header)
- In Word Select Table properties: “Repeat as header row at the top of each page”
- Deselect “Allow row to break across pages”





Do not use tables for formatting!

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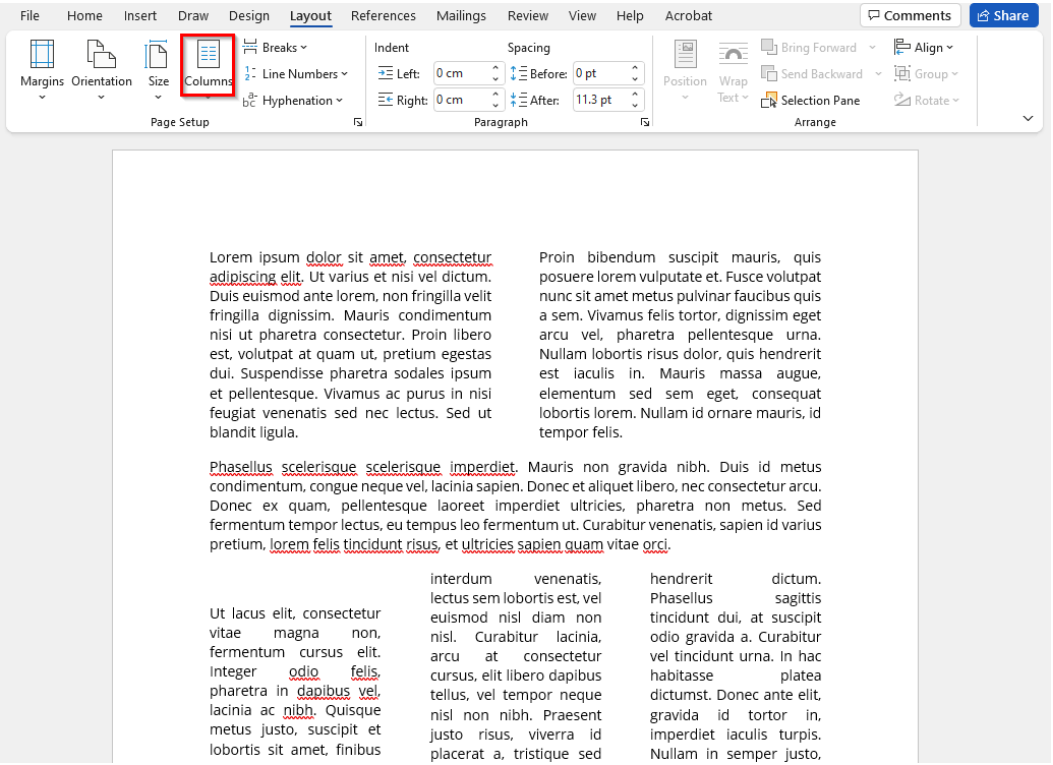
Formatting - Columns

- Use columns rather than just using SPACE or TAB to align text
- Laying out text using the built-in column functionality is an accessible layout method and the correct column reading order will be inherited by tagged PDFs created from the Word document



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Formatting - Text boxes

- Avoid adding text boxes via the inbuilt Word functionality – these are not easily accessible to screen reader users and are not placed in the correct reading order for assistive technology
- Instead create text boxes by adding a border and positioned text to paragraphs

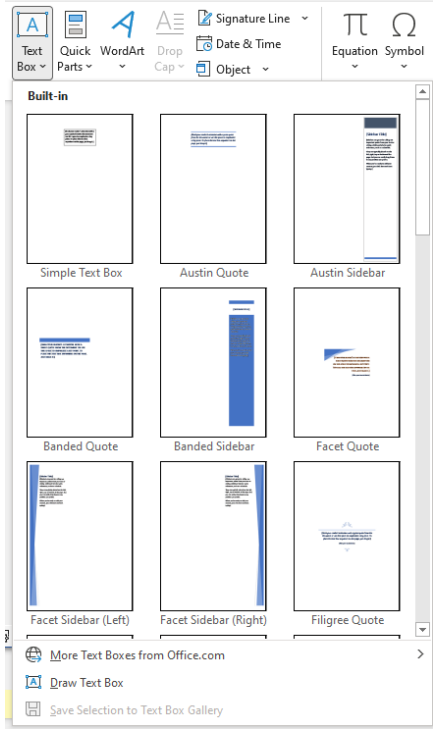

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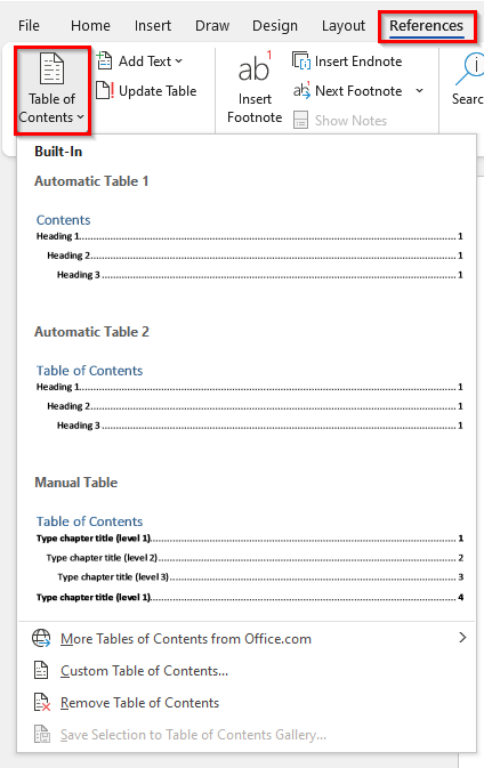
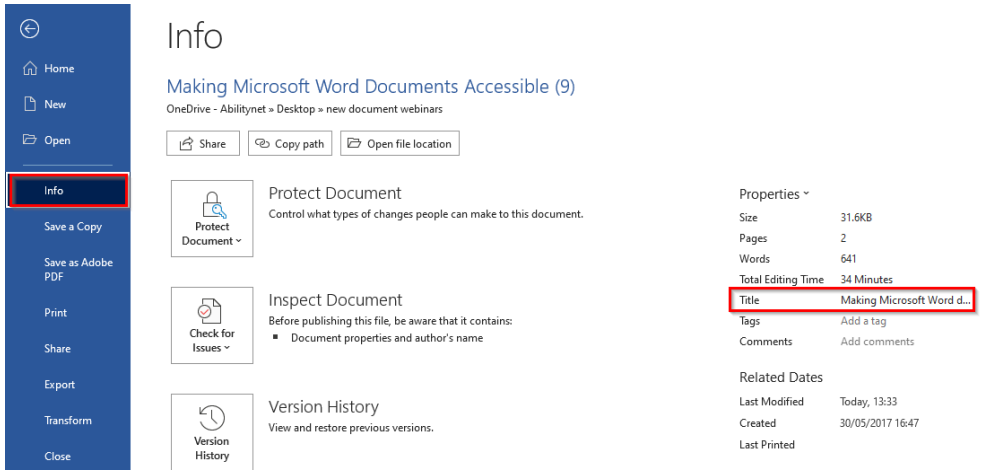
Table of contents

- A table of contents can be added for longer documents via **References >Table of Contents** using the heading structure you have defined
- Including a table of contents helps users to navigate themselves with an outline of the content



File name and title

- Provide a descriptive file name for your file.
- Providing a descriptive title will ensure this is inherited by a PDF created from your Word file



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Microsoft Word accessibility

Golden Rules:

- use the formatting tools to provide meaningful structure with built-in headings and styles
- ensure that meaningful non-text content (e.g. images) has alternative text
- use colour and meaningful hyperlink text to ensure perceivability

Microsoft: Make your Word documents accessible

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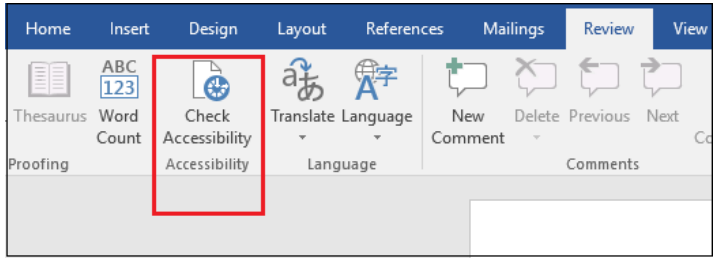
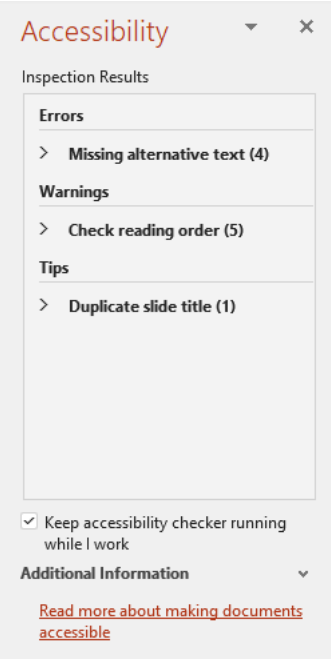
Microsoft Office Accessibility Checker

The Accessibility Checker finds accessibility issues, explains why you should fix these issues and how to fix them: **Review > Check Accessibility**





Google docs – see Grackle suite

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Questions?

Optional break

PDF Accessibility

PDF accessibility – why is this so challenging?

Why are PDFs so challenging to make accessible?

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The challenge of making PDFs accessible

- Often scanned documents
- Require additional accessibility tags to add structure
- Don’t have great usability on mobile
- Often heavily designed and complex layouts
- Some types of content (such as mathematical and scientific notation) have limited accessibly support
- Additional software and skills required to make PDFs accessible

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Additional requirements for accessible PDFs

- Text is not an image
- Permissions are set correctly
- File has appropriate metadata e.g. title and language
- Content is tagged
  - Applies alternative text, semantics and reading order

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PDF accessibility checkers

- Adobe Acrobat Pro – check and fix
- PAC 2021 – checker, freeware for Windows
- CommonLook PDF Validator (require Acrobat Standard or Pro)
- PAVE – online tools, some fixing possible

Manual checks will still be required

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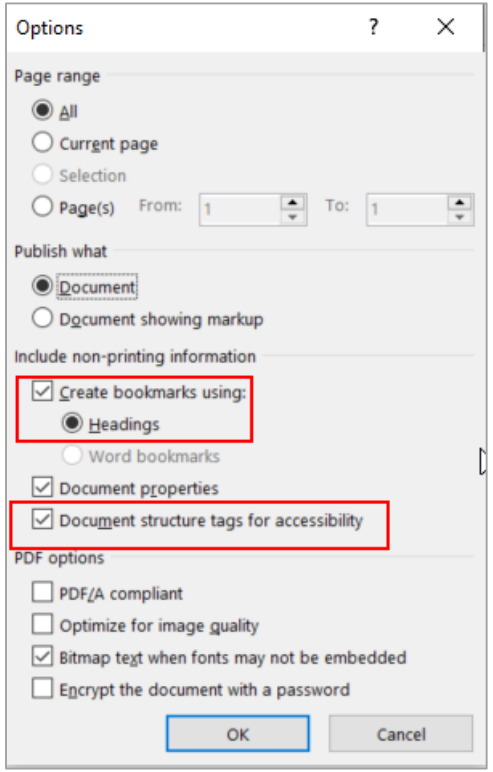
Exporting Word to accessible PDF

- Add Title and other metadata
- Convert embedded Office objects to images and add alt text
- Select the following options in Save As > PDF > Options:
  - Create bookmarks using headings
  - Document structure tags for accessibility



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Lightweight PDF check

1. Run the PDF file through a checker. Look for:
   - Image only file – this will need OCRing
   - No tags – this will need lots of remediation if complex structure
   - Permissions affecting accessibility
2. Tab through the file to check if links and fields are interactive
3. Use View > Zoom > Reflow and Save > Other > Text (accessibility) and check
   - Check for reflow issues and reading order issues

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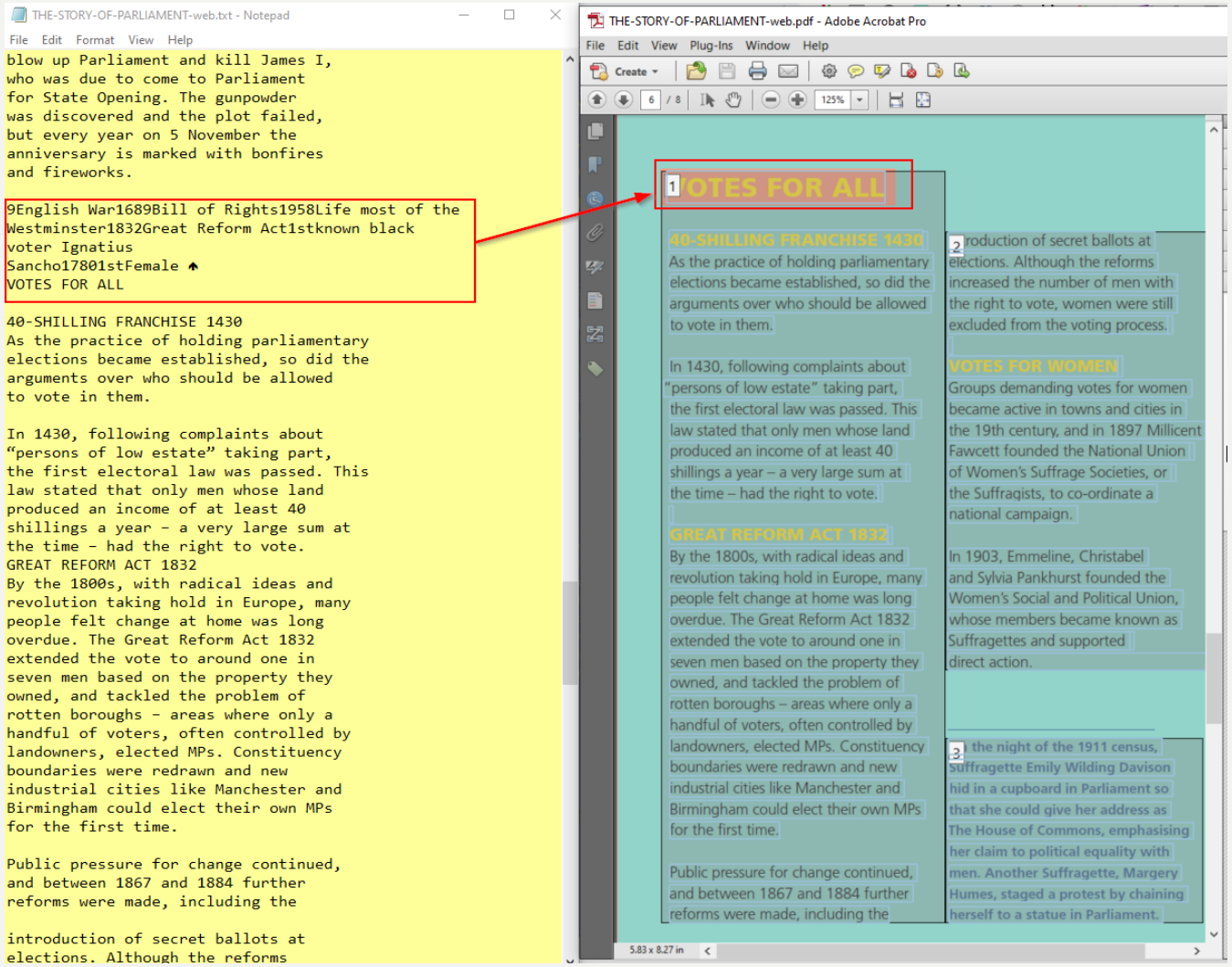
Reading order issues in PDF

- Any content that is not laid out linearly could be read in the wrong order.
- Without tags, content likely to read in the order it was added to files and text will be concatenated where there were line breaks.



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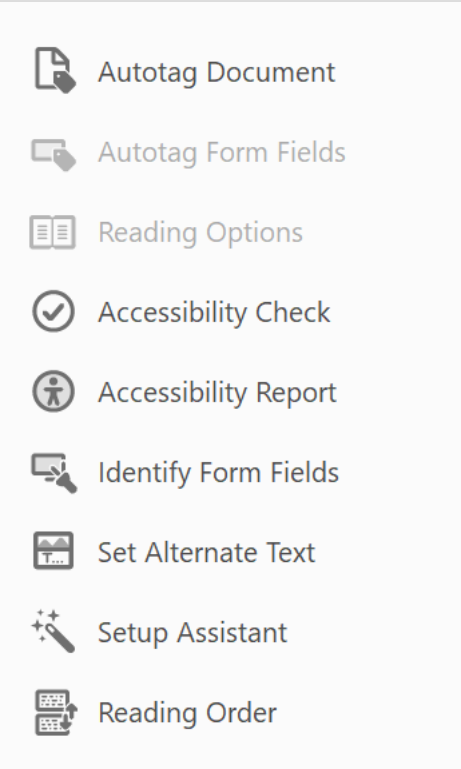
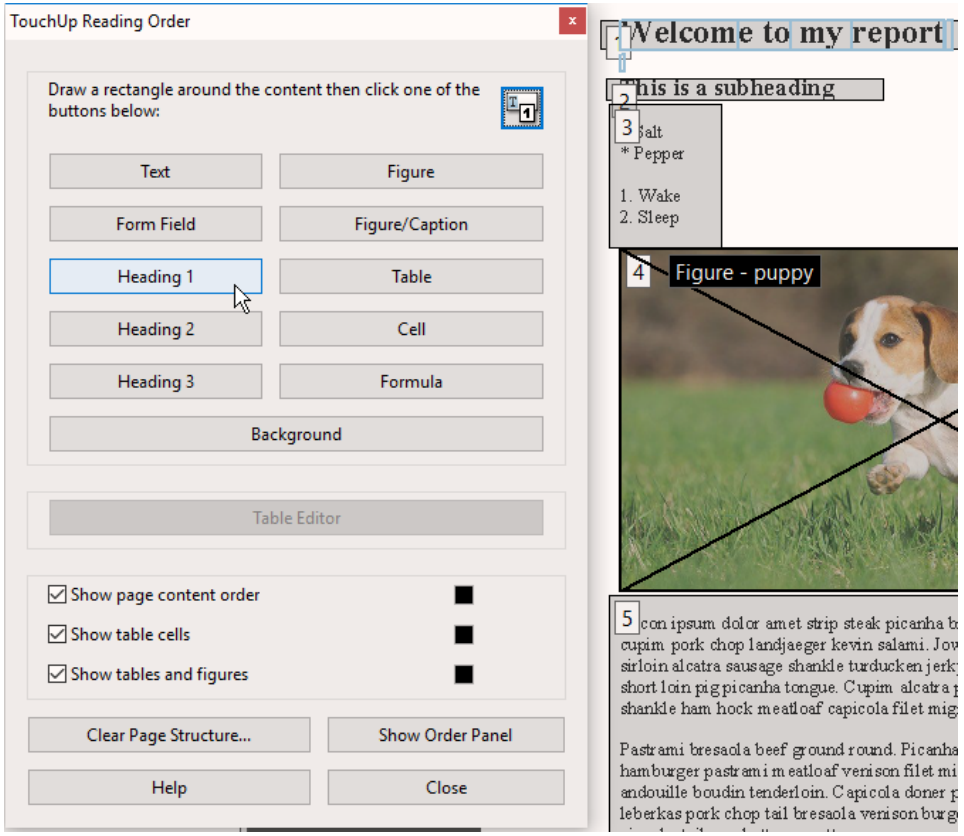
Using Acrobat Pro to check & fix issues

1. Run Full Check and view report
2. Fix metadata and permissions issues
3. Add tags or correct tagging where necessary





Accessible Forms

Accessible Forms – Word vs PDF

Word Forms

- More accessible if plain text e.g. leave empty space to fill out the form.
- Built-in form controls have limited accessibility
- **Protecting content so only form fields can be edited makes the file inaccessible**

PDF forms

- Can be made accessible if form fields are tagged along with the rest of the file
- Complex forms will be costly to make accessible
- Many users will struggle to complete the form digitally

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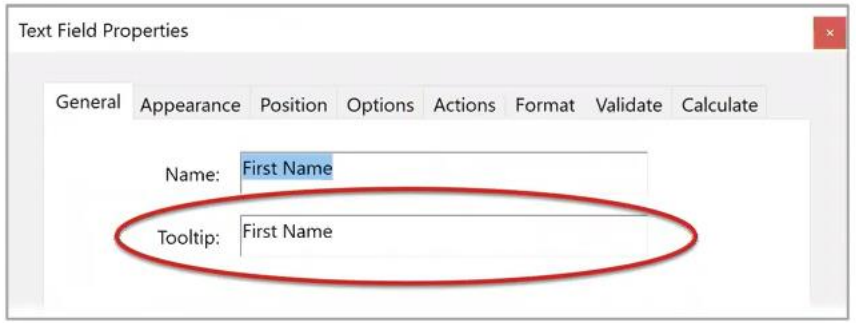
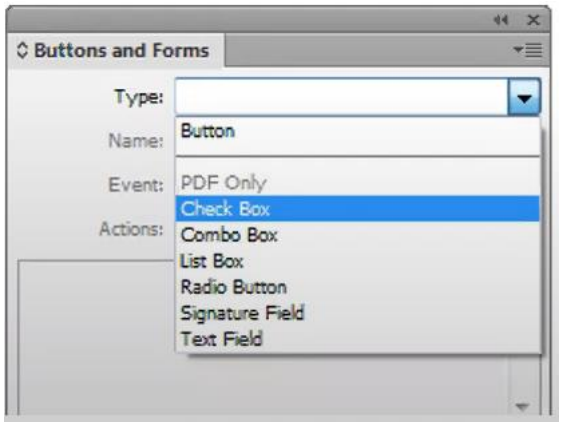
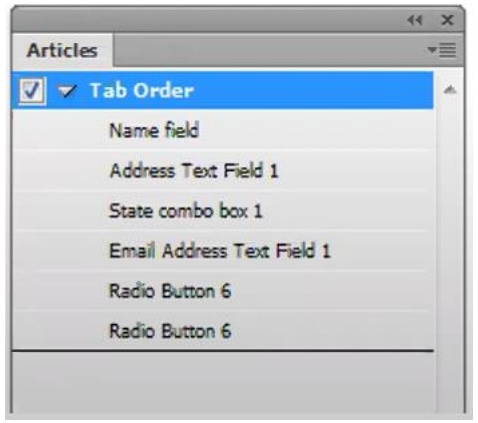
Accessible PDF forms requirements

In Adobe Acrobat every field needs to be added, given a tooltip & tagged



Tab order must also be checked





Forms can also be created in Adobe InDesign

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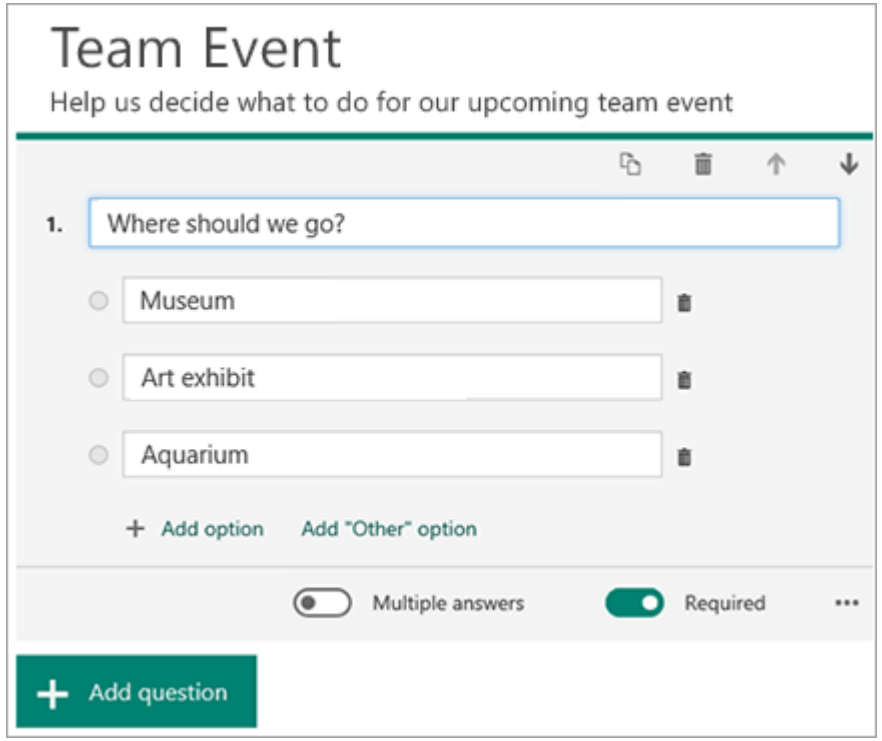
Easy accessible online form solutions

- Microsoft Forms
- Google Forms
- Online survey tools e.g. Survey Monkey



Remember data protection

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Summary

- **Accessibility requirements apply to all digital documents**
- Always consider if information needs to be in another format, or could be presented as HTML.
- Accessibility is best implemented at the source when creating PDF documents and a good initial publication process is essential
- Ensure you have a clear accessibility documents policy, good templates and procedures for checking content.

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Questions?

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Resources

- Microsoft: Create accessible Office documents
- Adobe: PDF accessibility overview
- Daisy Consortium: WordToEPUB - Conversion tool for ePUB from Word
- Web Accessibility Initiative: alt decision tree
- Benetech: Poet alternative text training tool
- WebAIM: Accessibility techniques for older versions of Word

Thank you

Katey Hügi

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