



**MAKING
ACCESSIBLE
BOOKS**

ACCESSIBLE
Print Books
Resource Guide

Following research and guides published by [Accessible Books Consortium](#), [Association of Registered Graphic Designers](#), [Braille Authority of North America](#), [CNIB Clear Print Guidelines](#), and [Print Disability Clear Print Guidelines](#), this guide is a broad overview that briefly outlines current and developing practices in accessible print book publishing. It explores book design, print book basics, braille, and large print, and includes a Quality Assurance Checklist for accessibility. A glossary of terms related to accessible print books is included, as well as list of further resources.

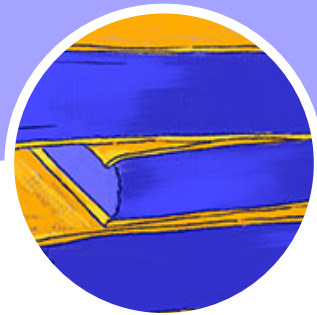


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Overview



A pile of multi-colour books
Image source: Kimberly Farmer/Unsplash

The development of digital, audio, braille, and large-print formats address many of the accessibility issues found in book publishing. However, print books can be made to be more accessible in several fundamental ways. Look at a book printed and published in the early 20th-century. Very often, text and images are close together in a tight space, and typographic elements are chosen for aesthetic qualities rather than for legibility and readability. Compare this to most trade books printed and published in the 21st-century, and the difference is striking. The text is easy to follow, and the layout features generous white space, which is less exhausting for a reader's eyes.



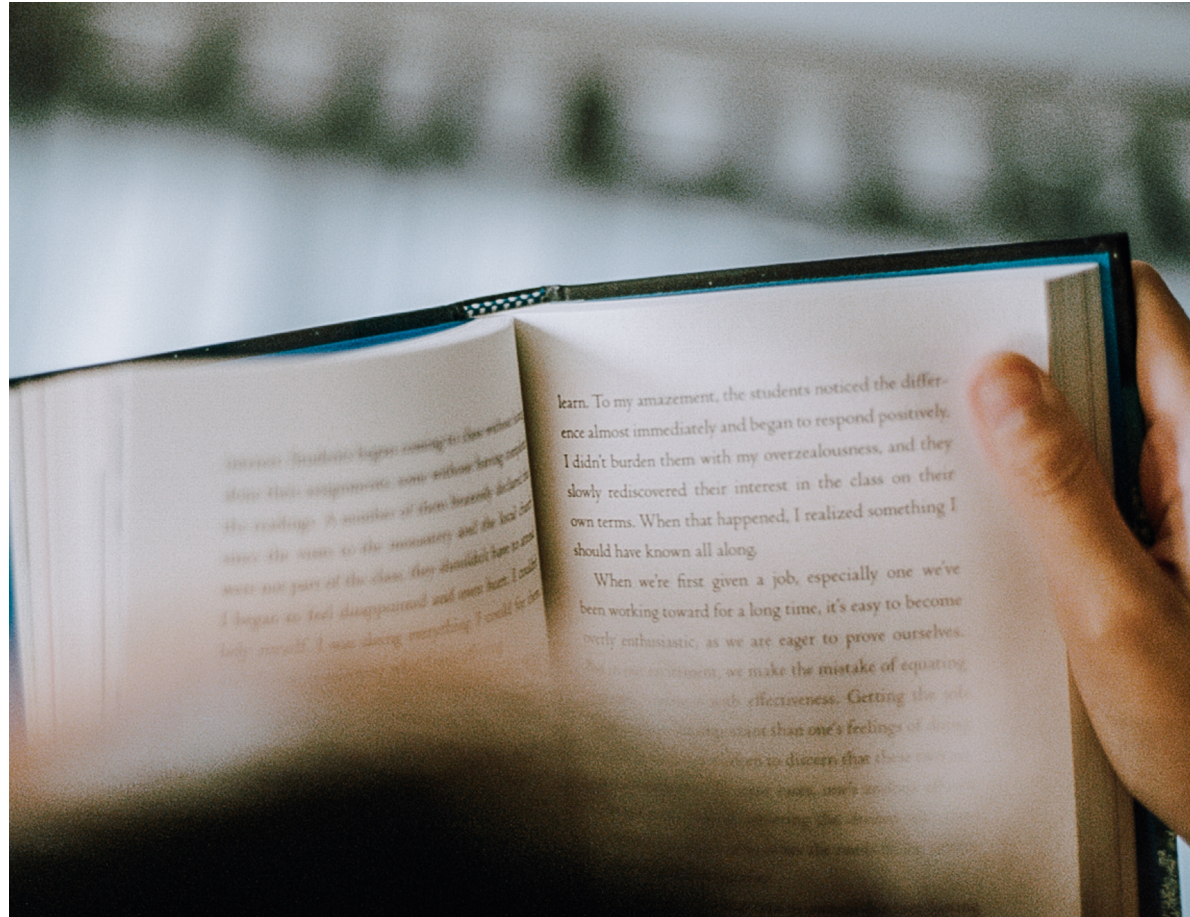
Overview

Accessibility in print books is largely a question of smart, thoughtful layout. Typefaces are chosen with care, unusual text treatments (such as underlining, all caps, or cursive styles) are avoided as much as possible, and elements like headings and images are presented in a way that aids comprehension. For a publication to be ‘born accessible,’ discussions about accessibility must begin with all stakeholders before the creative process begins. Authors, illustrators, editors, designers, marketers, librarians, and booksellers can all participate in this process.

Much of the information contained in this guide can help with the creation of accessible e-books, too, as the digital working file for print may be adapted for export to EPUB or other digital formats later.



Book Design



Looking over the shoulder of a person holding a book.
Image source: Debbie Tea/Unsplash

Legibility, readability, and the logical structure of information are essential for good print book design. And even more so when we consider accessibility. Colour contrast and accessible typography considers readers with print disabilities. The structure of the document supports assistive technology users. The choices designers make in construction and presentation impacts how easily information can be perceived and understood. Clear hierarchy also contributes to the legibility and readability for both visual and non-visual readers. Fundamental typographic principles and page layout best practices support accessibility by encouraging easy-to-read content.



Book Design

CONTRAST RATIO 21:1

CONTRAST RATIO 5:1

CONTRAST RATIO 2:1

Colour Contrast

Colour contrast ratio ensures that foreground elements are perceivable against their backgrounds. The contrast ratio is a measure of the difference in perceived 'luminance' or brightness between two colours. This brightness difference is expressed as a ratio such as 21:1 for black text on a white background.

When considering accessibility, test contrast ratios early in the workflow to establish colour palettes and suitable foreground/background combinations.

Printed material is most readable in black and white. Restrict coloured text to things like titles, headlines, or highlighted material.

Suggested colour contrast ratio is:

4.5:1 for small text including body copy

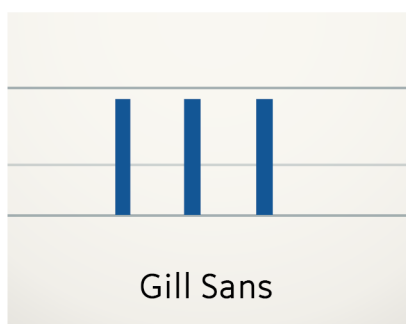
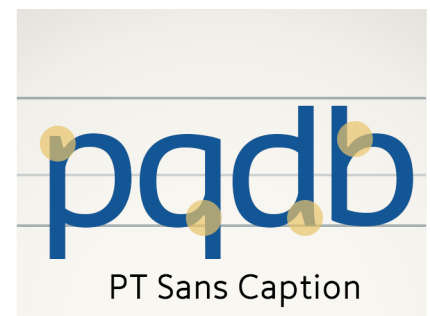
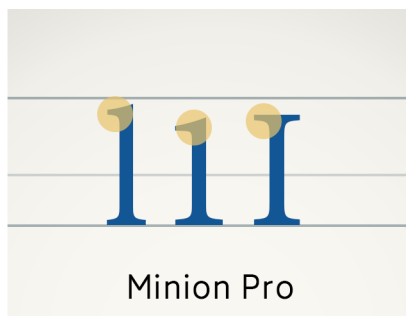
3:1 for large text for titles and headings



Book Design

Typefaces

Use typefaces with open counters and obvious ascenders and descenders. Avoid typefaces with ambiguous letter forms, ensuring each letter is unique and easily identifiable. Typefaces that have distinct shapes for each glyph assist the reader in recognizing words to improve readability. Avoid typefaces that use mirrored letter forms for lowercase 'b' and 'd' or 'p' and 'q' as they can cause confusion for some readers with cognitive disabilities.



Typefaces with proportional spacing are recommended since the variability contributes to distinguishing letter forms. Condensed font styles may be harder to distinguish individual letters due to the narrow set widths and should be used sparingly.



Book Design

Type Styles

Most people read by recognizing word shapes rather than individual letters. When whole words are set in italics or block capitals, the shape of the word is altered since letters are set at an angle or all the same height and this makes words harder to read.

If you need to add emphasis to your text, try a bolder font weight. If it is necessary to use italics, make certain that they are in the same font type as the body of the text, and choose a font that has a clear italic. If necessary, block capital letters may be used to give emphasis to titles, single words, or short phrases. Underlining should also be avoided as it makes it more difficult to recognize the shape of the words. This is because the underline intersects with the letter descenders (tails of letters like p and g). The use of italics, underline, and block capital letters can inhibit readability ([Print Disability Clear Print Guidelines](#)).

Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin.

Avoid using italics, underline, and block capital letters.

Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin.

Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin.

HERE IS EDWARD BEAR, COMING DOWNSTAIRS NOW, BUMP, BUMP, BUMP, ON THE BACK OF HIS HEAD, BEHIND CHRISTOPHER ROBIN.



Book Design

This is Helvetica at 14 pts
This is Helvetica at 16 pts
This is Helvetica at 18 pts

NOT TOO
SMALL!

NOT TOO
BIG!

Type size

There are many different guidelines for type size accessibility. The size of the text to support legibility and readability is dependent on many factors such as font choice, colour contrast, and context, which is why accessible type sizes can't be reduced to a single value. The goal with accessible typography is

to create 'clear print', a design that is readable by most. Large print, typically set at 16 to 18 pts for body copy, is a format that is a suitable alternative that is designed for the low vision community.

In addition to type size considerations, other styling factors that can disrupt readability is the overuse of italics, bold and underline. Avoid using these type styles for paragraphs of text although they can be suitable for 1-2 lines. Extensive use of all caps can also disrupt readability since the letter forms are typically uniform in height. Again, all caps can be suitable for 1-2 lines but is not recommended for paragraphs.

The Canadian National Institute for the Blind (CNIB) has recommended guidelines that ensure all visual communication including websites, signs, books, brochures, and packages be accessible and as barrier-free as possible. The CNIB recommends the following ways to make print as clear and readable as possible for everyone ([CNIB Clear Print Guidelines](#)).



Book Design

Helvetica
Verdana
Arial

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eiusmod tempor
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dolore magna aliqua.
Ut enim ad minim
veniam, quis nostrud
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labore nisi ut aliquip*

*Too
Fancy!*

Selecting Fonts

Avoid complicated or decorative fonts. Choose standard sans serif fonts with easily recognizable upper- and lower-case characters. Arial, Verdana, and Helvetica are good choices.

Choose fonts with medium heaviness and avoid light type with thin strokes. When emphasizing a word or passage, use a bold or heavy font. Italics or upper-case letters are not recommended.

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officia deserunt mollit

Leading

Leading is the space between lines of text and should be at least 25 to 30 per cent greater than the point size. This space lets readers move more easily to the next line of text. Too much leading, however, makes type harder to read. Heavier typefaces will require slightly more leading.



Book Design

Good Letter Spacing

T o o
L o o s e !

T i g h t !

Letter Spacing

Kerning is the spacing between individual letters or characters that focuses on how type looks, creating readable text that's visually pleasing. Typeface designers build in spaces around each letter, but sometimes between pairs of letters, those spaces don't always work. That's when manual kerning comes in.

Don't crowd your text and keep a wide space between letters.

Text Alignment

Text should be left aligned with a ragged right margin. Fully justified text, which is aligned to both the left and right margins, distorts the spacing between the words and can create stretched or cramped lines of text. Readers with low vision may mistake large gaps between words as the end of lines, particularly when using a magnifier to read the print. Aligning text to the right, which produces a ragged left margin, also makes text more difficult to read for people with low vision. This is because each new line starts in a different place and is difficult to find. Centred text, where each line starts and ends in a different place, is even more difficult to follow and should not be used for blocks of text ([Print Disability Clear Print Guidelines](#)).



Book Design

Left Aligned Text

Edward Bear, known to his friends as Winnie-the-Pooh, or Pooh for short, was walking through the forest one day, humming proudly to himself. He had made up a little hum that very morning, as he was doing his Stoutness Exercises in front of the glass: Tra-la-la, tra-la-la, as he stretched up as high as he could go, and then Tra-la-la, tra-la—oh, help! — la, as he tried to reach his toes.

Right Aligned Text – can be difficult to find the start of the next line

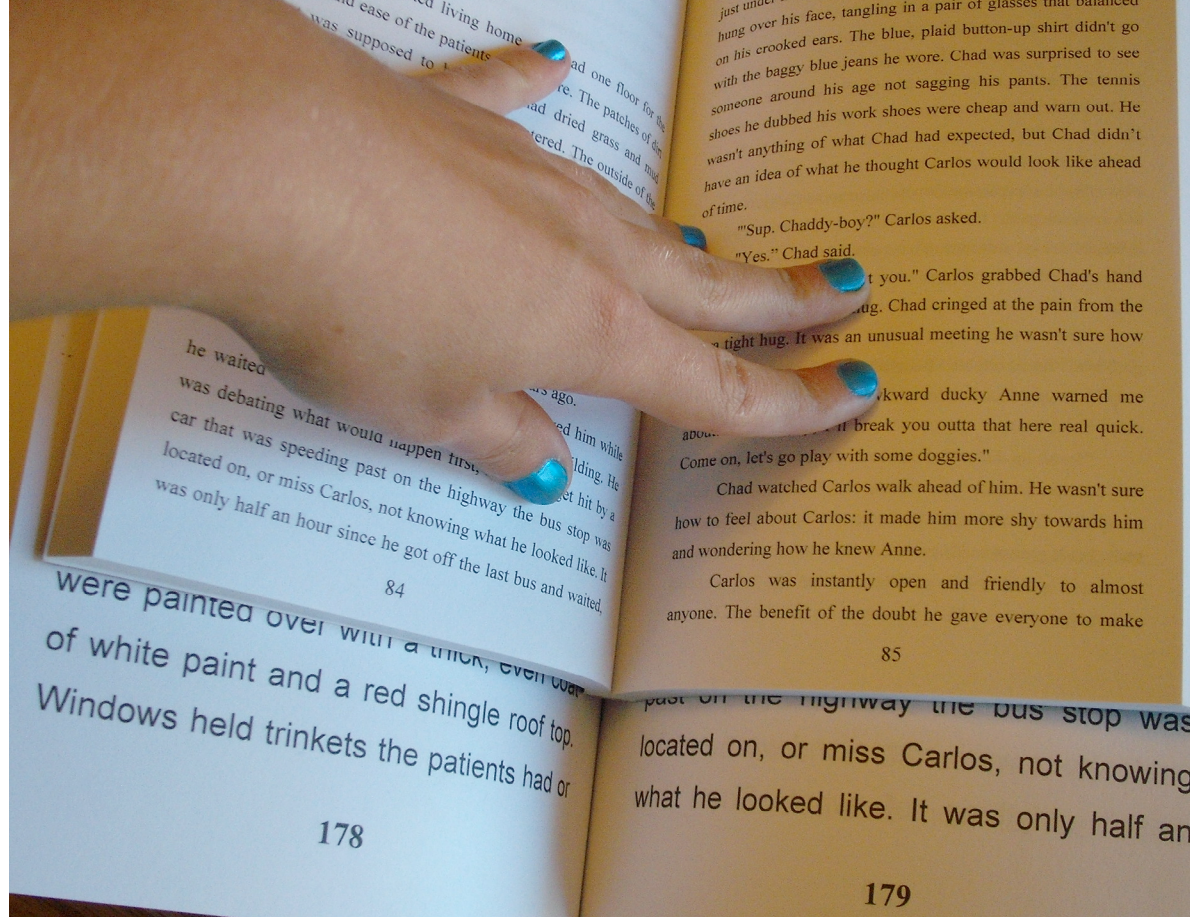
Edward Bear, known to his friends as Winnie-the-Pooh, or Pooh for short, was walking through the forest one day, humming proudly to himself. He had made up a little hum that very morning, as he was doing his Stoutness Exercises in front of the glass: Tra-la-la, tra-la-la, as he stretched up as high as he could go, and then Tra-la-la, tra-la—oh, help! — la, as he tried to reach his toes.

Centre Aligned Text – can be difficult to follow

Edward Bear, known to his friends as Winnie-the-Pooh, or Pooh for short, was walking through the forest one day, humming proudly to himself. He had made up a little hum that very morning, as he was doing his Stoutness Exercises in front of the glass: Tra-la-la, tra-la-la, as he stretched up as high as he could go, and then Tra-la-la, tra-la—oh, help! — la, as he tried to reach his toes.



Large Print



A hand holding open a standard print book on top of a large print book.
Image source: J.D. Crawford

Large-print books are designed for those who have difficulty reading a regular-sized font. This includes people with low vision, macular degeneration, cataracts, or people who need glasses to read. The typical font size in a book is 12 points, while the minimum font size for a large-print book is usually 18 points, depending on the typeface and number of pages in the book. But there is more to a large-print book than just a larger font –paragraph spacing, alignment and even the way the text is written (for instance, using bold instead of italics) all help improve comprehension for the reader, and can, in some cases, reduce eye strain.



Large Print

According to the [American Council for the Blind](#), the four most important features that have the greatest impact on readability for large print documents are font size, font style, spacing, and contrast. The following large print guidelines and best practices were created by persons with low vision who require large print documents for reading.

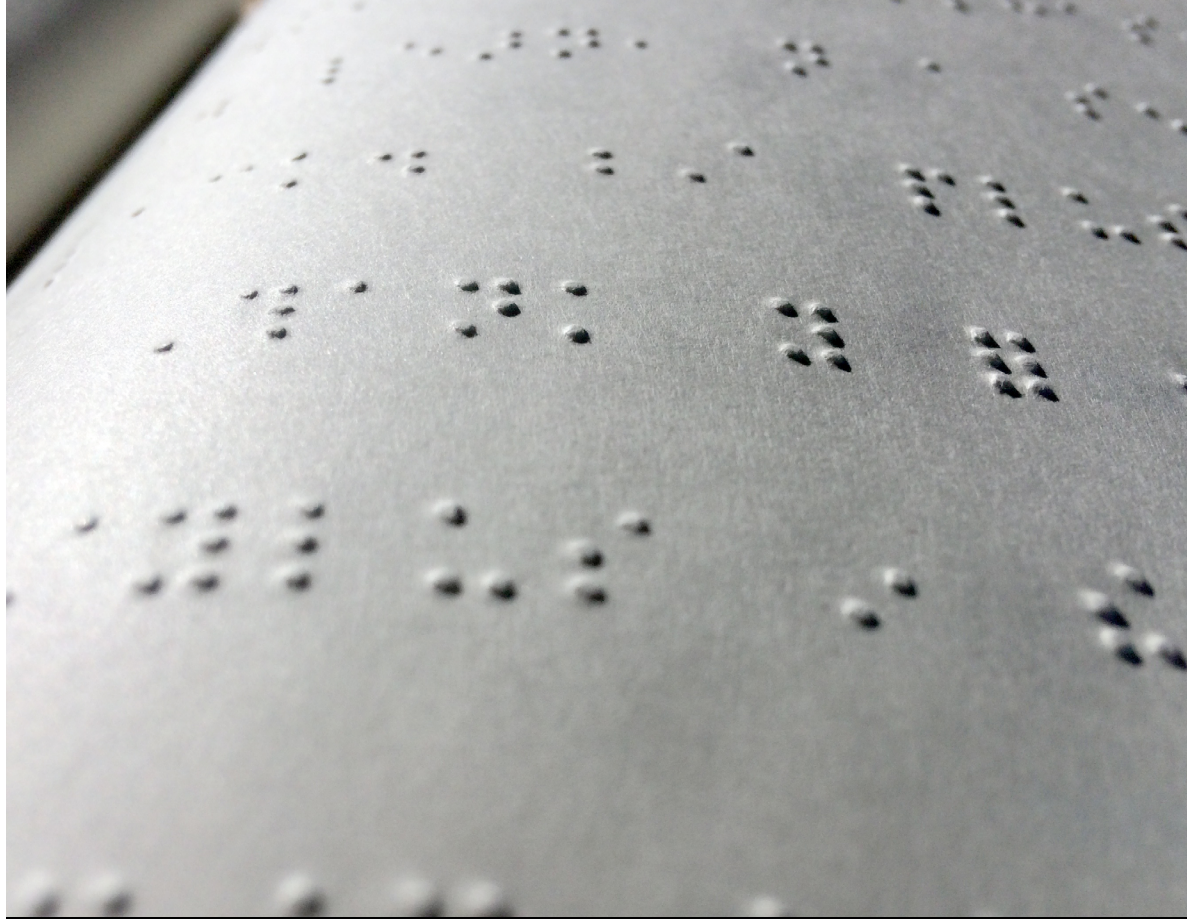
- Font size of 18 point or greater.
- Sans serif fonts such as Verdana, Helvetica, Tahoma, Arial, and Futura.
- Use bold text, asterisks, or dashes to emphasize a section of text.
- Line spacing of 1.5 or greater.
- Text should contain both upper- and lower-case letters.
- Titles and headings should be in a larger font and aligned left.
- Bulleted items should be double spaced.
- Text should not be overlaid on images.
- Any information conveyed in colour or through images should also be described.
- Page numbers should be in the same font and size as the body of the text.
- Paper needs a matte or dull finish.

-

[American Council for the Blind](#)



Braille



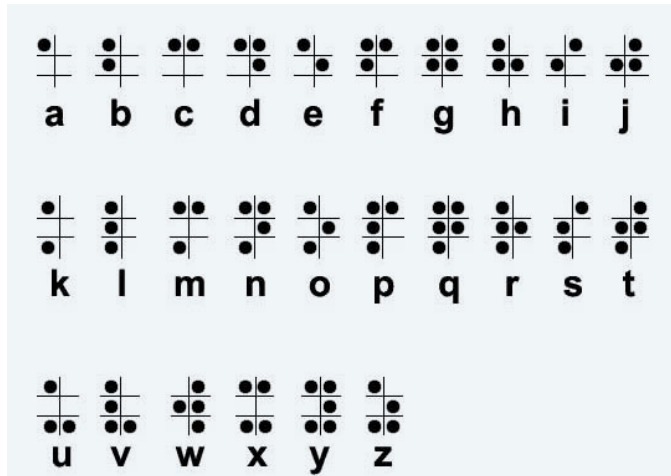
A close-up of braille on a page.
Image source: Anne Zbitnew

Braille is a code, not a language. The braille alphabet is used by people who are blind or who have low vision for reading – by gliding the fingertips over lines of embossed braille dots – and writing, using a variety of tools. Letters in braille are formed by raised dots arranged in specific places in a six-position matrix.

Standard size paper for braille books is 11 x 11.5 in (28 x 29.21 cm), and the weight is heavier than for other books. Some braille is printed on specialized heat-sensitive that rises where printed. Because braille books are large format, they are often bound in plastic ring binders rather than in the hard or soft-cover format of conventional books.



Braille



Unless a manuscript has been written originally in braille, it must be translated. This can be done by a typist who, using a special six-key typing machine, retypes the manuscript in braille with computer software. If the manuscript has been typed by a braille transcriber, it is ready for proofreading, and if converted

using computer software, it must be printed using a braille printer. After the manuscript is proofread and corrected, a master copy of each page is cast on a zinc plate which fits onto the printing press. There is no ink, and the paper is pressed against the zinc master as the barrel rotates. The impressions of the raised dots are transferred to the paper.

The pages of a braille book are collated by hand because a mechanical collator holds stacks of pages and would destroy the braille text. Some books are bound in a three-ring binder, and for these, the pages need to be punched. Other publications are saddle-stitched and bound in a conventional hard-back book format ([Braille Publication](#)).



Tactile Graphics



Tactile embossed image of an assortment of plants and leaves.
Image source: Perkins School for the Blind

Tactile images have been around much longer than most might assume. [The Perkins Archive](#) has scanned tactile technical images of birds, plants, sea life, and fish created by M. Kunz way back in 1902.

Braille is a tactile written language, meaning it relies on touch to be understood.

Not all people who are blind or have low vision read braille, but those that do often find that having the option to engage with images in addition to text helps with their learning, understanding, and enjoyment. A textbook without pictures, for example, is far less engaging. Current-event stories are often paired with impactful photographs or infographics to give readers a well-rounded understanding of places and people they have never encountered in person. If these images are tactile, then they are accessible.



Tactile Graphics



A pair of hands touching a tactile image on a book page.
Image source: Pexels/Yan Krukov

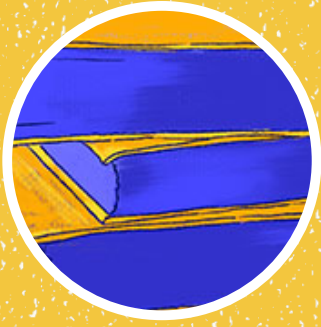
Tactile graphics are images that are designed to be touched. The concept and content of an image or graphic can be represented by textured items such as paper, fabric, or thread collaged together. One of the characteristics of a readable graphic is variation in height as well as texture among the elements in the collaged graphic. Tactile graphics can be also embossed using a braille slate and stylus or printed on microcapsule paper that ‘swells’ along the lines of the image. High resolution scanned images created in Photoshop, Illustrator, or other software can be produced by braille and graphics embossers that produce small raised dots very close together, creating a raised tactile image ([Tactile Graphics](#)).



Accessible Print Books Quality Assurance Checklist

Typography

- ☐ Use simple, clear fonts.
- ☐ Use correct characters for punctuation and symbols (For example, don't use a hyphen when you mean to use an en dash).
- ☐ Use "smart," "curly," or typographer's quotation marks.
- ☐ Use good quality typefaces, and ensure your body text typeface has regular, bold, italic, and bold italic styles.
- ☐ Use standard numerals.
- ☐ Use fewer rather than more fonts.
- ☐ Set large-format text-based books in 18 point or higher.
- ☐ Avoid using small type, block capitals, underlined text, cursive styles, and glyphs in typefaces that distract the reader.
- ☐ Text should be left aligned, set horizontally, and not condensed or stretched.
- ☐ Space between lines and paragraphs is adequate.



Accessible Print Books Quality Assurance Checklist

Page Layout

- ☐ The layout should be simple, consistent, and logical.
- ☐ Use bulleted or numbered lists in non-fiction content instead of enumerating in a paragraph, where possible.
- ☐ Adjust kerning and/or tracking in headings to make spacing more natural and less cluttered.
- ☐ Use multiple levels of headings to organize and subdivide content.
- ☐ Use large font sizes for headings rather than bold text or all caps.
- ☐ Add space between elements, including between the text block and the edges of the page, and around images and captions.
- ☐ Make divisions between sections obvious.
- ☐ Ensure columns are narrow enough to be read comfortably.
- ☐ Ensure that wrapped text flows logically.
- ☐ Align large blocks of left-justified text.
- ☐ Go through pages when all formatting is complete and further editorial changes have been disallowed and adjust to eliminate widows, orphans, runts, rivers, and ladders.
- ☐ Use bold, high-contrast colours in images and infographics.



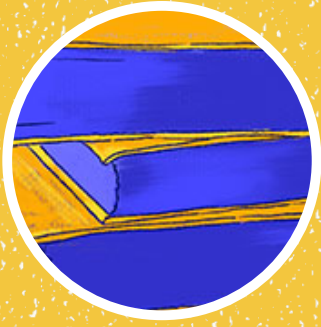
Accessible Print Books Quality Assurance Checklist

Page Layout (continued)

- ☐ Ensure table row and column headers are clearly defined.
- ☐ Allow for space around text in tables while making text as large as possible.
- ☐ Make tables as large as is necessary to be legible.
- ☐ Avoid using the default leading of page layout software.
- ☐ Don't colour-code sections or content.
- ☐ Avoid images or patterns behind text.
- ☐ The paper should be thick enough to prevent show-through.

Images and Colours

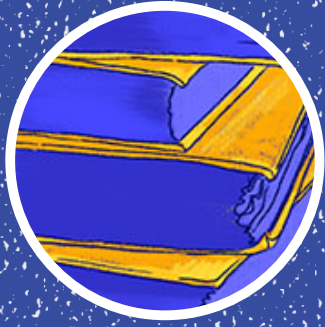
- ☐ Colours in images should be bold and contrast adequately with one another.
- ☐ Discuss accessibility considerations before the creation of graphics or illustrations.
- ☐ Allow for adequate space around images and descriptions.
- ☐ Ensure that wrapped text flows logically.
- ☐ Avoid text in images.
- ☐ Avoid images or patterns behind text.



Accessible Print Books Quality Assurance Checklist

Cover Design

- ☐ Ensure images behind type don't interfere with legibility; use a semi-transparent overlay or other effect to ensure text is not obscured by background colour or detail.
- ☐ Ensure all text has well-defined borders.
- ☐ Consider how the book cover will look on digital editions and on vendor's websites at small sizes.
- ☐ Allow adequate space between text and edges or creases so that it is not in danger of being trimmed off or obscured by folds in the jacket.
- ☐ Avoid designing covers in Photoshop or other image-editing software; instead, import your background image into a page-layout program and set type over it, then export as a PDF.



Glossary

Accessible Publishing

Works designed to be accessible and compatible with assistive technologies.

Back Matter

Everything that comes after the main body text of the book, including an about the author page, discussion questions, bibliography, etc.

Bleed

Imagery that extends beyond the edge of the paper.

Braille

A system using six to eight raised dots in various patterns to represent letters and numbers that can be read by the fingertips.

Character

The symbol representing a letter.

Clear Print

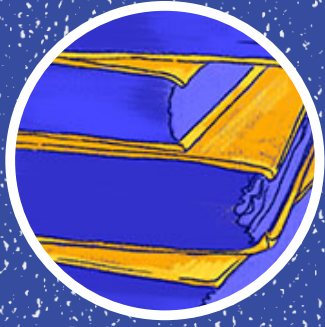
An approach to print design that creates legible, uncluttered documents which are easier to read.

Colour Contrast Ratios

The measure of difference between how bright and dark colours appear on screens.

Cursive

Letters that are rounded and joined.



Glossary

Font

The style, size, or appearance of text.

Footer

Anything that gets printed in the bottom margin (like page numbers).

Front Matter

Everything that comes before the main body text of the book, including the title page, copyright page, foreword, etc.

Glyph

Specific shape, size, or representation of a character.

Header

Anything that gets printed in the top margin (like the book title or author name).

Inclusive Publishing

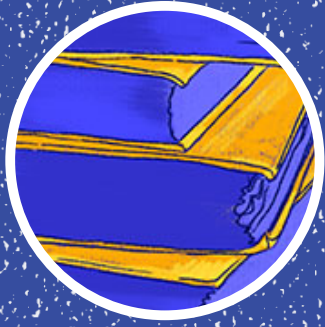
The publishing of works that takes the needs of every reader into consideration.

Justified

The alignment of a block of text.

Kerning

The space between individual letters, and the process of adjusting that space.



Glossary

Ladders

When there are many hyphens in a row on the right-hand side of a column.

Leading

The spacing between lines of text in print.

Line Spacing

The space between lines of text.

Margin

The blank space around the edge of the page.

Orphans

A word that gets separated from its paragraph and appears alone on the next page.

Point Size

Typically used to refer to the size of type or lines that divide blocks of type.

Print Disability

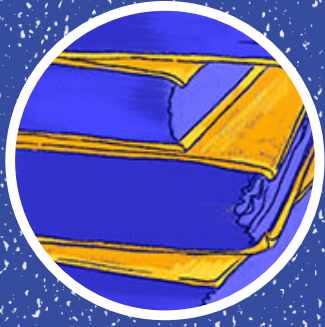
A print disability is a learning, physical or visual disability that prevents a person from reading conventional print.

Rag

An uneven margin on one side of the page.

Rivers

Badly spaced text that allows for too much space between words in blocks of text.



Glossary

Running Heads

Title, author, or section information at the top of each page of a printed or digital text.

Runts

Very short last lines of a paragraph.

Sans Serif

A typeface in which the characters lack extending features, or serifs.

Serif

A small line or stroke connected to a character and that extends that character slightly.

Tactile Graphics

Convey information through touch including images, maps, charts, layouts, schematic diagrams, and images of geometric figures.

Trim Size

The finished size of a book.

Typeface

The style, or design, of a set of characters.

Verso

The backside of a page.

Widows

A word that dangles alone at the bottom of a paragraph.

RESOURCES

Inclusive Book Design

Seven Inclusive/Accessibility Design Books Designers Should Read includes recommendations on books about accessible graphic design.

AccessAbility 2 - A Practical Handbook on Accessible Graphic Design is a downloadable PDF guide to accessibility in graphic design by the Association of Registered Graphic Designers (RGD).

Legibility Research: Type Design for Children with Low Vision is an essay about the ongoing development of Matilda, a typeface for children with low vision, from graphic designer and researcher Ann Bessemans.

Kern Type is an online game from Method of Action that allows you to drag pairs of letters apart and together to optimize the kerning of words on screen.

Guidelines to Producing Clear Print is a detailed guide to accessible clear print.

The CNIB's Clear Print Accessibility Guide for accessible design.



RESOURCES

Inclusive Book Design (continued)

Six Typography Terms That Get Confused. A Lot is a blog post that details the difference between font and typeface, character and glyph, and legibility and readability.

A detailed glossary of **typographic terms** from Adobe.

How to format a book is a guide to formatting books including widows and orphans, using page breaks, and choosing typefaces.

Large print

Book marketer **Dave Chesson** details how to publish a large-print book and why you should.

RNIB Clear Print Guidelines for print, design, and layout.



RESOURCES

Braille

Braille publication details the process of printing braille books.

Braille Literacy Canada lists sources of braille books, resources, downloadable publications, braille technologies, and websites for a variety of courses and organizations.

Improving access to braille in Canada is a podcast episode from BookNet that discusses what the Canadian book publishing industry can do to improve braille accessibility in Canada.

Braille Authority of North America (BANA) provides information and links to its current guidelines and standards to produce tactile graphics.



RESOURCES

Tactile Graphics and Images

Tactile Graphics provides detailed guidance regarding the design and production of tactile graphics.

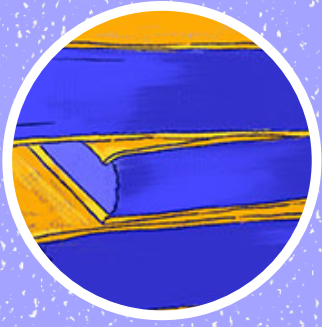
Guidelines and Standards for Tactile Graphics | BANA: provides information and links to its current guidelines and standards to produce tactile graphics.

An Inside Look at the TGIL | American Printing House provides free access to the Tactile Graphics Image Library, which houses over 2,000 images transcribed for tactile readers.

Making braille books: A school in Adelaide, Australia, for kids who are blind or have low vision was frustrated with the lack of braille books for students, so it started making its own. Volunteers help to emboss the books and add tactile pictures.

Perkins School for the Blind blog post on the importance of touching the news.





References

Information in this guide has been adapted from the following resources:

Accessible Books Consortium: Accessible Publishing Best Practice Guidelines for Publishers

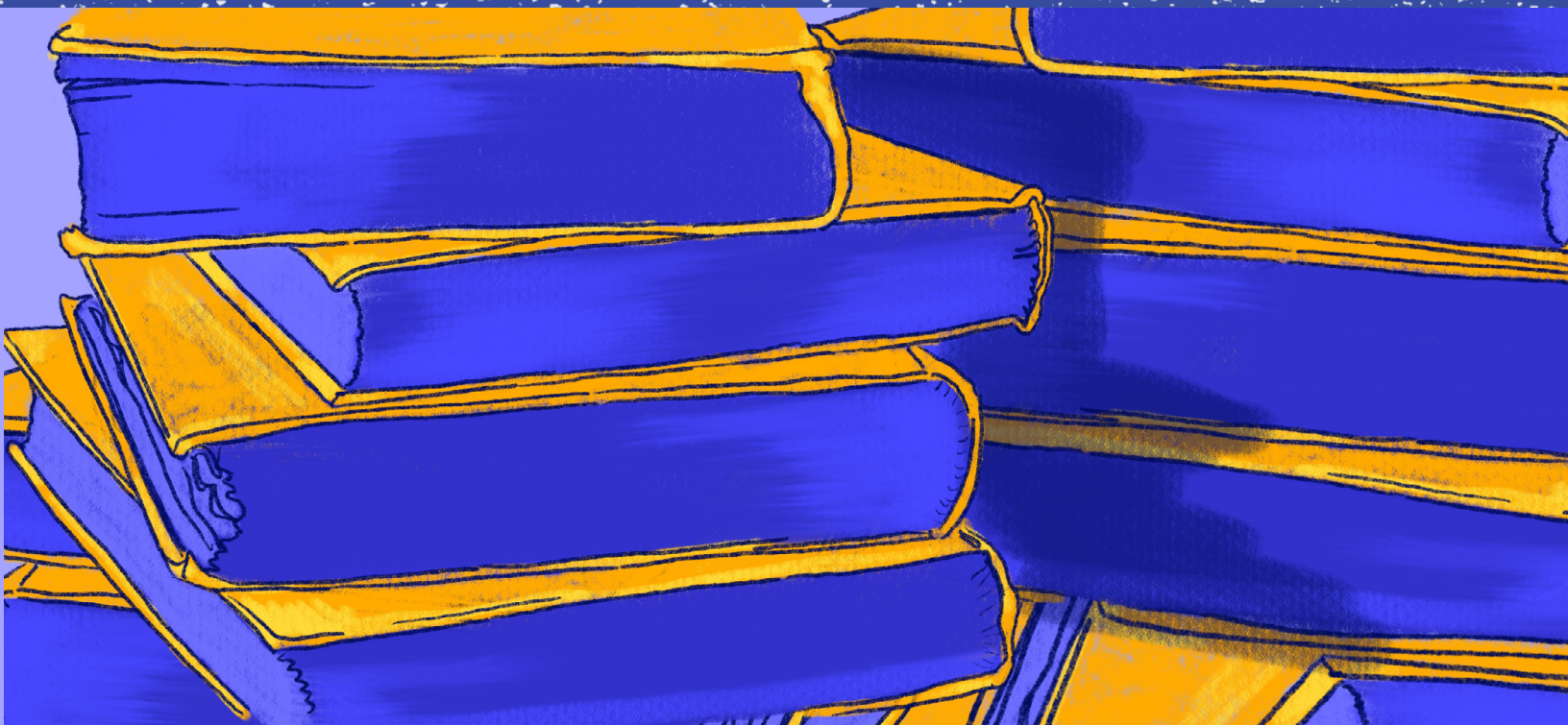
Association of Registered Graphic Designers: Accessibility: A Practical Handbook on Accessible Graphic Design

Braille Authority of North America: Braille Formats: Principles of Print to Braille Transcription

CNIB Clear Print Guidelines

Making Accessible Media - Module 4 - Accessible Digital Design

Print Disability Clear Print Guidelines



MAKING ACCESSIBLE BOOKS

www.makingaccessiblebooks.ca