

Making Microsoft® Word 2003 Documents Accessible

This document describes the basic steps in creating an accessible Word document in preparation for it being converted to a PDF file.

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Making Microsoft® Word 2003 Documents Accessible

It is now a legal requirement under the DDA (Disability Discrimination Act) to produce documentation that is as accessible as possible. Failure to do this is a disciplinary offence under the University's Code of Practice: Web Based Materials. See <http://www.brad.ac.uk/webid>.

To be accessible, documentation should be available in both Microsoft Word and PDF formats. This document has been written to assist authors in creating a structured Microsoft Word document, which can then be converted into a PDF file. For information on how to do this see the "*Supporting Documentation*" at the end of this guide.

Creating an accessible document is not as awesome as it first appears. Many of the techniques help you to produce a structured, professional looking document and, with practice, will help you to work more efficiently.

Accessibility means making something usable by as many people as possible including those with a disability. You should be aware however, that you are not just creating an accessible document for someone who is blind or who has a visual disability. Other disabilities, such as hearing, cognitive and mobility impairments have an impact on what we produce.

TYPES OF DISABILITY

Vision	May use a screen reader, Microsoft Magnifier or a Braille device to read material.
Hearing	Will require any information conveyed by sound to have a text description as well.
Mobility	May not use a keyboard and/or mouse. Might use assistive technology such as a sip and puff input device. Position hyperlinks with the most important one first.
Cognitive or language (eg dyslexia, understanding, remembering, problem solving)	Benefit from clear, uncluttered pages with lots of white space around blocks of text. Avoid "busy" pages with numerous graphics or different fonts. Use a precise, uncomplicated sentence structure. Bullets or numbered lists are easier to comprehend than dense paragraphs.
Seizure	Avoid flashing or blinking elements, eg animated text, which can trigger seizures in those who have photosensitive epilepsy.

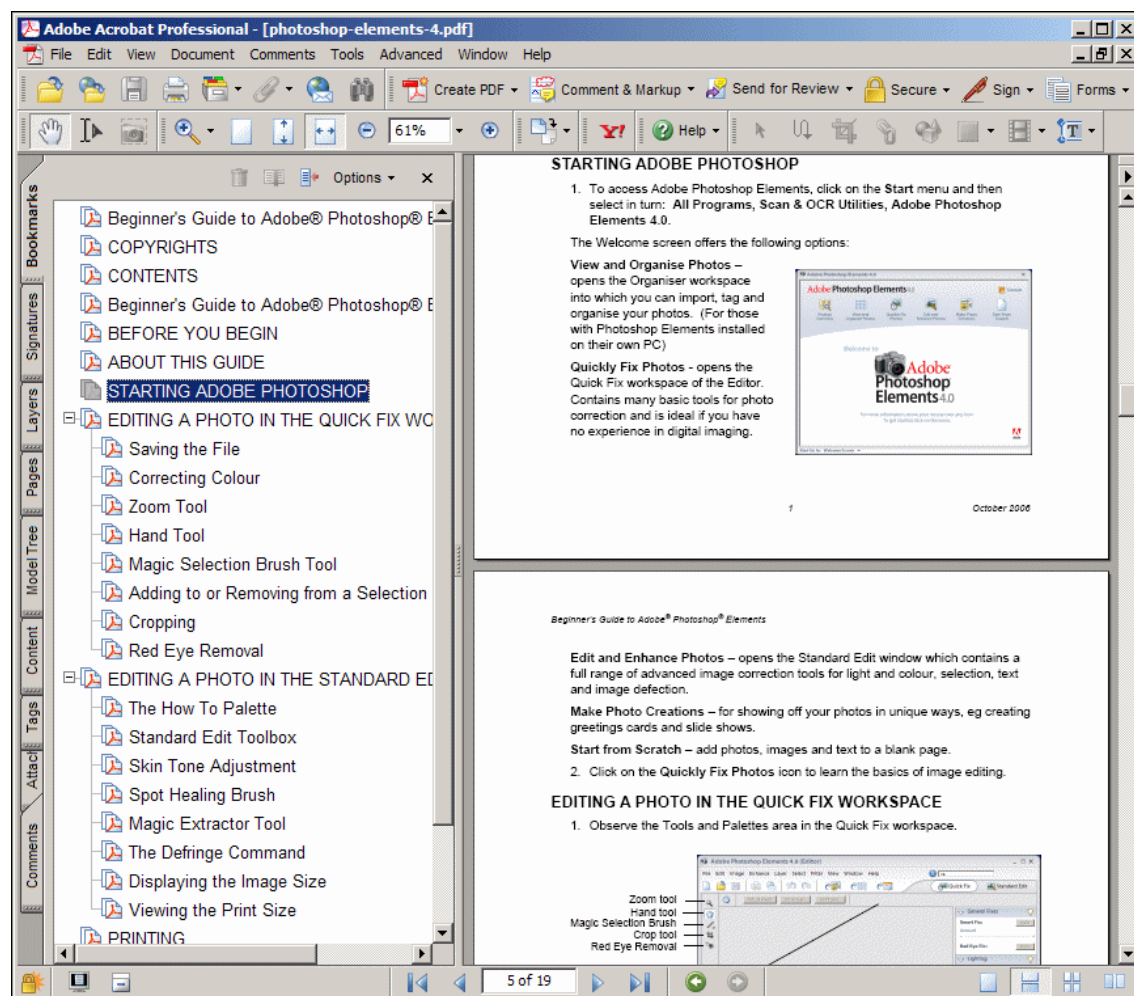
THE IMPORTANCE OF STRUCTURING DOCUMENTS

To create an accessible PDF file, your Word document must have a defined structure, ie the title, headings, sub-headings, and any numbered or ordinary bullet points should be created using “styles”. During conversion to PDF, Adobe Acrobat creates tags from the style elements. The tags then describe the layout of the document to assistive technology, such as a screen reader, enabling it to navigate and read the document correctly.

Structuring your document this way also means you can generate a Table of Contents automatically, quickly reorder your work using Outline view, or export the Outline to generate a PowerPoint presentation. For further information see the document: Long Document and Report Writing in Word 2003 -

<http://www.brad.ac.uk/lss/documentation/word2003-long-document/word2003-long-document.pdf>

The example below shows a PDF file open in Adobe Acrobat. Notice the bookmark tab on the left-hand side of the screen; all the headings which had styles applied to them in the source (Word) document now appear here as bookmarks.



Without bookmarks a reader cannot easily navigate through the document.

Example of a Badly Structured Document

At first glance, a Word document such as the example below may look reasonably well laid out. However, on closer inspection there are a many areas which cause problems for those with a disability. In particular:

- Styles have not been used for the headings so bookmarks will not be created.
- The paragraphs lack space between them and give a cluttered, busy effect.
- Graphics too close to text can fail to be recognised in the PDF conversion.
- Important points do not have any bullet markers.
- Instructions (which need to be followed in order) have not been numbered.

"Style" not used for heading; therefore will not create a bookmark when converted to a PDF.

There are no bullets highlighting important points.

"Style" not used for heading.

Instructions which need to be followed in order have not been numbered.

"Style" not used for heading.

The paragraphs lack spacing between them, which gives a cluttered, busy effect.

The graphics lack "white space" between the text and them – this can cause them not to get recognised in the conversion process.

UNIVERSITY OF BRADFORD Learning Support Services

USB Memory Sticks


USB memory sticks (also known as Flash Drives, or Mass Storage Devices) have capacities ranging from a few megabytes to over 2 GB, and are a convenient way of carrying files around. They are connected to a computer's USB port, and when correctly recognised by Microsoft® Windows®, appear in My Computer as a "Removable Drive" from where you can access them as any other disk drive. You are strongly advised however, to use them only as a method of transportation, and to keep a backup of important files elsewhere. You should also be aware of the following important points:

- While all the PC cluster computers are equipped with USB ports into which you can plug one of these devices; some memory sticks require additional software installing in order to be recognised by the Windows operating system. If you have one of these, your device will not work.
- Never work directly on a removal drive; always copy your file(s) onto the hard disk. Learning Support Services are unable to recover lost or corrupt files if your memory stick becomes damaged in any way.
- We cannot guarantee that these devices will continue to work on our equipment in the future.

Recognising the Drive

Insert the memory stick in the USB socket; these are generally situated on the front of the system unit at the base.

Once the memory stick is recognised, a Safely Remove Hardware icon will be visible in the Windows notification area at the foot of the screen.

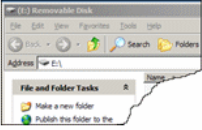


After a few moments, Windows Explorer will open the drive assigned to the memory stick. (The drive letter may not be the same on all PCs.)

Note: On some staff PCs you may not see any drive allocated to the device, in which case you should follow the instructions for "Changing the Drive".

You can now transfer your file(s) in the normal way. **DO NOT WORK DIRECTLY ON THE DRIVE ASSIGNED TO THE MEMORY STICK.**

When you wish to remove the memory stick, ensure you follow the specific instructions for "Unplugging a Memory Stick" overleaf. Failure to do this may result in loss of data, or damage to the device.



Changing the Drive (Not applicable to cluster PCs)

On staff PCs the system may assign your device to a drive already in use (eg F, G or H) and you will be unable to see it. In this case you need to manually change the drive before you can transfer any files.

Click on Start, and then in turn select Settings, Control Panel, Administrative Tools, Computer Management.

*Microsoft Windows screen shot(s) reprinted by permission from Microsoft Corporation. Microsoft is a registered trade mark and Windows is a trade mark of Microsoft Corporation. August 2006

Screen readers can announce the type of style used before speaking the text, (eg "Heading style 1") and therefore alert the listener to the importance of the following text. They can also convey how many bullets/numbered bullets are included in a list.

Example of a Well Structured Document

With a few simple changes to the badly structured document, the page is much easier to read, and looks more professional.

More importantly, it is also accessible, because:

The headings have had "styles" applied to them.

Important points are marked with **bullets**.

There is plenty "white" space between the paragraphs and around the graphics.

The instructions which need to be followed in sequence have been **numbered**.

UNIVERSITY OF BRADFORD Learning Support Services

USB Memory Sticks

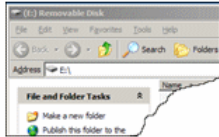

USB memory sticks (also known as Flash Drives, or Mass Storage Devices) have capacities ranging from a few megabytes to over 2 GB, and are a convenient way of carrying files around. They are connected to a computer's USB port, and when correctly recognised by Microsoft® Windows®, appear in My Computer as a "Removable Drive" from where you can access them as any other disk drive.

You are strongly advised however, to use them only as a method of transportation, and to keep a backup of important files elsewhere. You should also be aware of the following important points:

- While all the PC cluster computers are equipped with USB ports into which you can plug one of these devices; some memory sticks require additional software installing in order to be recognised by the Windows operating system. If you have one of these, your device will not work.
- Never work directly on a removal drive; always copy your file(s) onto the hard disk.
- Learning Support Services are unable to recover lost or corrupt files if your memory stick becomes damaged in any way.
- We cannot guarantee that these devices will continue to work on our equipment in the future.

RECOGNISING THE DRIVE

1. Insert the memory stick in the USB socket; these are generally situated on the front of the system unit at the base.
Once the memory stick is recognised, a Safely Remove Hardware icon will be visible in the Windows notification area at the foot of the screen.
After a few moments, Windows Explorer will open the drive assigned to the memory stick. (The drive letter may not be the same on all PCs.)
Note: On some staff PCs you may not see any drive allocated to the device, in which case you should follow the instructions for "Changing the Drive".



2. You can now transfer your file(s) in the normal way.
DO NOT WORK DIRECTLY ON THE DRIVE ASSIGNED TO THE MEMORY STICK.
3. When you wish to remove the memory stick, ensure you follow the specific instructions for "Unplugging a Memory Stick" overleaf. **Failure to do this may result in loss of data, or damage to the device.**

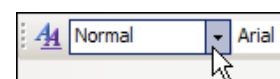
*Microsoft Windows screen shot(s) reprinted by permission from Microsoft Corporation. Microsoft is a registered trade mark and Windows is a trade mark of Microsoft Corporation. August 2006

REQUIREMENTS FOR GOOD STRUCTURE

Styles

Use Styles for titles, sub titles, headings and nested headings – these will get converted to bookmarks in the PDF file and enable easier navigation.

1. Select the heading, and then click the **Style** button on the Formatting toolbar.
2. Choose one of the heading styles from the drop-down list.
3. Use styles logically – ie Heading 1 style for the most important heading, Heading 2 for sub headings, Heading 3 for sub-sub headings, etc.




For more information on using styles and creating your own, see the document: Long Document and Report Writing in Word 2003 -

<http://www.brad.ac.uk/lss/documentation/word2003-long-document/word2003-long-document.pdf>.

Bullets

Use bullets to mark important points – some screen readers announce these before reading the topic.

To add bullets, select the paragraphs, and then click on the **Bullets** icon  on the formatting toolbar. (Alternatively, if the document includes a bullet "style", you can click on this.)

Note: While more elaborate bullet designs are available from the Format, Bullets and Numbering menu, many do not convert into accessible characters. It is therefore advisable to use the standard round bullet shape (or check that an alternative one will not create an error when the file is converted).

Numbered Bullets

These should be used for all instructions which need to be followed in order.


Select the paragraphs, and then click on the **Numbering** icon  on the formatting toolbar. (Alternatively, if the document includes a numbered bullet "style", you can click on this.)

Table of Contents

Always create a Table of Contents when producing a large document. This can be formed quickly from all the heading styles in your document, and is very easy to update if necessary.

1. Position the cursor at the place where the Table of Contents is to be positioned.
2. Click in **Insert, Reference, Index and Tables**.
3. Choose the **Table of Contents** tab.
4. Drop down the **Formats** list and choose a suitable design, then click on **OK**.

For further information see the document:

Creating a Table of Contents in Microsoft® Word 2003 -

<http://www.brad.ac.uk/lss/documentation/toc-2003/table-of-contents-2003.pdf>.

Text

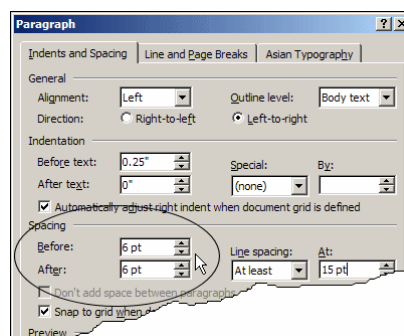
Text as a rule should be no smaller than 12 point. The font should also comply with the University's corporate style while maintaining accessibility requirements.

Note: Corporate ID currently stipulates Arial 12 pt.

Be aware that dense paragraphs of text are difficult for anyone to read, but particularly so for people with cognitive disabilities. Ensure you use plenty of white space between paragraphs, to spread out the information. Avoid pressing the Enter key between paragraphs to add space. Instead use the "Spacing Before" and "Spacing After" paragraph feature.

1. Click on the **Format** menu and select **Paragraph**.
2. On the **Indents and Spacing** tab, increase the values in the **Before:** and **After:** boxes as appropriate.

(If you do need to use the Enter key to create a blank paragraph, ensure the style is Normal.)

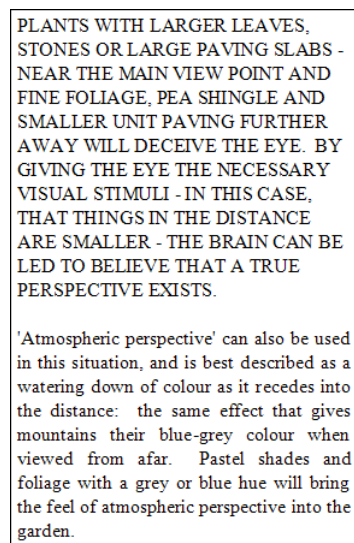


Avoid using large portions of underlined text or capitals, as these can decrease the readability.

Italics should be used sparingly.

Note: Some Screen readers announce character attributes, eg, whether it is in italic, underlined, etc.

Justified layout should also be avoided as the varying gaps between words can cause problems for people with dyslexia, or those using a screen magnifier (which then increases the gaps further). Justified text can also create "rivers" of white space making it difficult to comprehend.



Tables

While tables can be a useful way to layout text and graphics, anything other than a simple table can create particular challenges for screen readers and assistive technology. Always bear in mind that a complex table may be too intricate for a screen reader to interpret, and when this happens you will need to consider an alternative method of conveying the information to someone with a disability.

Note: Never use tabs and spaces to create tables – use the Insert Table feature. You should also avoid using tables to create long columns of text – use the column feature described later in this document.

Screen readers and Braille displays read tables row by row across columns, so the table should make sense when read from left to right.

1. Always design tables so they can be read row by row, ie horizontally, as in the example opposite.
2. To create the table use the **Table, Insert Table** command, or the **Draw Table** tool on the **Table and Borders** toolbar.

Monochrome printing		
A4	Single-sided	6p
	Double-sided paper (per side)	5p
	Multiple pages per sheet	6p
	Acetates (Transparencies)	40p
A3	Single-sided	12p
	Double-sided paper (per side)	10p

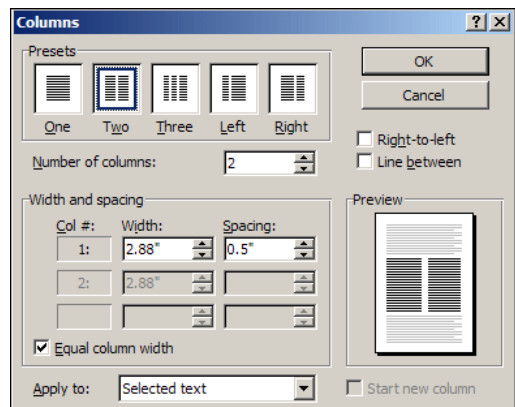
3. Set borders around tables, columns, rows and cells. These define the boundaries during the conversion process.
4. It is recommended that you do not allow table rows to break across a page. To prevent this, click in the row, then select **Table, Table Properties**. On the **Row** tab deselect the **Allow row to break across pages** option.
5. You should also make sure the table headers are repeated on subsequent pages to help readers follow the flow of information. Select the header row, and then click on **Table, Table Properties**. On the **Row** tab select the **Repeat as header row at the top of each page** option.

Columns

Columns of text are easy to read and convert well to PDF, provided there is plenty space between the columns.

To create text in columns, don't press the tab key to space out the text. Use the column feature as described below:


1. Select the text which needs to be formatted into columns, and then click on **Format, Columns**.
2. In the Columns dialog box under **Presets** select the number of columns, and adjust the **Width and Spacing** as desired.



Hyperlinks and ScreenTips

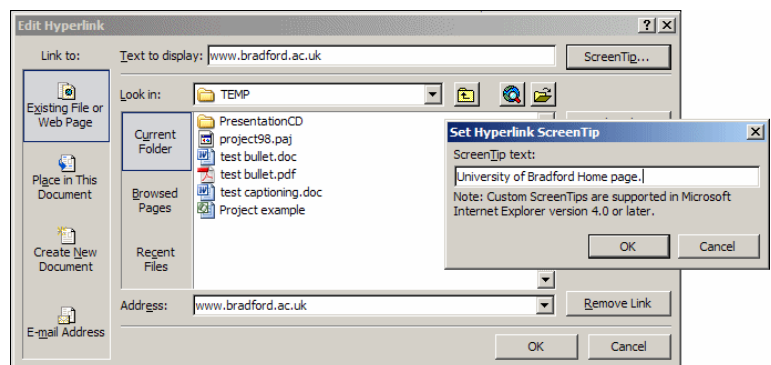
Hyperlinks should always have meaningful names – avoid "click here" or "click on this link for more information" which conveys nothing to a visually impaired user.

Ensure the text in the link tells the reader what they are going to find and position the most important one first.

1. Select the text which is to become the hyperlink, then click on the **Insert Hyperlink** button  on the toolbar.

ScreenTips describing the linked resource can benefit many learners.

2. In the Edit Hyperlink window, click on the **ScreenTip** button.
3. Add a description of the resource being linked to.



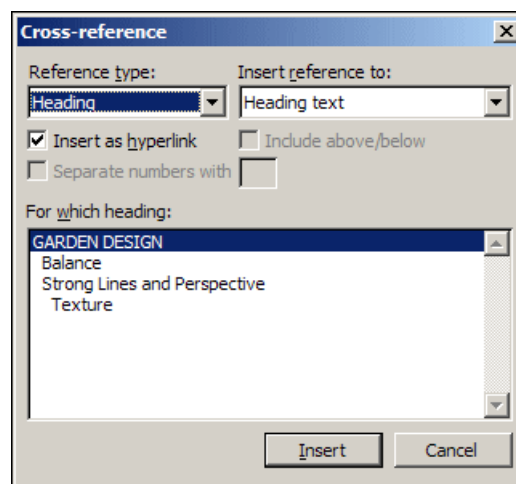
Cross References

Use the cross-reference facility in Word to create links between items in the same document. Anyone using a screen reader can then automatically jump to the relevant section.

1. In the document type the introductory text (followed by a space), eg:

For further information, see:

2. From the **Insert** menu, click on **Reference**, then **Cross-reference**.
3. Drop down the **Reference type:** list and select the item to which you want to refer.
4. In the **For which** box, select the specific item.
5. Ensure **Insert as hyperlink** is selected.
6. Click on **Insert**.



Captions

Use Word's caption facility to add a label or figure number to diagrams, tables, equations or figures.

1. Select the item, and then click on **Insert, Reference, Caption**.
2. Choose an option from the label list, or click on the **New Label** button and type an alternative name.

For further information, see the document:

Long Document and Report Writing in Word 2003

<http://www.brad.ac.uk/lss/documentation/word2003-long-document/word2003-long-document.pdf>.

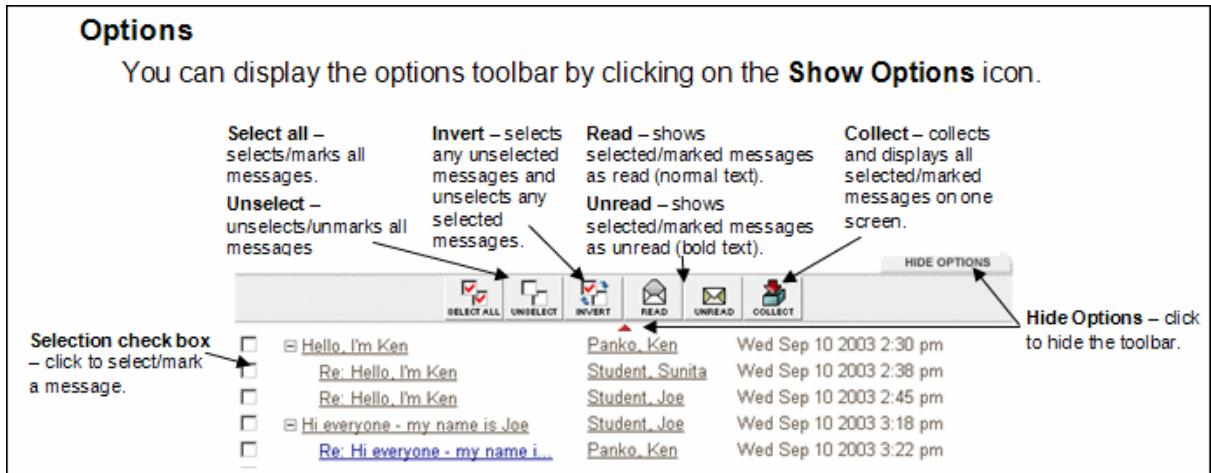
Colours

Never put two similar colours next to each other. The greater the contrast the easier it will be to read the text. Use patterns to differential between coloured objects, (eg in charts) which may look similar if the reader prints the document in monochrome. Do not rely on colour alone to convey information.

Images

Images enhance the written word and may be more meaningful than large amounts of text, especially for those with poorer English skills or someone with print related problems. However, they can be a barrier to those with limited or no vision and the information in the image must be conveyed in an alternative format.

One of the major problems in making a document accessible is when an image contains several overlapping elements such as text boxes and arrows, as in the example below.



In addition, the overall image is cramped and "busy", and will be difficult for people with cognitive disabilities to decipher.

Note: The example image above was not recognised when converted to a PDF file and required extensive editing within Adobe Acrobat to enable it to be read by a screen reader.

A more accessible method of displaying the information would be to present it in a table as follows.

Options	
You can display the options toolbar by clicking on the Show Options icon.	
	Select all – selects/marks all messages.
	Unselect – unselect/unmarks all messages.
	Invert – selects any unselected messages and unselects any selected messages.
	Read – shows selected/marked messages as read (normal text).
	Unread – shows selected/marked messages as unread (bold text).
	Collect – collects and displays all selected/marked messages on one screen.
	Selection check box – click to select/mark a message.
	Hide Options – click to hide the toolbar.

Note: If you prefer not to have a black border around all the table cells, select the table, click on **Format, Borders and Shading**, and on the **Borders** tab change the **Color:** to "white".

Positioning Images

Images should have plenty of "white space" between them and any text.

In-line images (recognisable by square handles when selected) have limited manoeuvrability but convert well to PDF. They are ideal if you want a single image in a paragraph with no text wrapping.

Floating Images (recognisable by round handles when selected) can be grouped with other objects and moved within text.

1. To create white space, right click on the image, and choose **Format, Picture, Layout**.
2. Choose an alignment, and then click the **Advanced** tab.
3. Use the options on the **Text Wrapping** tab to both **Wrap** and Distance the image from the text.

For more information on positioning graphics, see the following documents:

Fine Tuning Graphics in Microsoft® Word 2003 -

<http://www/lss/documentation/fine-tuning-graphics/fine-tuning-graphics.pdf>.

Graphics in Microsoft® Word 2003 -

<http://www.brad.ac.uk/lss/documentation/graphics-in-word-2003/graphics-in-microsoft-word-2003.pdf>.

Text Boxes

Text Boxes are floating objects which have no fixed position. When converted to a PDF, they are placed behind other objects, which can result in the text in the box being ignored by a screen reader, or read in the wrong place. Because of the unpredictable behaviour of them, it is recommended that you avoid using text boxes, and layout the information in a table as shown previously.

If text boxes are absolutely essential, then all the objects must be carefully grouped together (see Grouping) and a description of the whole image added in the alternative (ALT) text box (see Alternative text). You must also ensure that any information in the text boxes is also conveyed in the body of the document.

Grouping

When an image comprises numerous objects, these should be "grouped" together to form one unit. This prevents the individual components from moving around, or disappearing behind other objects. It also makes it possible to add an ALT text description to the image as a whole.

Note: images must have a square or tight wrapping style to be grouped together.

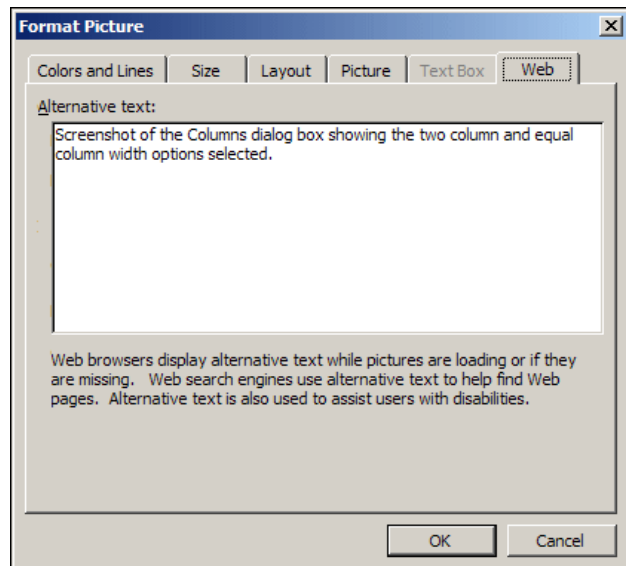
1. Select the objects by holding down the SHIFT key, and then click on each individual item.
2. Right click on one of the objects, click on **Grouping**, then select **Group**.

For more information see: [Graphics in Microsoft® Word 2003](#).

Alternative (ALT) Text

Screen readers and Braille displays can generally only translate text, so you should add alternative text to all graphics and images so anyone with visual difficulties knows what a sighted person can see. (Non-essential content however, such as decorative page borders or logos, do not require Alternative text; but still require "marking" so a screen reader will ignore them.)

1. Right click on the image and from the **Format Picture/Object/AutoShape** menu choose the **Web** tab.
2. In the Alternative text: box, add a brief, accurate description of what the image portrays. (For a non-essential graphic, simply enter a space.)
3. Ensure each sentence finishes in a full stop.



(To test if your ALT text is meaningful, close your eyes and speak the ALT text aloud. Does it explain the image accurately when you cannot see it?)

Note: Extremely complicated images may warrant a one-to-one discussion between the author and a blind or severely impaired user, (or an alternative transcript) in order to fully convey the concept described.

Headers and Footers

Be aware that the Header or Footer areas in a Word document do not get automatically recognised when a document is converted to PDF using Adobe Acrobat.

While it is possible to edit the file in Adobe Acrobat after conversion to include any headers or footers, this can be very time consuming. It is therefore advisable to ensure that critical information relevant to the understanding of the document is not placed in the header or footer in the first place.

SCREEN READERS

To listen to your document when used with a screen reader, convert it into PDF format, then open it in Adobe Acrobat (v.6 or later) and click on **View, Read Out Loud**.

Alternatively, a free demonstration version of Jaws can be downloaded from: <http://www.freedomscientific.com/>.

TRAINING

Places on staff training courses for Make Your Documents Accessible, or Microsoft Word in general can be booked at:

<http://www.brad.ac.uk/dev-prog/index.php?section=it>.

Customised accessibility courses (minimum number 6) for individual departments can also be arranged. Contact: training@bradford.ac.uk for details.

SUPPORTING DOCUMENTATION

Code of Practice for WWW Authoring - <http://www.brad.ac.uk/webid>.

Creating Accessible PDF Files Using Adobe® Acrobat® 8.0 Professional:
<http://www.brad.ac.uk/lss/documentation/creating-accessible-acrobat-8-pdf-files/creating-accessible-acrobat-8-files.pdf>.

Creating Accessible PDF Files Using Adobe® Acrobat® 7.0:
<http://www.brad.ac.uk/lss/documentation/creating-accessible-pdf-files/creating-accessible-pdf-files.pdf>.

Creating Accessible PDF Files - Further Features:
<http://www.brad.ac.uk/lss/documentation/accessible-pdfs-further-features/accessible-pdfs-further-features.pdf>.

Long Document and Report Writing in Word 2003:
<http://www.brad.ac.uk/lss/documentation/word2003-long-document/word2003-long-document.pdf>.

OTHER SOURCES OF INFORMATION

TechDis - An educational advisory service working across the UK, in the fields of accessibility and inclusion. See: <http://www.techdis.ac.uk/index.php>.

Microsoft® Accessibility - A wide range of information including Tutorials, Training, Guides and Case Studies. See: <http://www.microsoft.com/enable/>.

Adobe® Acrobat® Guides:

Creating Accessible PDF Documents with Adobe Acrobat 7.0:
http://www.adobe.com/enterprise/accessibility/pdfs/acro7_pg_ue.pdf

Using PDF Documents with Adobe Reader 7.0:
http://www.adobe.com/enterprise/accessibility/reader/pdfs/reader7_accessibility.pdf.