XRCVC'S
ACCESSIBLE BOOK PRODUCTION
STANDARDS 1.4

A Compilation By
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Preface

The Xavier's Resource Centre for the Visually Challenged (XRCVC) is happy to present this compilation of standards as culmination of its experience in the area of creating accessible reading material for blind and low vision persons. XRCVC has worked extensively over the years in creating accessible books through its robust volunteer system. We have endeavoured to create norms which are based on feedback from our diverse user base across age groups and content needs.

What are presented here are standards for creating a master Word file which can be used to create DAISY and E-PUB Books and Braille Ready Files. The rational guiding this work has been to develop a more efficient accessible book process where endless duplication is reduced to the minimum and diverse user needs in terms of format can be served through a single streamlined process.

This version 1.3 will be a continuously evolving work which will be regularly updated with new user experiences. We welcome feedback from you to help build this further.

It needs to be seen not as an end process but rather as the beginning of a journey which will evolve based on constant usage and feedback.

About XRCVC

The XRCVC is a state of the art support and advocacy centre for persons with blindness and low vision. It is a department of the St. Xavier's College, Mumbai, India, and works actively in the areas of providing Direct Support and Training Services to blind and low-vision persons, Awareness Generation and Advocacy Initiatives.

The XRCVC works actively towards creating an inclusive environment both at the micro and the macro levels. Some of the key areas of its advocacy initiatives lie in the field of Print Access, Financial Access, Education Access and Independent Living.

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SECTION 1 – HANDOUT ON ACCESSIBLE BOOK CREATION (MASTER COPY)

The following accessible book formats can be created using this handout –
❖ Braille Book
❖ DAISY: Can be accessed with Screen Reader / DAISY-specific software
❖ EPUB: Can be accessed across various devices using EPUB readers
❖ MathML: Word file accessed with Screen Reader & Magnifier

Basic Information:

a.   What is Braille?
Braille is not a language but a script used by the blind. It is written within a six-dot unit called a Braille Cell, as shown below.

The Braille Cell
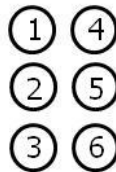
Combinations of these dots make up the Braille alphabet. It also includes symbols to represent punctuation, mathematics and scientific characters, music, computer notation and foreign languages.

b.   What is a Screen Reader?
A screen reader is a software that reads out screen content to allow those who are blind or low vision to use the computer / phone / tablet etc.

c.   What is a Screen Magnifier?
A screen magnifier is a software that presents screen content in an enlarged manner. Such softwares also provide colour contrast options, mouse enhancements etc. to make the use of a computer / phone / tablet etc. easier for those with low vision.

d.   What is OCR?
Unlike regular scanning procedures, Optical Character Recognition (OCR) technology allows the scanning of any printed text such that it becomes readable by synthetic speech. This helps to make hard copy materials accessible to persons who are blind or low vision, and who otherwise would rely on sighted assistance to read hard copy materials.

e.   What is DAISY?
DAISY stands for Digital Accessible Information System. It enables the print-disabled population to access information almost as easily and efficiently just as a sighted person does while using a printed book. Other books are a single format but DAISY books are comprised of multiple file formats including text, audio etc. DAISY books may be accessed on computers, mobile phones or other special DAISY players.
DAISY features include several navigation options like go to page, go to heading, go to bookmark etc. When you return to reading after a break, your book opens to where you stopped reading. Various magnification and speech options are available.

f.   What is EPUB?
EPUB stands for Electronic Publishing. It is a file format with the extension .epub that can be downloaded and read on devices like smartphones, tablets, computers, or e-readers.

g.   What is MathML?
Mathematical Markup Language or MathML is an application of XML for describing mathematical notations and capturing both its structure and content. Math Equations inserted in this method are recognised and readable by Screen Readers.

Book Creation Process at the XRCVC:
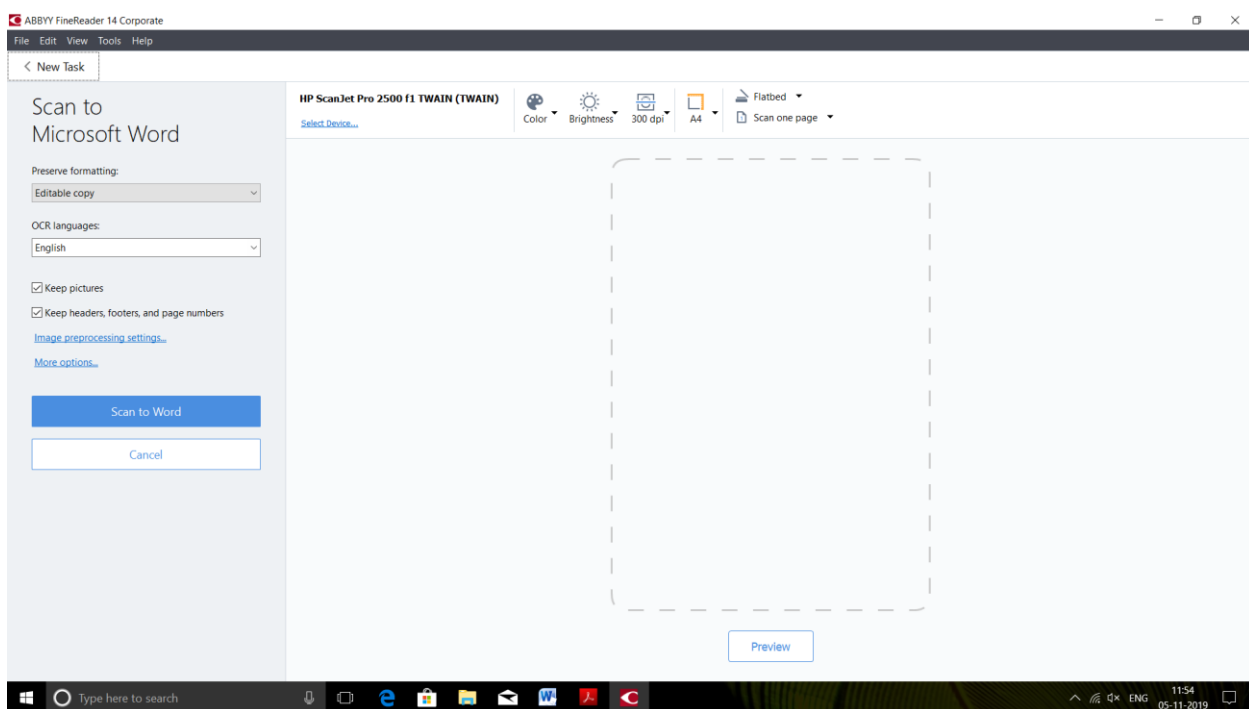
I. Scanning

Scan the complete book, cover to cover, for all text matter and relevant images that are to be inserted into the Word file.

There are multiples tools available for OCR. There also exists many ways to use those tools, which depend on the format or type of the source file. Mentioned below are the methods to use for the different formats, so as to get the best possible outcome.

Steps to follow for scanning using the ABBYY FineReader software...

   i.   Double click on the **ABBYY FineReader 14 (Corporate)** icon on the Desktop.
   ii. Click on Scan option and then click on **Scan to Microsoft Word**, while ensuring the following options are maintained; OCR language: **English**, Colour: **Colour**, Preserve Formatting: **Editable Copy**, and the **Keep Pictures** and **Keep headers and footers** options checked and then click on Scan to Microsoft Word.
   iii. Place the page/pages on the scanning bed (the flat, glass surface) within the rulers.
        You can scan two pages at a time if they fit on the scanning bed.
        Most flatbed scanners have an adjustable lid that can be raised to allow magazines, books, and other thick objects to be scanned. However, you must always hold the book down, so as to not miss text that appears near the binding area.

The following dialogue box opens up. Ensure all fields are selected as shown below:

Scanner Settings: *The resolution can be maintained at **300 dpi** when the font size is normal and at **600 dpi** when the font size of the print book is smaller than usual. Scanning mode: **Color**, Brightness: **Automatic (scanner)**.*
Paper Settings: *You may adjust the paper size, but that is not too necessary most times.*
Image Processing: *Check all boxes to **Correct page orientation**, **Split facing pages**, **Correct image resolution**.*
Multi-Page Scanning *is used with an Auto-feeder (see below).*

iv.   Click on **Scan**.
v.   Turn the page and click on **Scan Pages**.
vi.   Repeat this step to add consequent pages in the same file. Press **Page Down** to check the next page and **Page Up** to go to the previous.
vii. Once the required pages have been scanned, click on the **File** Menu.
viii. Click on **Save As** and select **Microsoft Word Document** (the .docx format).
ix.   Select the location you want to save the file in.
x.   Edit the **File Name**, as required – ideally the name of the book, keeping the extension.
xi.   Ensure that you **create a single file for the whole book**.
xii. Click on **Save**.
      The default location where OCR files are saved is the last location used.

When using the auto feeder option (HP ScanJet Pro 2500 f1 on PC1 and PC3)–

i.   Separating the pages.
     For a book: Tear apart each page in a book, ensuring smooth edges, you may use scissors to cut the side of the pages that were attached to the book.
     This requirement is met, so that the pages don't jam the auto-feeder and disrupt the process.
     For Notes/xeroxed pages: Take the staples off and ensure smooth edges, as mentioned above.
ii. Place the pages on the Document Feeder, (the correct side facing you/ so the top of the page goes in first) and adjust the width, accordingly.
     (Note: The OCR software will recognise text that is oriented in any direction.)
iii. *Select all fields as mentioned in the dialogue box above in step iii, with one adjustment.*
     Under **Multi-Page Scanning**, check the **Use automatic document feeder (ADF)** option and the **Duplex scanning** option (to recognize text on both sides).
iv. Click **Scan**.
     This is now, to be saved in the corresponding folder of the book.

Saving, Cropping and Inserting Image Files

Sometimes, images may not be recognised correctly and therefore, to avoid unnecessary duplication of efforts, the scanned images must be saved.

i.   This can be done by clicking on the **Save Images…** option under the **File** Menu or **Ctrl+Alt+S**.
ii. Create a new folder, provide an appropriate file name and save as **JPEG Colour**.
iii. Click on **Save**.
This folder must then be moved to the main folder in PC2.

Decorative borders, textboxes etc. are not to be considered when cropping images.
However, images of people, animals etc. even if not linked to the text, are to be scanned for insertion in the files.
Crop the image (Front and Back Cover included) that would need to be inserted into the Word file. This can be done in many ways. One simple ways is:

➢ By using the **Snipping Tool** application **(for an image or pdf file)**.
     i.   Open the softcopy of the image (JPEG file), with the desired image displayed on the screen.
     ii. Press the Windows Key or the **Start Menu** and type 'Snipping Tool' and click on Enter.
     iii. Click on the **New Snip** button.
     iv. Drag the cursor around the area you want to capture.
     v.   Right click and copy the image, then paste it at the appropriate line on the Word document.

➢ Alternatively, you may also use the **Microsoft Paint** application **(for an image file)**.
     i.   Open the image file using **Paint** or open Paint and paste the mage.
     ii. Chick on the **Select** tool to select a part of the picture and click on **Crop**.
     iii. Save the image and paste it at the appropriate line on the Word document.

OCR for Hindi/Marathi or other regional language books using Google Drive OCR…

Since ABBYY Fine Reader does not support any Indian languages, regional language books must be converted using OCR provided by Google Drive.

This lets you convert images with text into text documents, either individually (.jpg, .png, and .gif files) or in multi-page PDF documents (.pdf). We however recommend processing individual images.

Scan images of the book in a **jpg** format. You may use the auto feeder option on the HP ScanJet Pro 2500 f1 scanners on PC1 and PC3 by following the steps given on the previous page.

On completing scanning,

i. **Sign in** to your Google Drive account.
ii. **Upload** the image files or the folder as whole.
iii. On uploading, right click on an image and **Open with Google Docs**.
   The OCR file (as Google Docs) opens in a new tab. The text then, must be copied to a Microsoft Word document and saved in the corresponding folder of the book.
iv. Repeat step iii. for each image and keep adding to the Word file.

Ensure that all the required images are saved in a folder named IMAGES.
Hence, each book will have one IMAGES folder within its main book folder.

II. Saving, Keeping & Naming Files and Folders

Create a folder and give it an appropriate name as follows. Give the single Master Copy file the appropriate name as well. Capitalise as given in the book. This system of naming the file is followed when uploading books to the accessible online libraries.

Class/Category, Book Name, Edition Number, Year of the Edition
Example:
Class 2 Rhythm in Writing, 2nd Edition, 2014
Class 1 NEW LANDSCAPES PRIMARY GEOGRAPHY 1, 2015
IMS General Awareness CET, 2013

The single OCR Word file will have the same name as the folder.
The name of the book will be decided as per the name that appears on the first page inside.

Ensure that all the required images are saved in a folder named IMAGES.
Hence, each book will have one IMAGES folder within its main book folder.

III. Editing / Proofreading / Formatting Stages:

After the scanning, the file that you work on will be used to make a Braille hard copy book, the DAISY book, the EPUB and the MathML book, so that the same book will be ready to share with different people depending on their needs and preferences.

For ease of process, we have classified these as three types of Word files that will need to be created, as follows:
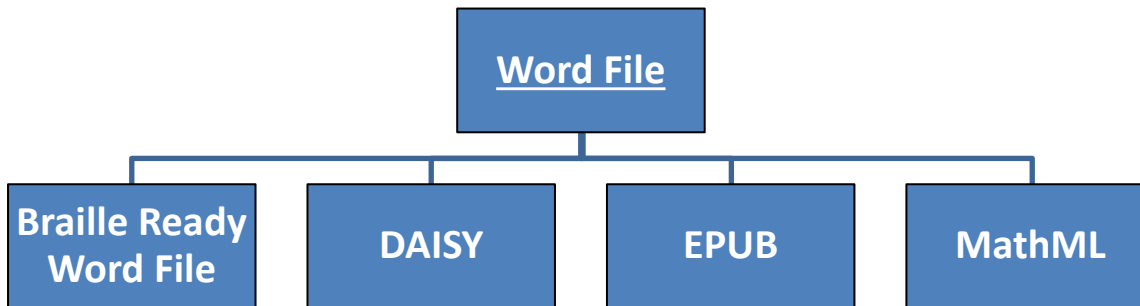
A. **Word File:**
   This file is the master copy and will involve almost all the editing, proofreading and formatting; and is the base which will be used to create the below three files.

B. **Braille Ready Word File:**
   This file will involve editing as required for Braille printouts using a Microsoft Word Add-in called SWIFT; and will be used for translation into Literary Braille (text content) or Nemeth Braille (Maths content) with the help of a Braille translation software.

C. **Digital Accessible Information System (DAISY)**
   This file will be created with the help of a DAISY conversion software.

D. **Electronic Publishing (EPUB)**
   This file will be created with the help of an EPUB conversion software.

E. **MathML**
   This file is created using a MathType Equation Editor used for describing mathematical and scientific content.

A. Master Copy Word File

1. Copy-Paste – Unformat

➢ **Why?**

The OCR scanning throws up errors due to different fonts, formatting, images etc. in the hard copy that is scanned. The first step is to clear this text and directly remove unwanted formatting fluctuations by saving all text in unformatted style. Such unformatting is necessary for a well-made accessible book.

➢ **How to?**

In the file that you are working, follow this process:

i. Press **Ctrl+A** (to select all).
ii. Press **Ctrl+X** (to cut what is selected).
iii. Press **Ctrl+V** (to paste what is cut).
iv. Immediately after pasting, at the bottom right side of the last line of what is pasted, click on the ▼ symbol next to (Ctrl).
v. Click on the option [icon] i.e. the **Merge Formatting**.

Ensure that the Font is standard **Calibri**, the Font size ideally maintained at **11** and that everything is **aligned as in the Physical book**.

i. Press **Ctrl+A**.
ii. Select Font **Calibri**, Font Size **11**.
iii. To align lines as in the print book, keep your cursor on the line and use the text align buttons
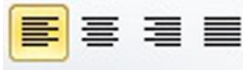
[alignment buttons icon] under the **Paragraph** group in the **Home** tab.

Do not use multiple tabs or spaces to achieve this.

NOTE: The font size may have to be decreased at times in order to fit the contents of a print page onto a Word page.

2. Cleaning up extra Spaces, Tabs, Enters etc.

➢ **Why?**

Unformatting of text by following the process above is only the first step of the clean-up. Next, you have to pay closer attention to look into details.
There may be multiple Spaces where only one is required; some Tabs may appear as Spaces. The OCR process may recognise the Spaces between lines as Enters etc. All this should be cleaned up as explained below.

➢ **How to?**

To begin the editing of the unformatted text, you first have to **remove unwanted Tabs** as follows:

i. Press **Ctrl+Home** (to go to the beginning of the file).
ii. Press **Ctrl+H** (to open the Find and Replace dialog box).
iii. In the **Find what:** field, type **^t** (^t is the code to find a Tab).
iv. In the **Replace with:** field, type a single Space (so that a single Space is used instead of a Tab).
v. Click the **Replace All** button (to make the required changes in the entire file at once)

Similarly, to **remove unwanted Spaces**, you will follow similar steps:

i. Press **Ctrl+Home** (to go to the beginning of the file).
ii. Press **Ctrl+H** (to open the Find and Replace dialog box).
iii. In the **Find what:** field, type two Spaces (because you have to get rid of double spacing).
iv. In the **Replace with:** field, type a single space (so that a single Space is used instead of a two Spaces).

v.   Click the **Replace All** button (to make the required changes in the entire file at once)

Note:
In case, there are three Spaces at any position in the document, logically, they will be reduced to 2. So you would need to remove that one extra space using the same steps again. Hence, it is advised to click the **Replace All** button multiple times, till it informs you that *it made 0 replacements*.

A common mistake occurs while spacing punctuation marks. Most punctuation marks **(, . ; : ? !)** don't require a space before, but after. A single space is left after all punctuation marks if it is followed by words.

Likewise, to **remove unwanted Extra Blank Lines**:
i.   Press **Ctrl+Home** (to go to the beginning of the file).
ii.   Press **Ctrl+H** (to open the Find and Replace dialog box).
iii.   In the **Find what:** field, type **^p^p** (^p is the code to find a Paragraph Mark. Therefore, ^p twice will find all the extra blank lines).
iv.   In the **Replace with:** field, type **^p** (so that all extra blank lines are removed).
v.   Click the Replace All button (to make the required changes in the entire file at once)

Most of the errors mentioned above may be difficult to spot since they all appear blank.
Therefore, you should switch on the option for other hidden formatting symbols:
i.   In the Ribbon / Menu, go to the **Home** tab.
ii.   Under the **Paragraph** submenu, click on the ¶ symbol i.e. the **Show/Hide** option.
When this is switched on, the symbols are shown as follows…

  Spaces are represented by ▪

  Tabs are represented by →

  Enters are represented by ¶

When you notice ¶ at the end of a line even if it is not the end of a paragraph, make sure to replace the incorrectly recognised character (Enter) by the correct one (Space).
To do this, you may either:
i.   Position your cursor at the end of the line where ¶ appears.
ii.   Press the **Delete** button.
iii.   Now, press the **Spacebar**.
  OR
i.   Position your cursor at the beginning of the line below the ¶ symbol.
ii.   Press the **Backspace** button.
iii.   Now, press the **Spacebar**.

Another way to spot this inaccuracy is by looking out for the errors recognised by MS Word itself.
Whenever you notice a green or red wavy underline…
i.   Position the cursor in the middle of the relevant word / phrase.
ii.   Right-click to look for correct options.
  OR
i.   In the Ribbon / Menu, go to the Review tab.
ii.   Under the Proofing submenu, click on the **Spelling & Grammar** option.

The example below shows errors like an incorrectly recognised Enter and Tab within a raw OCR'd file, which need to be changed.

THE·COMPASS¶

An·instrument·called·the·compass·helps·us·to·find·directions.·· When·the·compass·is·placed·on·a¶ flat·surface,·the·needle·swings·around·and·finally·points·to·the·north.· → Regardless·of·where· you·are,·the·compass·always·points·towards·the·north.·The·other·cardinal·and·sub-cardinal· directions·are·also·marked·on·the·compass.¶
¶

Below is the corrected version of the above example.

> THE·COMPASS¶
>
> An·instrument·called·the·compass·helps·us·to·find·directions.··When·the·compass·is·placed·on·a·flat·surface,·the·needle·swings·around·and·finally·points·to·the·north.·Regardless·of·where·you·are,·the·compass·always·points·towards·the·north.··The·other·cardinal·and·sub-cardinal·directions·are·also·marked·on·the·compass.¶
>
> ¶

3. Inserting blank lines (enter)

Extra Blank Lines (Enter) to be used only as follows.
- Before and After the <u>Chapter</u> name line
- Before and After a <u>Picture</u>
- Before and After a <u>Table</u>
- Before beginning a <u>Text box/Sidebar</u> and After ending a Text box/Sidebar
- Only Before <u>Section Headings</u> and <u>Subheadings</u> (NOT AFTER)
- In case of an overlap of line, always leave a single line. Never leave double lines

4. Inserting Copyright Notice & Cover Pages Info

Insert the Metadata, Copyright Notice and Disclaimer from the separate file, as the first page of the book. This page, along with the front and back covers are to remain unnumbered.

Use **Ctrl+Enter** to insert a page break before the main text.
Do not press Enter multiple times to go to a new page.

Therefore,
Page 1 = Copyright Notice
Page 2 onwards = Textbook Content beginning with the Front Cover

On a new page, after the Copyright Notice, the whole scan of the front cover will be inserted as an image with appropriate Alt Text (and Image Description) for the same. Image Description may be written below the image in case of long Alt-Text. In the Alt-Text tagged to the image, mention "Picture: Front cover of the book as described below.") Ensure that the Alt Text explains the placement of different aspects on the page.

> Front Cover begin
> MADHUBAN ® (logo)
> Revised
> Transitions
> HISTORY AND CIVICS 5
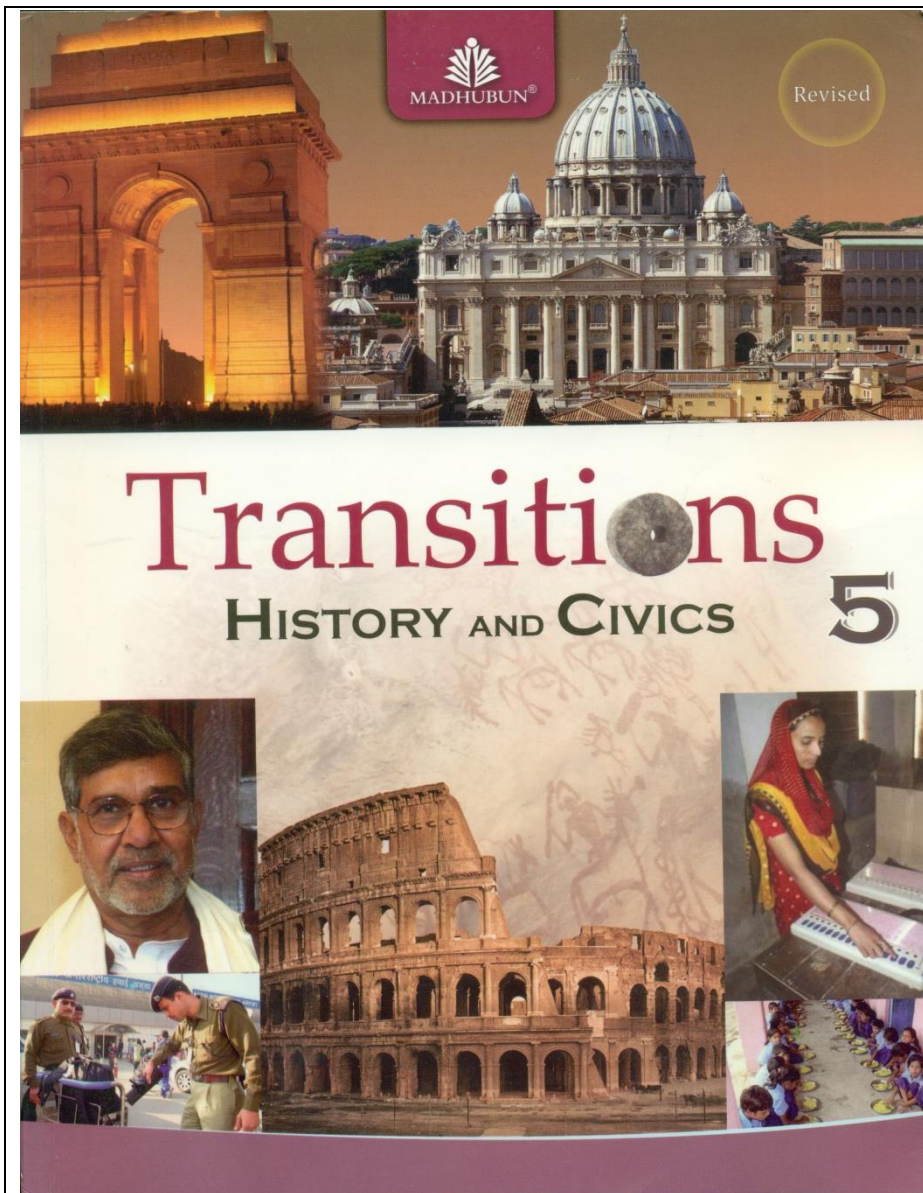
Front Cover end

Image description begin
The page has a collage of the following images on it:
India gate lit up at night, the main façade and dome of St. Peter's Basilica.
Below is a photograph of Kailash Satyarthi, and another of two policemen checking baggage at an airport.
In the bottom centre is a photograph of The Colosseum. The bottom right has a photograph of a lady using an electronic voting machine and below is a photograph of children in school uniforms eating while seated on the floor in rows.
Image description end

(Check the Alt-text for the above front cover by placing your mouse pointer over the image.)

5. Inserting Page Numbers

➢ Why?

Most often, teachers in schools ask students to "Open to page __." When a blind or low vision student studies in an inclusive school, these numbers will not match the Braille pages or the Accessible E-book file pages. Hence, you need to insert page numbers as per the sighted print textbook so that the visually impaired student can literally, 'be on the same page' as the rest of the class.

➢ How to?

The content of a print page must be fitted within one Word page and separated with the next and previous with a **page break**. To achieve the following;

- the size of the page can be increased in Word (Under the **Page Layout** tab, choose a bigger paper size under **Size** in the **Page Setup** group)
- the margins of the page can be widened
- the font size of the text can also be decreased in case the text still spills onto the next page.

Insert page numbers as footers using the **Page Number** option in the **Header & Footer** group under the **Insert** tab. Select the third option – **Plain Number 3**.
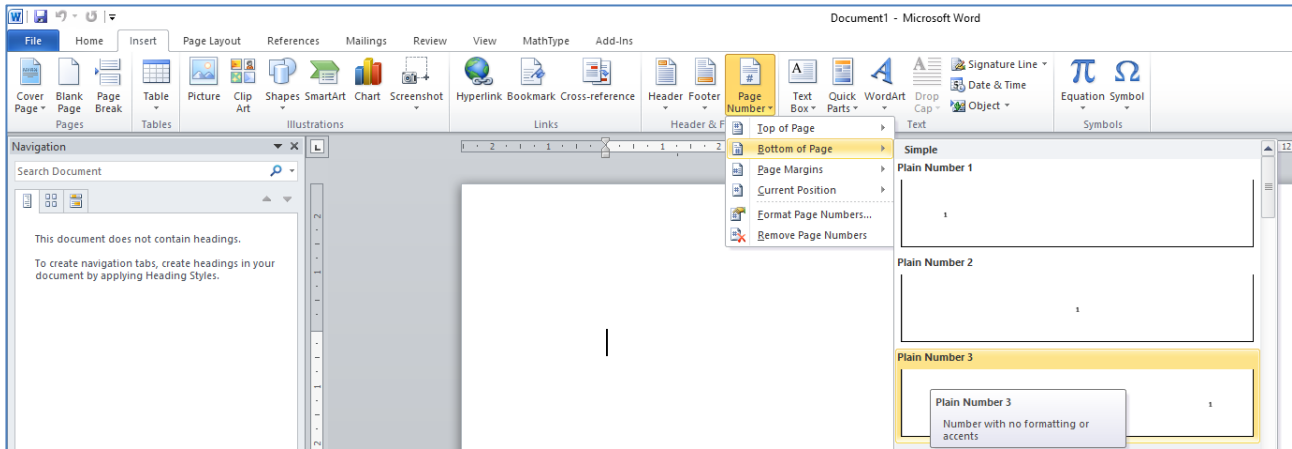
Section Breaks:

Retain the page numbering as it is in the print book. If the book contains page numbering of the type i, ii, iii… or A, B, C… or 1, 2, 3… etc, retain them in your Word file. For Hindi/Marathi books, you may use १, २, ३… etc. Page numbers should correspond to the relevant content.

Thus, each section might have a different header or footer with different page numbers.

To achieve this, divide you r document into sections, those that have the same page numbers. For example; pages numbered in Roman numerals (I, II, III… or i, ii, iii…) will be sectioned by adding a **Section Break.**

i. Under **Page Layout** tab, go to the **Page Setup** group and click on **Breaks**.
ii. Then select **Next Page** under **Section Breaks** in the dropdown list.

After these Section Breaks are added, format the page numbers for every section separately.

iii. Go to the **Format Page Numbers** option under **Page Number** in the **Header & Footer** group as shown below and select the appropriate number format.
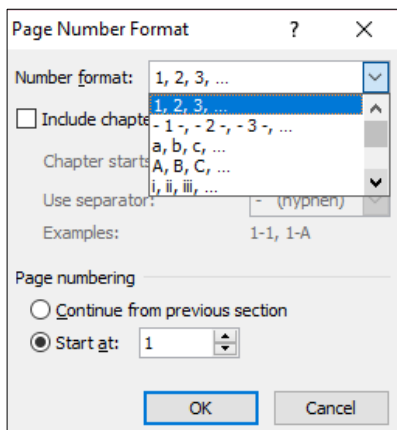
- **To leave pages unnumbered**, for example, the copyright and cover pages, a section break would be required.
  1. Then, on the first page of the section from which you want to remove page numbers, double-click the header or footer to open it.
     Note: The sections in your document are numbered. When you edit a header, you will see a label that says **Header -Section x-** or **Footer -Section #-**, as well as information about whether that section is linked to the previous section.
  2. Select the page number and delete it. All page numbers in that section will also be deleted.
     If this doesn't work, on the **Design** tab, in the **Navigation** group, make sure **Link to Previous** is not selected.

- For **initial and final content** present on pages that are not part of chapters, use these words appropriately.

Example:

Front Cover begin/end
In Hindi, follow this:
सामने का कवर शुरू/अंत
In Marathi, follow this:
मुखपृष्ठ सुरू/समाप्त

Inner Front Cover begin/end
In Hindi, follow this:
भीतर का सामने कवर शुरू/अंत
In Marathi, follow this:
आत मुखपृष्ठ सुरू/समाप्त

Inner Back Cover begin/end
In Hindi, follow this:
भीतर का पीछे कवर शुरू/अंत
In Marathi, follow this:
आत मलपृष्ठ सुरू/समाप्त

Back Cover begin/end
In Hindi, follow this:
पीछे का कवर शुरू/अंत
In Marathi, follow this:
मलपृष्ठ सुरू/समाप्त

Since these pages are to remain unnumbered, add a section break after inner front cover.
Under **Page Layout** tab, go to the **Page Setup** group and click on **Breaks**. Then select **Next Page** under **Section Breaks** in the dropdown list.

- Add the whole Front and Back covers as images, with text on it written outside the Description box, and Alt-Text and Image Description (written below in case of long description) focusing on only the images on the page.
- In case you come across a new page which is blank (no text or images), you need to insert the following statement in brackets on the relevant page.

For books in English:
(This is a blank page.)
For books in Hindi:
(यह खाली पृष्ठ है।)
For books in Marathi:
(हे रिकाम पान आहे.)

6. Handling Images

➢ Why?

All books are made considering that either a blind or a low vision student might use it. Hence, all images from the textbook will be scanned, cropped, and added to the Master Copy file.
Decorative borders, textboxes etc. are not to be considered while inserting images.
However, images of people, animals etc. even if not linked to the text, are inserted in the Master Copy. All Tree Diagrams, Flowcharts, Crosswords, Word Puzzles, Mazes etc. will be treated as images.
Image Description (Alt Text) needs to be added for every image inserted, as far as possible.
However, tactile diagrams are to be created only for relevant diagrams, as decided by the staff in charge.

➢ How to?

i. Although ABBYY Fine Reader recognises and inserts images in the Word file, they may not be placed on the desired line.
Position the image either before or after the relevant text content that is connected to the picture, but never in the middle of a paragraph.

ii. Double-click on the image. (This opens the Format tab in the Menu bar.)

iii. Click on the ▣ symbol i.e. the Crop option.

iv. Always crop the image only from the 4 corners - i.e. bottom-right, bottom-left, top-right or top-left.
This is done so that the proportion of the image is maintained.

v. Crop the image as close to the required portion as possible, without cutting off any relevant lines.

vi. Sometimes, captions appear below / above images. Make sure to exclude the captions of all images as part of the picture to be pasted. The caption will be written above the image inserted, as demonstrated later.

vii. Paste the image in the document with a blank line before the caption (if any) and one after the image.

viii. When separate images are found next to each other, place them one below the other in the Master Copy file.

ix. When there are images in Match the Column questions, use the same format of placing images one below the other. Use additional numbering, as required.

x. **Handling Flowcharts:**
When flowcharts with text or images are present, crop the whole flowchart as a single image with Alt-Text and Image Description written below it.
The Alt-Text will read — Picture: Image of a Flowchart as described below.

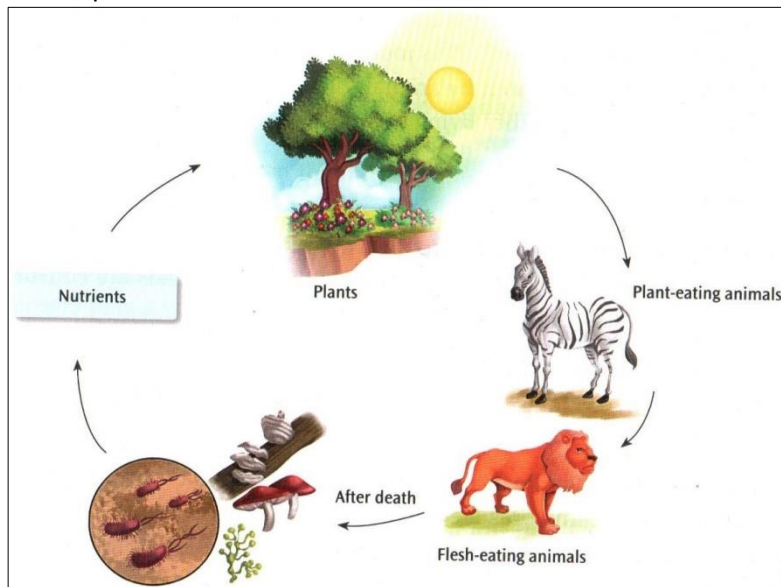Interdependence in the environment

Image Description begin
Flowchart showing an arrow pointing from a drawing of microorganisms and fungi shaped like mushrooms, etc. to the word 'Nutrients'. Another arrow from 'Nutrients' points to a drawing of a garden with trees and flowering plants, with the sun shining in the background labelled 'Plants'. An arrow from here then points to a drawing of a Zebra labelled 'Plant-eating animals'. From the zebra is an arrow pointing to a Lion labelled 'Flesh-eating animals'. From the Lion is an arrow pointing back at the microorganisms and fungi, indicating the cycle continues.
Image Description end

(Check the Alt-text for the above image by placing your mouse pointer over it.)

xi. **Handling Tree Diagrams:**
Tree Diagrams are also to be added as an image with appropriate Alt-Text and Image Description.
The **Alt-Text** will read — Picture: Tree Diagram as described below.
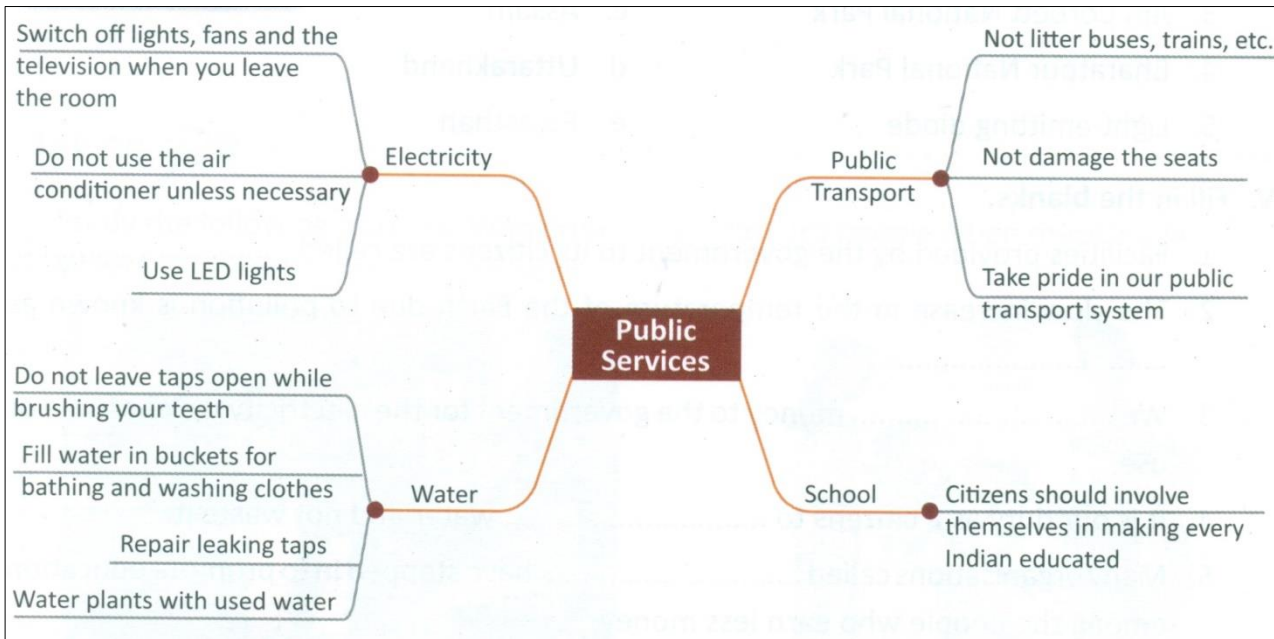Use the **Multilevel List** in the **Paragraph Group** under Image Description to show hierarchy.

Image Description begin
Tree diagram showing
1. **Public Services**
   1.1. **Electricity**
      1.1.1. Switch off lights, fans and the television when you leave the room
      1.1.2. Do not use the air conditioner unless necessary
      1.1.3. Use LED lights

   1.2. **Water**
      1.2.1. Do not leave taps open while brushing your teeth
      1.2.2. Fill water in buckets for bathing and washing clothes
      1.2.3. Repair leaking taps
      1.2.4. Water plants with used water

   1.3. **Public Transport**
      1.3.1. Not litter buses, trains, etc.
      1.3.2. Not damage the seats
      1.3.3. Take pride in our public transport system

   1.4. **School**
      1.4.1. Citizens should involve themselves in making every Indian educated
Image Description end
*(Check the Alt-text for the above image by placing your mouse pointer over it.)*

Inserting Alt Text after pasting the image…

i.   Select the image and right-click to select Format Picture as shown below.
ii. In the Format Picture dialog box, choose Alt Text.
iii. Add the image description in the Description box.
iv. Begin all image descriptions with "**Picture:** "   In Hindi/Marathi, follow this: **चित्र:**

For images which already have a caption, the caption is written below the picture after the image is cropped and added to the document.
v.   Close the dialog box.
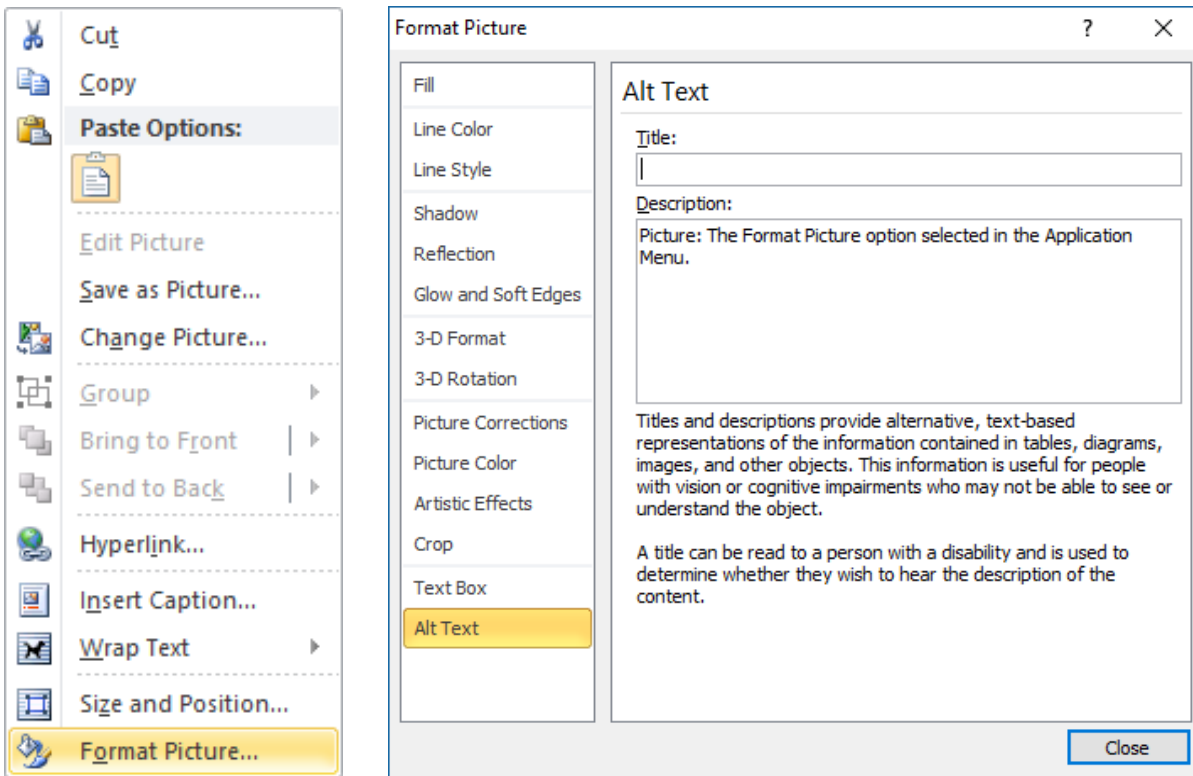
Keep in mind the following points when writing the Alt Text (description of an image).
- ✓ Alt-Text shouldn't be a sentence, but a statement.
- ✓ Give detailed explanation which would aid the lesson.
- ✓ Read the text around the images to make sure you are using the same terms as the text.
- ✓ If the image description is going to be word to word (or only slightly different from the caption already given, there is no need of the description to follow the caption.
   Wrong Example,
   Fig. 9.3 Main screen of Tux Paint ⟶ Caption
   Alt-Text: *Picture: Main screen of Tux Paint*
- ✓ Read and understand the context of the image. As far as possible, the description of the image should not readily give the child the answer which he/she is expected to find out. In such cases, consider tactile diagrams.
   Example, if in the textbook the student is required to identify a shape; the image description should be:
   Picture: A shape
   (Refer to tactile diagram.)
   and not *'Picture: a square'*.
- ✓ Sometimes, captions appear below / above images. Insert the caption as part of the Alt Text, as mentioned under <u>iii</u>.

Example of a short Image Description inserted as Alt-Text in the Description box—

Coins and paper notes make up the Indian currency. ⟶ Caption

(Check the Alt-text for the above image by placing your mouse pointer over it.)

Examples of long Image Descriptions being added under the image—

When the Alt-Text gets too long (more than one statement), it shouldn't be written in the Description box under Alt-Text. This is because you cannot navigate through the text inserted as Alt-Text, if one wishes to.

In this case, it is written below the image with the words **Image Description begin** before it on a new line and end with **Image Description end** after it, also on a new line.

The Description box, however shouldn't be left blank and you must add a short one sentence Alt-Text mentioning that the image description is given below/refer.

Example,

Picture: Graph showing … as described below.

EXAMPLE 1:

Here is an example of an image in the Computer textbook.

When describing this image, use the words <u>tab</u>, <u>group</u> etc. as used in the text.

1. In the **Image** group on the **Home** tab, click **Select**.
2. Drag the mouse pointer to select the area of the drawing you want to cut.
3. In the **Clipboard** group, click the **Cut** option.
4. In the **Clipboard** group, click the **Paste** option (Fig. 4.2).
5. The selected part is pasted at the top-left corner of the drawing area. Notice that the object is still selected. Click and move it to the desired position.

Fig. 4.1 Selecting the **Cut** option

Fig. 4.1 Selecting the **Cut** option

Image Description begin

The Paint window with a yellow star with orange borders with its top half selected; and arrows pointing to the required areas:

Foreground colour (orange)

Background colour (red);
with instructions to:
1. Click Select
2. Select the area of the drawing you want to cut
3. Click the 'Cut' option
Image Description end

(Check the Alt-text for the above image by placing your mouse pointer over it.)
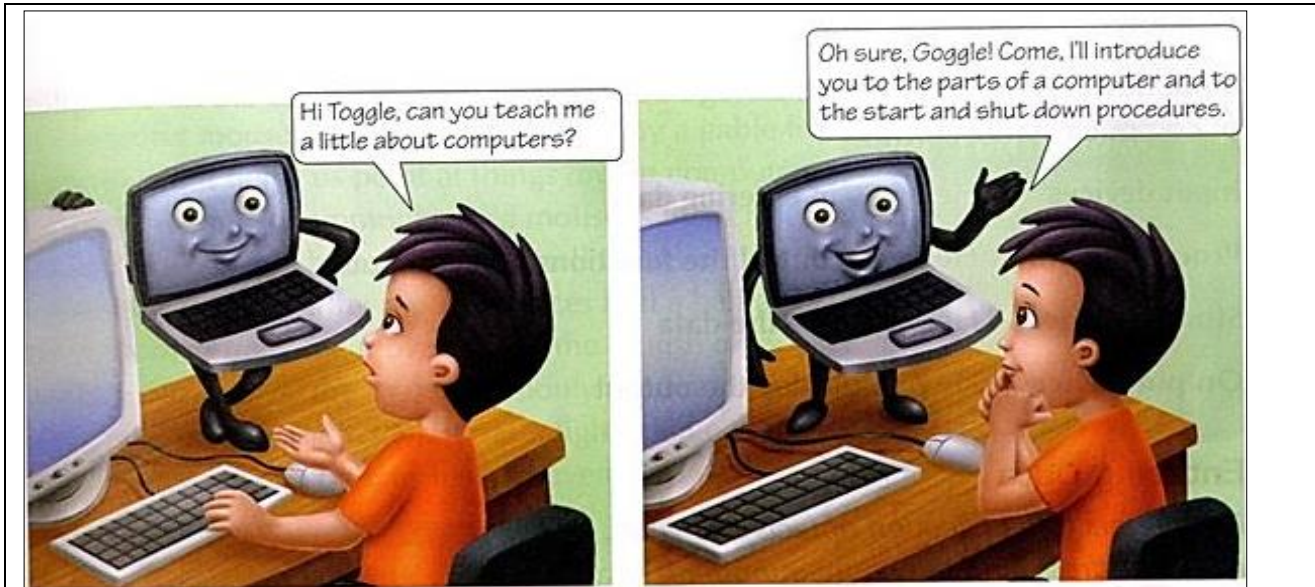
EXAMPLE 2:

Image Description begin
BOY: Hi Toggle, can you teach me a little about computers?
COMPUTER: Oh sure, Goggle! Come I'll introduce you to the parts of a computer and to the start and shut down procedures.
Image Description end

(Check the Alt-text for the above image by placing your mouse pointer over it.)

EXAMPLE 3:
If a poem / dialog (literal text) is placed on an image like in the example below, it should be inserted as text before the image. The image must then be cropped and Alt-Text provided. Provide Image Description if the Alt-Text gets too long to insert in the description box.

Loveliest of trees, the cherry now
Is hung with bloom along the bough,
And stands about the woodland ride
Wearing white for Eastertide.

Now, of my threescore years and ten,
Twenty will not come again,
And take from seventy springs a score,
It only leaves me fifty more.

And since to look at things in bloom
Fifty springs are little room,
About the woodlands I will go
To see the cherry hung with snow.

—A.E. Houseman

Loveliest of trees, the cherry now
Is hung with bloom along the bough,
And stands about the woodland ride
Wearing white for Eastertide.

Now, of my threescore years and ten,
Twenty will not come again,
And take from seventy springs a score,
It only leaves me fifty more.

And since to look at things in bloom
Fifty springs are little room,
About the woodlands I will go
To see the cherry hung with snow.

A.E. Houseman

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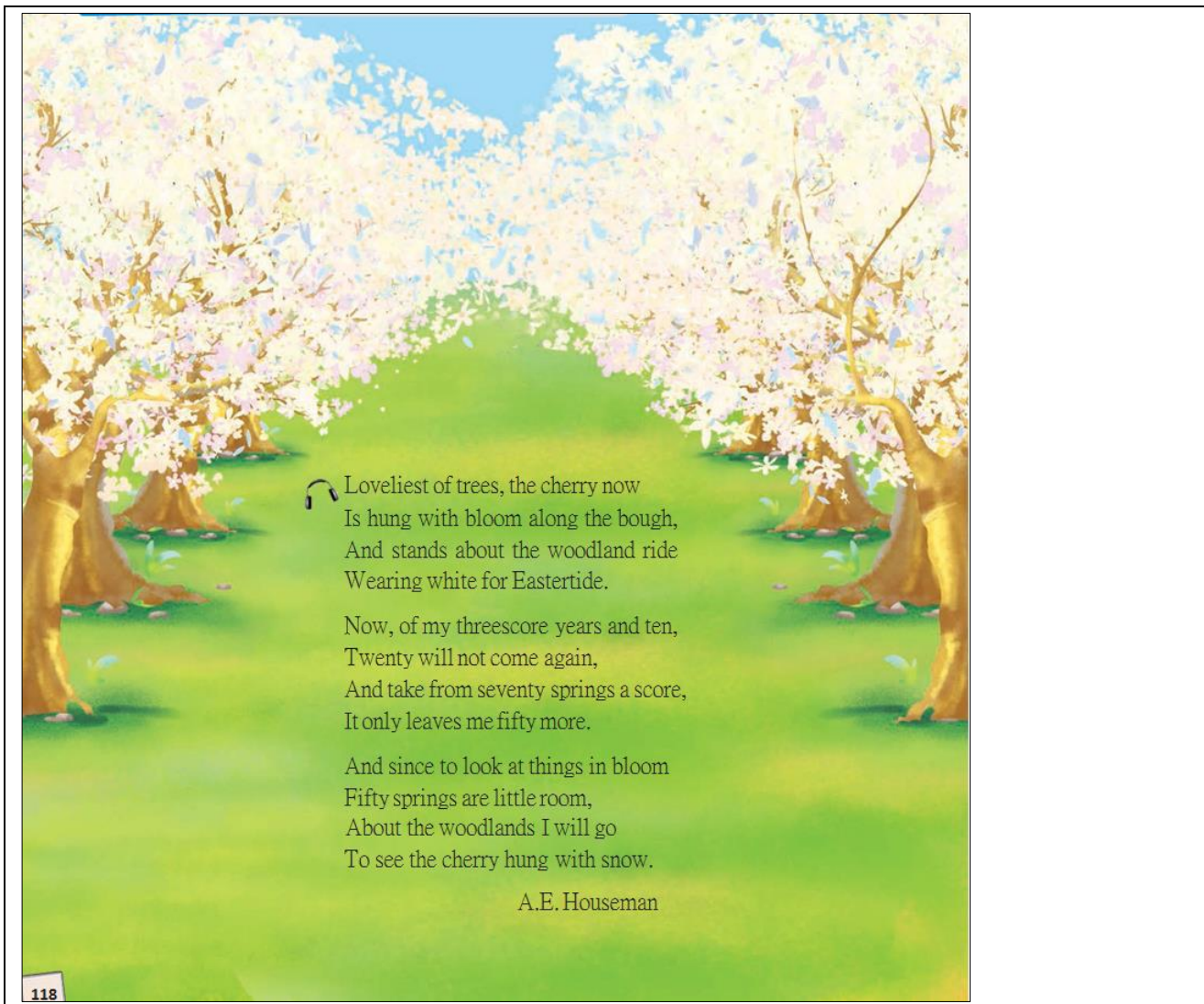
(Check the Alt-text for the above image by placing your mouse pointer over it.)

Also check for Style Guides at http://diagramcenter.org/table-of-contents-2.html
While you can use your judgement to create Alternative Text / Image Description, do run your ideas by the XRCVC staff who has assigned the work to you. As the nature of description is very contextual and may be different in different situations, highlight in yellow all the changes you have made in the file for easy future reference. Check with the relevant staff whether description is required in detail, or tactile diagram is to be created.

Note:
The Alt Text will be written in the relevant language – Hindi Alt Text for Hindi books, Marathi Alt Text for Marathi books.

NOTE FOR POINTS 7 to 18
Many a time, reference text, exercises & activities in the sighted print book may not be accessible if left as they are in the Master Copy book used by the blind or low vision student. Hence, one needs to use their discernment and edits should be made accordingly.
Especially because textbooks are typically very visual and pictorial along with providing Image Descriptions as well Tactile Diagram Supplements with the accessible content, certain modifications to the text may also be required. These adaptations need to be considered and will differ each time in each context. Always check all changes.

Here are a few examples of adaptations typically made to textbook materials when converting them to accessible books.

7. Replacing Visual Words
(NOT APPLICABLE to books from Class 11 onwards)

- Change 'Fill in the boxes / grid etc…' to **Fill in the blanks.**

- Questions like 'Fill in the blanks with the words given in the box / cloud / tree' etc. should be changed to **Fill in the blanks with the words given in brackets.**
  Note:
  Here we use round brackets / parentheses.

- Since we will be using bold instead of colour, in cases where the text says, 'Refer to the words in colour.', we put each relevant word / phrase in **Bold** and change the text colour to **Blue** (from the Standard Colors list under Font Color). The text will have to be edited accordingly as **Look at the words in blue and bold.**
  In Hindi text, make the change using the words below:
  Example: रंगीन छपे शब्दों से सर्वनाम चुनो|
  Master Copy: मोठे और नीले छपे शब्दों से सर्वनाम चुनो|

जंगल का राजा शेर होता है। चापलूस सियार हमेशा उसके साथ रहता है। शेर बड़ा शक्तिशाली है और सियार बुद्धिमान। चालाक सियार अपनी बुद्धि से शेर की शक्ति का इस्तेमाल करता है। एक दिन सफ़ेद खरगोश ने शेर को सियार की असलियत बताई। शेर ने सियार को उसकी गलती का दंड दिया।

उपर्युक्त वाक्यों में रंगीन शब्द संज्ञा या सर्वनाम की विशेषता या गुण बता रहे हैं, जैसे–

| शेर कौन है? | राजा | शेर कैसा है? | शक्तिशाली |
| सियार कैसा है? | चापलूस, चालाक, बुद्धिमान | खरगोश कैसा है? | सफ़ेद |

NOTE:
Since, all the above are changes we make to the content of the book, it is necessary to add a **Producer's Note** before the section that has been changed.
Producer's Note: The section below has been modified for accessibility.

8. Handling Visual Marks
(NOT APPLICABLE to books from Class 11 onwards)

Also, where answers have been Circled / Crossed / Boxed / Struck through or for visual lines showing answers of Match the Columns, in order for the sighted student to know; this may be represented in simple text as shown below.

Example 1:
a. true – beautiful   bad   false   same

Master Copy:
Ans. true - false

Example 2:

Column A gives a list of eight common nouns. Column B gives a list of eight proper nouns. Match them by drawing lines:

Common Nouns	Proper Nouns
1. country	Gateway of India
2. city	Shikhar Dhawan
3. building	Ramayana
4. cricketer	Japan
5. car	Tokyo
6. river	Nanda Devi
7. book	Chevrolet
8. mountain peak	Godavari

Common Nouns	Proper Nouns
1. country	a. Gateway of India
2. city	b. Shikhar Dhawan
3. building	c. Ramayana
4. cricketer	d. Japan
5. car	e. Tokyo
6. river	f. Nanda Devi
7. book	g. Chevrolet
8. mountain peak	h. Godavari

Ans.: 1. - d

Example 3:

विशेषण शब्द छाँटकर गोला लगाइए।

यह   लालची

दानी   बेचना
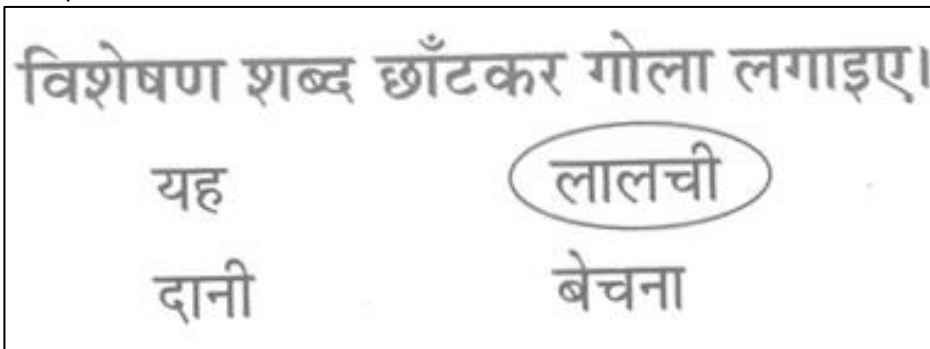
उत्तर: लालची

NOTE:
This section also requires a Producer's note to be added, before the section that has been changed.
Producer's Note: The section below has been modified for accessibility.

9. Handling Cross & Tick symbol"
When you come across any section which has cross and tick mark in it, crop it as an image and add alt text – "cross mark" & "tick mark" respectively.
Example:
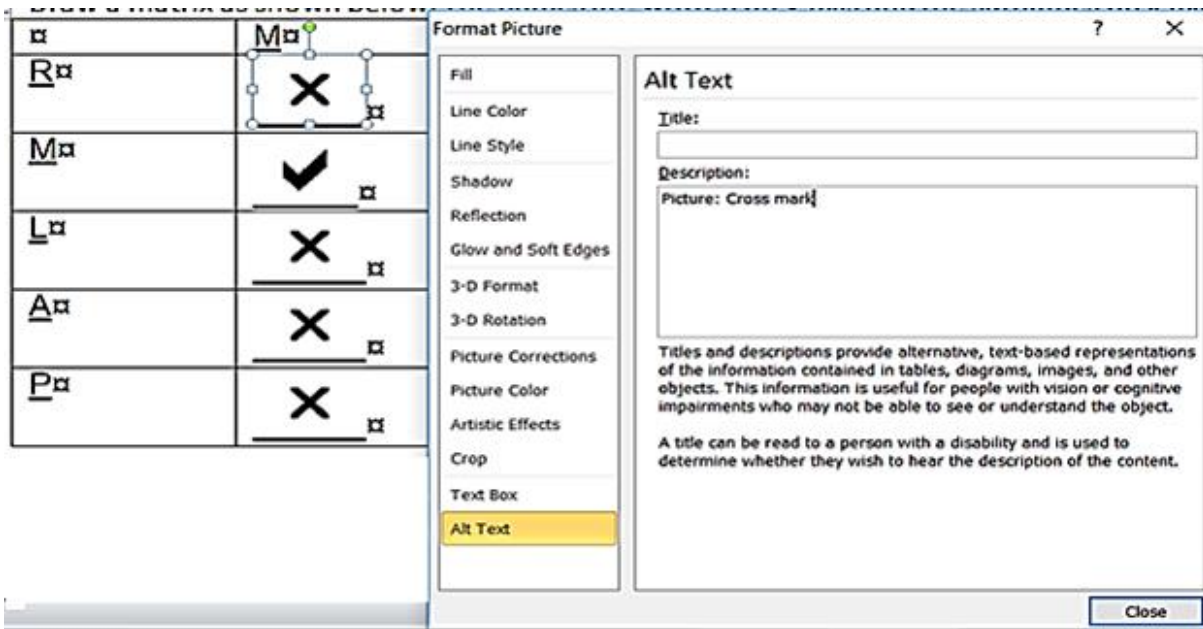
10. Retaining Visual Instructions

- *When questions mention to draw, do not change the question, since the visually impaired child should have practice in drawing as well.*
- You do not need to alter statements like, 'Look at the words below.' The child will be looking and reading with their fingers and/or ears.
- Activities involving colouring shouldn't be substituted or removed.
  A blind child can be expected to colour within tangible boundaries on tactile diagrams provided. If the activity / exercise can be made more interesting / appealing to the child by colouring, the question should be kept as it is and an appropriately created tactile diagram should be provided for the same.
  Even within e-copies, shading, highlighting or a font colour change may be applied to the required text once selected.

11. Additional Numbering

Some books may not include question numbers as the sighted students are expected to fill in their answers in the textbook / workbook / worksheet itself. Questions of this kind would need to be numbered since the student using the Braille book would be answering these questions on a separate sheet and inserting question numbers will help the student link them to the original questions.

Note:
If question numbers are already mentioned, do not change them.

In exercises, when a student may be required to pick out answers from a list, change all symbolic bullets to numbers instead.

Example:

While speaking, we often make some very common mistakes. In each pair, one sentence is incorrect. Do you know which one?

- Today morning I got up at 6 o'clock.
- This morning I got up at 6 o'clock.

Master Copy:
1. While speaking, we often make some very common mistakes. In each pair, one sentence is incorrect. Do you know which one?
   a. Today morning I got up at 6 o'clock.
   b. This morning I got up at 6 o'clock.

- **For Match the Columns:**

In case of information in columns without headings, give names **Column A** and **Column B**.

All items in all columns should be numbered so that the user does not have to write the entire word / phrase / sentence in the answer sheet.

Depending on the original text in the sighted print, if one of these sequences is already used in one column, choose from another series for the remaining columns.

1. 2. 3. …, a. b. c. …, i. ii. iii. …, A. B. C. … etc.

- **For questions without answer options i.e. not MCQs**

  First level – A. B. C. or I. II. III. (Based on previous numbering within the chapters of the book)
  Second level – 1. 2. 3.
  Third Level – a. b. c.
  Fourth Level- i., ii., iii.

  A. OBJECTIVE QUESTIONS
  1. Name the following:
     a. The part of the plant which grows under the ground.
     b. The part of the plant which grows above the soil.

  2. Mention the functions of the following:
     a. The Plant
        i.   Spines
        ii. Tendril
        iii. Scale leaves

  3. Define venation. What are the different types of venation found in the leaves?

  B. LONG ANSWER QUESTIONS (Write the answers in your notebook)
  1. Differentiate between the following:
     a. Tap root and fibrous root.
     b. Simple leaf and compound leaf.
     c. Parallel venation and reticulate venation.

- **For questions with answer options i.e. MCQs**

  First level – 1. 2. 3.
  Second level (options)– a. , b., c.

  A. Choose the appropriate answer:
  1. Identify the plant which has compound leaves.
     a. Banana
     b. Banyan
     c. Mango
     d. Rose

  2. Which one of the following is not an insectivorous plant?
     a. Pitcher plant
     b. Venus flytrap
     c. Bladderwort
     d. Cactus

NOTE:
This section also requires a Producer's note to be added, before the section that has been changed.
Producer's Note: The section below has been modified for accessibility.

<div align="center">**12. Multilevel lists**</div>

➢ Why & How?

Lists of words & phrases are shown in different ways at different times in sighted print textbooks. However, to maintain as much uniformity as possible, and so that the visually impaired user does not get confused, you will do the following:

Multiple Choice Questions (MCQs): Applies to options given for each question

▪ **Numbered Lists**

They are to be arranged one below the other. The list with numbering should be generated using the auto number feature of the MS Word. Manual numbering should be avoided. To match the numbering format as in the print book, you can customise it by selecting the **Define New Multilevel List** option under the Paragraph group.

Example 1:

Master Copy:

C. Speak out the degrees of comparison of these words: (for oral practice)
   1. wide
   2. soft
   3. lazy
   4. sweet
   5. cheerful

▪ **Bulleted Lists**

(FOR BULLETED LISTS, follow rules as per those given in point 11 below.)

Example 2:

Master Copy:

2. before the names of things that are only one of their kind:
   • the sky
   • the earth
   • the moon

▪ **MCQ Bulleted Lists**

In exercises, when a student may be required to pick out answers from a list, change all symbolic bullets to numbers instead. (Follow the numbering rules as per Point 9 MCQ section)

Example:

While speaking, we often make some very common mistakes. In each pair, one sentence is incorrect. Do you know which one?

- Today morning I got up at 6 o'clock.
- This morning I got up at 6 o'clock.

Master Copy:

1. While speaking, we often make some very common mistakes. In each pair, one sentence is incorrect. Do you know which one?
   a. Today morning I got up at 6 o'clock.
   b. This morning I got up at 6 o'clock.

- **MCQ Non Bulleted Lists**

When non-bulleted or non-numbered options are presented without brackets and commas, place them horizontally in a line in round brackets, separated by a comma, and a space.

Example 1:

K See the pattern and then fill in the blanks with the following words:

mine   ours   yours   his   hers   theirs

Master Copy:

K. See the pattern and then fill in the blanks with the following words:
(mine, ours, yours, his, hers, theirs)

Example 2:

2. सकर्मक व अकर्मक क्रियाओं को छाँटकर अलग-अलग लिखिए।

डरना , हँसना, खाना, सुनाना, तोड़ना, जागना, रोना, सींचना, बुलाना, चमकना

Master Copy:

सकर्मक व अकर्मक क्रियाओं को छाँटकर अलग-अलग लिखिए।
(डरना, हँसना, खाना, सुनाना, तोड़ना, जागना, रोना, सींचना, बुलाना, चमकना)

- If non-numbered options are given in brackets, next to each other, with commas or slashes keep as is.

2. रिक्त स्थानों को उचित सर्वनाम शब्दों से भरिए।

क. ———————— विद्यालय जा रहा है।   (मैं / वह)

ख. विद्यालय के सामने ही ———————— घर है।   (तुम / उसका)

B Fill in the blanks with the **past tense** of the verbs given in the brackets:

1. Karan _____ some beautiful seashells and _____ to his father to tell him about them. (see, run)

2. The judges _____ my painting very much. They _____ me the first prize. (like, give)

- In case options are separated by commas or slashes, but not put within brackets, then add round brackets around the relevant words or phrases.

Example:

1. January is the **colder/coldest** month of the year.

2. Mumbai is **big/bigger** than Delhi.

Master Copy:
1. January is the **(colder/coldest)** month of the year.
2. Mumbai is **(big/bigger)** than Delhi.

13. Handling Bullets and Sub-bullets

➢ Why & How?

The various visual bullets typically inserted in Word can be made accessible to be read out by the Screen Reader. These can then, also be transliterated correctly in Braille using the SWIFT Add-in.
In Braille, the convention is to use dots 2,5 twice i.e. two hyphens (--) before a bulleted point, with no space before and after.

Bulleted list
The bulleted list should be prepared using the Word **Bullets** feature. Built-in styles should always be used to create the unordered lists.

Example:
➢ apple
➢ mango

Sub-bullets
❖ Class 5 ICSE Guided Mathematics
  ➢ Large Numbers
    ▪ Understanding Numbers Better
      • Worksheet 1
    ▪ International Place Value System
      • Worksheet 2

Hence, Bullets with sub-bullets are treated similar to Tree Diagrams numbering listed in point 9.

Note: *It is important that you insert these bullets using the automated bullets feature in Word.*

14. Handling Table of Contents

➢ Why?

The Table of Contents/Index page of the book that usually appears in the first few pages is to be created by adding an auto generated Table of Contents template. This synchronises the pages of the accessible book with pages of the print book.

➤ How to?

   i.   Position your cursor on the line that the Table of Content appears in the print book.
   ii.   In the Ribbon / Menu, go to the **Reference** tab.
   iii.   Click on the **Table of Contents** dropdown & select either **Automatic Table 1** or **Automatic Table 2**.
           *(The only difference between the two is that **Automatic Table 1** is labelled 'Contents' and **Automatic Table 2** is labelled 'Table of Contents'.)*

15. Handling Tables

➤ Why?

One can easily navigate through tabular information in an E-Copy book using a Screen Reader which announces the Column number & Row number & the relevant information. On entering a table, the software gives an overview of the total number of columns & rows.

➤ How to?

To insert information in tables:
   iv.   In the Ribbon / Menu, go to the **Insert** tab.
   v.   Click on the Table dropdown & select the number of rows and columns from the grid, as required.
   vi.   Click on the last needed cell at the bottom-right.
   vii.   Click on the **OK** button.
OR… replace steps ii & iii with the following.
ii.   Click on the Table dropdown.
iii.   Click on the **Insert Table** option which will open a dialog box where you enter the **Number of Columns** & **Number of Rows** required.

When a table spans over two or more pages;
   -    the **header row must be repeated on every page**. To achieve the following, go to **Table Properties**, and check the '**Repeat as header row at the top of each page**' option under **Row** tab.
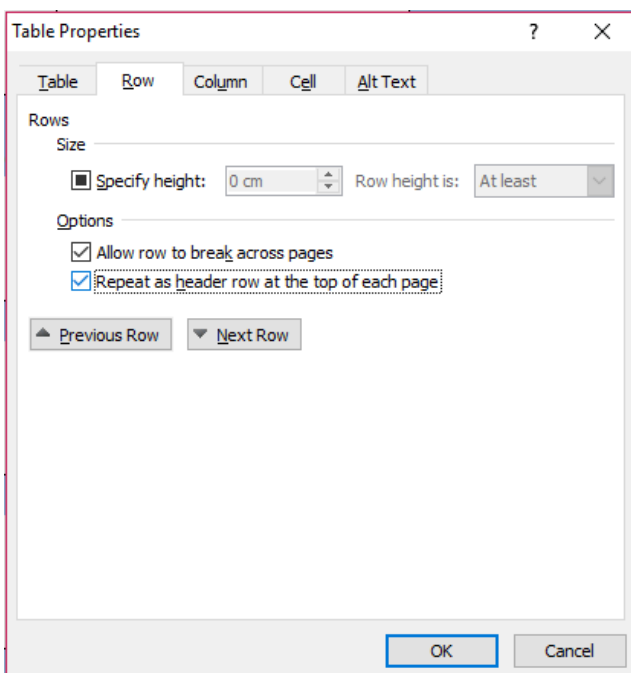
It is IMPORTANT that you do not try to achieve this manually.

- For the same purpose, the table should be **one single continuous table** and must **not contain page breaks**.
- Even though, this isn't a significant change, we will **add a Producer's note** stating that this section is modified for accessibility.
- a **Producer's note** stating that the tables spans from pages 56-58, for example, will also be added.

Use tables for all topics where one needs to read the columnar information line wise.

Here are some examples of where tables are to be inserted:

- Subject & Predicate

Example:

Subject	Predicate
1. Birds	fly
2. The sun	rises
3. The moon	shines at night

Master Copy:

	Subject	Predicate
1.	Birds	fly
2.	The sun	rises
3.	The moon	shines at night

- Correct & Incorrect statements

Example:

Use the words *tell*, *told*, *say* and *said* correctly:

What we should not say	What we should say
I will tell to the teacher that I cannot do this sum.	I will tell the teacher that I cannot do this sum.
My mother told to me to finish my homework.	My mother told me to finish my homework.

Master Copy:

Use the words *tell*, *told*, *say* and *said* correctly:

What we should not say	What we should say
I will tell to the teacher that I cannot do this sum.	I will tell the teacher that I cannot do this sum.
My mother told to me to finish my homework.	My mother told me to finish my homework.

- Bullets & sub-bullets will be auto-nested in the same cell.

Example:

Unit	Comprehension	Working with Words	Learning about Language	Listening & Speaking	Composition/Activity
1. Message in a Bottle	A short tale with plenty of conversation • Questions • Recall: true or false • Reference to context	• Anagrams • Spelling • Sentence completion	• Nouns • Sequencing	• Question tags	• Composing a paragraph using the words given

Master Copy:

Unit	Comprehension	Working with Words	Learning about Language	Listening & Speaking	Composition / Activity
1. Message in a Bottle	A short tale with plenty of conversation • Questions • Recall: true or false	• Anagrams • Spelling • Sentence completion	• Nouns • Sequencing	• Question tags	• Composing a paragraph using the words given

	• Reference to context				

16. Handling Fill in the Blanks

➢ Why & How?

For creation of Braille books, a blank (that needs to be filled) is conventionally represented by dots 3,6 thrice. The sighted print hyphen (-) translates to the required dots.

- **Fill in the blanks within sentences**

Hence, all blanks, blank boxes, dotted blank lines, dashes, underlines…etc. will be replaced by **3 hyphens** with a space before and after them (**---**).

Example:
Master Copy:
B. Fill in the blanks using the words given below.
(caterpillar, embryo, chick, lifespan, spawns)
1. When a baby bird comes out of an egg, it is called a ---.
2. --- are the egg clusters laid by female frogs.

- **Within a table**

Blank cells of a table will be retained as blank cells. Hence, there is no need of entering 3 hyphens to represent a blank within a cell.
In case the sighted book shows a few dots or a question mark, only then will we keep as is in the sighted book.

- **Single letter blanks as part of work puzzles and pyramids**

When asked to fill in single letters or numbers as part of word puzzles or word pyramids etc. Use only a single hyphen for each character (either letter or number), with no space before or after.

Example 1:

Fill in the vowels in the following verbs.
1. D … N   C …
2. … …T

Master Copy:
Fill in the vowels in the following verbs.
1. D-NC-
2. --T

Example 2:
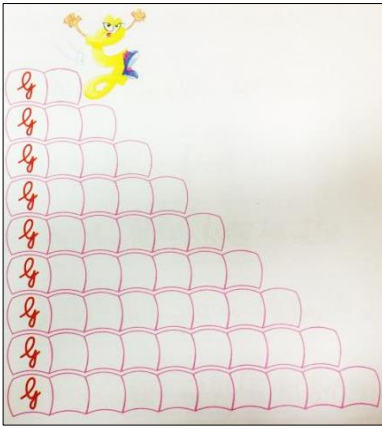
Master Copy:

G-
G--
G---
G----
G-----
G------
G-------
G--------
G---------

- **Fill in the blank for entire lines**

In Handwriting books / Worksheets etc., in case of an entire line of dots, or dashes, or a number of blank lines, we ignore the blank lines; and only put down the questions / statements one below the other. Hence, there will be no representation of blank lines.

17. Handling Text Boxes and Sidebars

➢ Why?

At times, information is presented in boxes only for visual effect. For example, at the beginning of a lesson etc. Such content can be typed in an E-Book with just the heading / subheading (and no representation of a box).

However, there may be some **Facts**, or **Quick Tips**, or **Did You Know?** kind of information that may appear at different places in the middle of the main text content with or without consistency. These are to be treated as **Text Boxes**.

Sometimes you may come across, text in vertical boxes along the content of the page, these are distinguished separately as **Sidebars**.

➢ How to?

In order to distinguish the text within and outside the boxes, do the following.
To insert information in a box:
i.   On the new line, type **Text Box begins**.
ii.   Insert all text that has to go within the box, as required.
iii. On the next line, type **Text Box ends**.

Example:
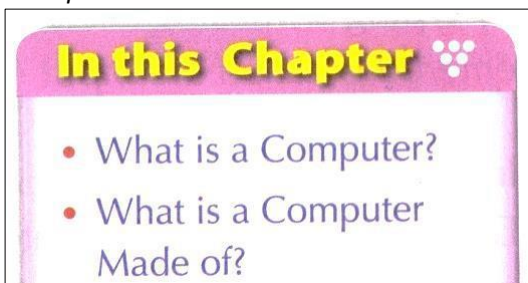
Master Copy:
Text Box begin
In this Chapter
--What is a Computer?
--What is a Computer made of?
Text Box end

For Hindi, follow this:
पाठ बॉक्स शुरू

...

पाठ बॉक्स अंत

For Marathi, follow this:
मजकूर बॉक्स सुरू

...

मजकूर बॉक्स शेवट

Similarly, to insert information as a Sidebar:
i.   On a new line, type **Sidebar begin**.
ii.   Insert all text appearing in the sidebar.
iii. On the next line, type **Sidebar end**.

Master Copy:
Sidebar begin

...
Sidebar end

For Hindi, follow this:
साइडबार शुरू

...
साइडबार अंत

For Marathi, follow this:
साइडबार सुरू

...
साइडबार शेवट

18. Handling Bold, Italics, Underline

➢   Why?

To allow low vision students and those with other print disabilities have an almost duplicate copy of the sighted print, you would need to apply Bold, Italics, Underline as per the sighted print book.
Font Colours, however, will not be replicated. All the text matter will be Black *(except the Heading Levels where you will maintain the default colour)*.
To draw attention to words that are represented by colour, make the relevant text bold change the font colour to blue instead. *(Explained in point 6.)*

➢   How to?

When you unformat the entire OCR scanned file, most times all Bold, Italics, and Underline get recognised automatically. Wherever required, apply Bold, Italics, and Underline to words / phrases / paragraphs etc. as follows:
i.   Select the relevant words / phrases / paragraphs.
ii.   Press **Ctrl+B** (for Bold) and/or **Ctrl+I** (for Italics) and/or **Ctrl+U** (for Underline).

19. Footnotes

Insert all footnotes in the text as footnotes in the Word file.

To insert footnotes:
i.   In the Ribbon / Menu, go to the **References** tab.
ii.   Click on the **Insert Footnote** button.
iii.   The focus / cursor automatically jumps to the bottom of the page, where you can type out the footnote as seen in the sighted print text.

20. Handling Headings & Subheadings

➢   Why?

This is done so that the student reading an E-Book can navigate through the Word file by jumping headings, sub headings and page numbers just like one would when reading a hardcopy print book. Applying Heading styles in Microsoft Word will also result in generating a Table of Contents (TOC) section automatically in the Duxbury Braille Translator.

➢   How to?

This can be done by selecting the Heading Levels in the Menu ribbon in Word as shown here. Alternatively, you can use **Alt+Ctrl+1** for Heading 1, **Alt+Ctrl+2** for Heading 2, etc. or **Ctrl+Shift+S** to Apply Styles –

- If the book is divided into Parts / Units…
Heading 1: Title of the Book
Heading 2: Parts / Units /Section/Modules/ Copyright / Preface / Foreword / Acknowledgements / Messages by Editor / About the Author / Contents/Index of words/Glossary
Heading 3: Chapter Number & Name/Worksheets/Revision/Review/Answers/Solutions
Heading 4: Subsections

- If the book is not divided into Parts / Units…
Heading 1: Title of the Book
Heading 2: Copyright / Preface / Foreword / Acknowledgements / Messages by Editor / About the Author / Contents / Index of words/Glossary/ Chapter Number & Name/ Worksheets/Revision/ Review/Answers/ Solutions
Heading 3: Subsections
Note:
It is important that whatever system of level hierarchy is being followed should be followed for all volumes of a particular book.

21. Ending Your Scanning & Editing Work

When you finish your work for the session, at the end of the scanned or edited portion, mention that the document has been scanned / edited by you, and put down the page numbers that you scanned / edited during that particular session (based on the sighted print hard copy textbook, not the page number in the Word file).
Example:

Highlight this line in yellow so that it becomes easy to spot by the next volunteer who will continue where you stopped.

Note*:*
Even if you are the only one working on a particular book, following this process will help you locate where you had left off.

How to adjust Line Spacing?
i.   In the Ribbon / Menu, go to the **Home** tab.

ii.   Under the **Paragraph** submenu, click on the ⬚ symbol i.e. the **Paragraph dialog box** option.
iii.   In the **Spacing** section, ensure that the **Before** and **After** values are 0; and the **Line Spacing** is **Single**.
iv.   Click on the **OK** button.

22. Proofreading

➢   Why & How?

This step is setting proofing language. This ensures that it gets added to the book's Metadata.
i.   In the Ribbon / Menu, go to the **Review** tab.
ii.   Under the Language submenu, click on **Language** and then **Set Proofing Language** as **English (U.K.)**
iii.   Click on the OK button.

When you are proofreading the OCR scanned files it is important that you read the text like you would read a story book. EVERY WORD, EVERY LINE.
Skim reading through the file for proofreading does not work for an OCR scanned file. As typical OCR scanning errors are sometimes as small as the scanner displaying 1 (one) instead of I (capital i).

Also, as mentioned earlier, to spot this inaccuracy is by looking out for the errors recognised by MS Word itself.
Whenever you notice a green or red wavy underline…
i.   Check the print book.
ii.   Position the cursor in the middle of the relevant word / phrase.
iii.   **Right-click** to look for correct options.
  OR
i.   In the Ribbon / Menu, go to the **Review** tab.
ii.   Under the Proofing submenu, click on the **Spelling & Grammar** option.

Once the entire document has been edited as required, ensure that you remove all extra text that is mentioned for reference.
Since statements like "*Scanned by ABC XYZ Pages 1-20*" and "*Edited by ABC XYZ Pages 1 - 20*" are no longer necessary, they must be removed before you can claim that the document is ready to be used as the Master Copy.

Language

?   ✕

Mark selected text as:

English (India)
Afrikaans
Albanian
Alsatian
Amharic
Arabic (Algeria)
Arabic (Bahrain)
Arabic (Egypt)

The speller and other proofing tools automatically use dictionaries of the selected language, if available.

☐ Do not check spelling or grammar

☑ Detect language automatically

[Set As Default]   [OK]   [Cancel]
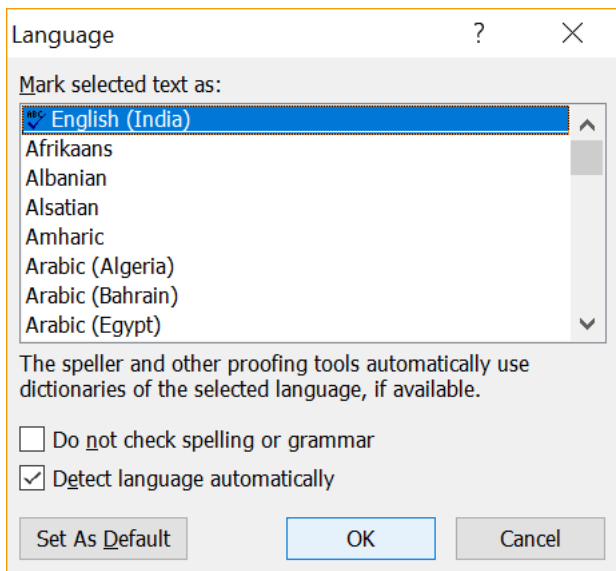
<u>Conversion to the Braille Ready Word File, DAISY and EPUB</u>

After working on the Master Copy Word File, only a few changes would be needed to prepare the following:

- Braille Ready Word File which can be used to create Braille books
  and
- DAISY and EPUB which will be used with accessible screen reading software.

<div align="center">***</div>

SECTION 2 – HANDOUT ON MATH & SCIENCE CONTENT CREATION

This section covers accessible book creation for the following categories of books:

A. Partially Technical Texts - A partially technical text is a Science book which utilizes a small number of Mathematical symbols.

- In the accessible e-book and BRF word files for such texts, all mathematical expressions will appear as MathType expressions. OCR scanning for such books would be as per the scanning process discussed in section 1 of this handout. All Mathematical expressions would then be typed within the text manually with MathType as explained below.
- In the Braille book for such texts, all mathematical expressions will appear as per the Nemeth Braille code, while the rest of the numbers and text would be as per the Literary Braille code.

B. Technical Texts - A technical text is a work in the field of Mathematics, Physics or Chemistry.

- In the accessible e-book and BRF word files for such text, all mathematical expressions will appear as MathType expressions. OCR scanning for such books would be as per the process outlined below and editing with MathType.
- In the Braille book for such the texts, the entire file will appear as per the rules of the Nemeth Braille code.

Handling Math Expressions & Symbols – in the Master Copy

I. Hardcopy scanning (For Technical Texts)

Additional Software Requirement for Scanning Math:
- Scanner Software (Based on the scanner you are scanning from)
- Infty Reader
- MathType by Design Science

Steps:
Step 1. Image Scanning:
Image Scan each page of the hardcopy textbook by selecting the following settings as shown in the images below;
- Under "Everyday Scan" ensure that the following options are selected and then click on "More"

Image Color Mode: Black/White
File Type: BMP

See image below.
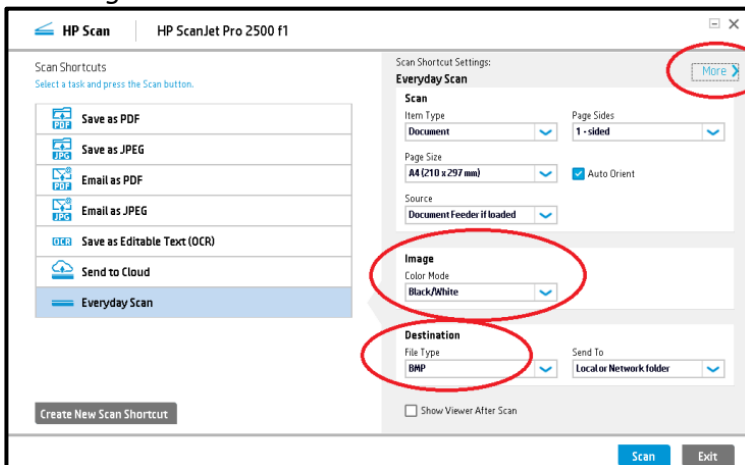
- Under "Images" section select "Resolution (ppi): 600 dpi"

See image below.
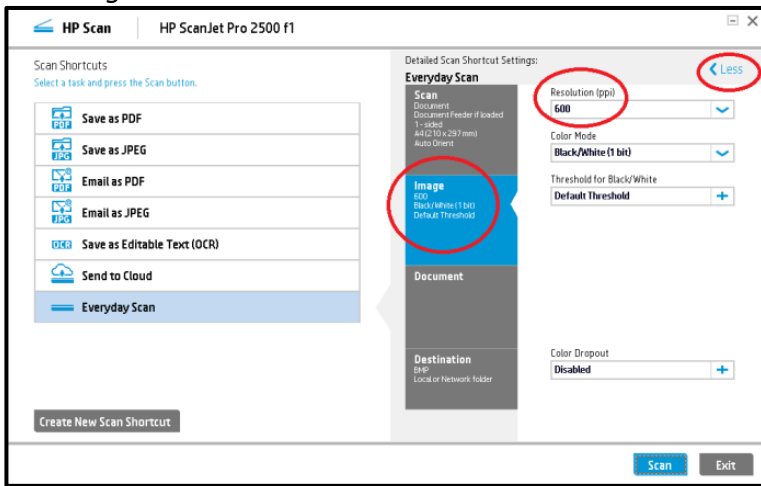
Step 2. Naming the Image files:

Ensure that each image file is named ONLY as shown below in the correct sequence.
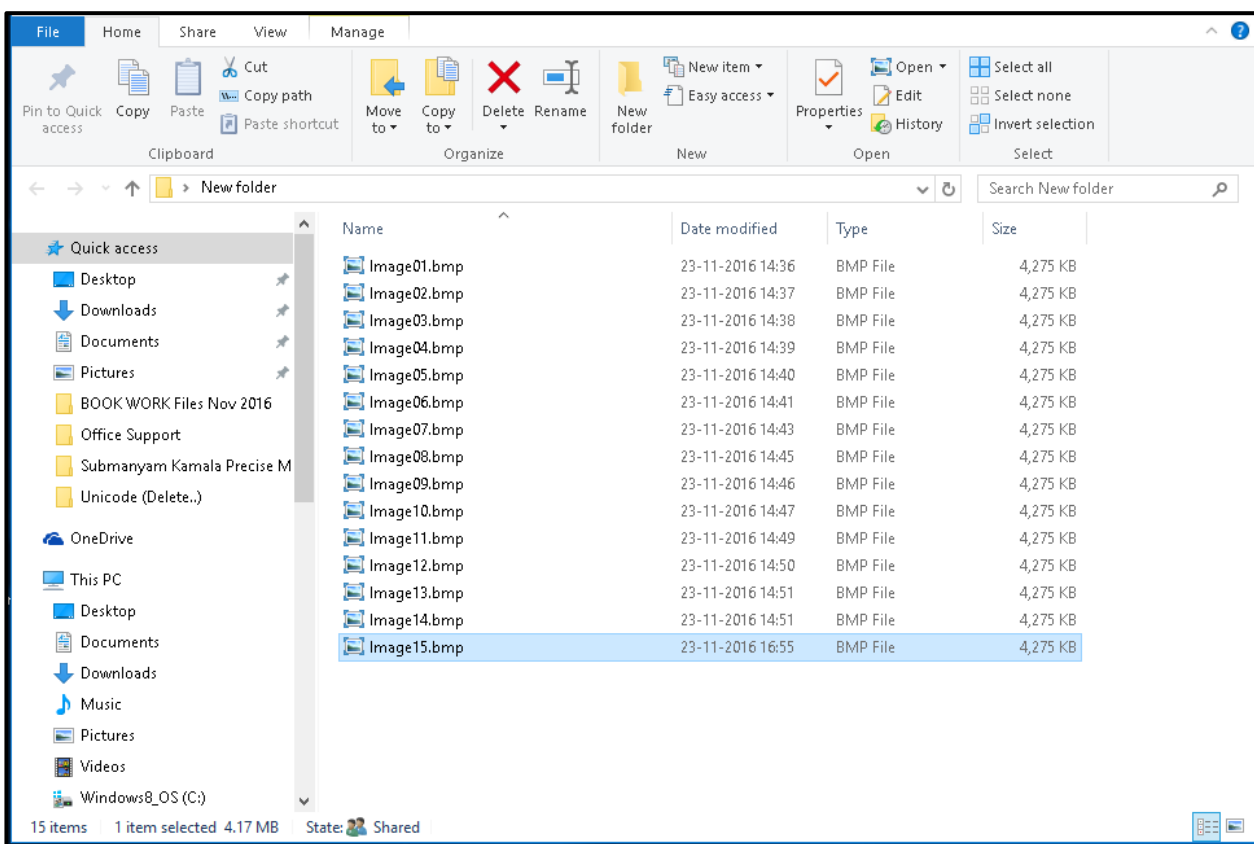
Note: These numbers in the file name may not correspond to the page numbers that appear in the hard copy book because each hardcopy page (cover page, contents, preface, publisher details, etc.) numbered or non-numbered will be scanned.

Step 3. OCR scanning with Infty Reader:

Optical Character Recognition, or OCR, is a technology that enables you to convert different types of documents, such as scanned paper documents, PDF files or images into editable and searchable data.

A. Open all the scanned image files in InftyReader and choose the options as shown in the image below

File   Recognition   Option   Convert   Tool   Help

Input File / Folder   File   Folder   Scan

Input File Format
○ TIF(TIFF) ◉ BMP ○ GIF ○ PNG ○ PDF

Language   Image dpi
English   ◉ 600dpi ○ 400dpi

☐ Use Layout Information File (LIF)
☐ Use Math Area Information in LIF

Output File

Output File Format
○ IML ○ LaTeX ○ HR-TeX ○ XHTML(MathML) ◉

Set Newline Code at
○ the End of Each Line ◉ the End of Each Paragraph

use FineReader Engine
○ Yes   ○ No

Select input File   ✕

Look in: Images

Page01.bmp   Page02.bmp   Page03.bmp   Page04.bmp   Page05.bmp

Page06.bmp   Page07.bmp   Page08.bmp   Page09.bmp   Page10.bmp

File name: "Page10.bmp" "Page11.bmp" "Page12.bmp" "Page13.bmp" "Page14.bmp" "Page15.b   Open

Files of type: BMP - Windows Bitmap (*.bmp)   Cancel

B.   Choose the options as shown in the image below and select "Start OCR"

File   Recognition   Option   Convert   Tool   Help

Input File / Folder   File   Folder   Scan

C:\Users\xrcvc\Desktop\Chapter 9. Co-Ordinate Geometry\Images\"Page01.bmp" "Page02.bmp" "Page03.bmp" "Pa

Input File Format   ☐ Search subfolders
○ TIF(TIFF) ◉ BMP ○ GIF ○ PNG ○ PDF
                                         Math Level
                                         ◉ All Math Symbols
Language   Image dpi   ○ High School Level Math Symbols
English   ◉ 600dpi ○ 400dpi
                                         Binarization Method
☐ Use Layout Information File (LIF)   ○ Give priority to black characters
☐ Use Math Area Information in LIF   ◉ Treat colored characters equally

Output File   Browse

C:\Users\xrcvc\Desktop\Chapter 9. Co-Ordinate Geometry\Images\Images.xml

Output File Format
○ IML ○ LaTeX ○ HR-TeX ○ XHTML(MathML) ◉ Microsoft Word (XML) ○ Layout Information(LIF)

Set Newline Code at   Open Result File by the Related Application
○ the End of Each Line ◉ the End of Each Paragraph   ◉ Yes   ○ No

use FineReader Engine
○ Yes   ○ No   Start OCR   Exit

                                         Start Page   End Page
                                         1   200

Step 4. Converting the Equations to MathType equations:
Open the .xml file with MS Word and choose the option shown in the image below to convert the equations to MathType equations and wait. Ensure that the "Convert Equations" dialogue box shows the number of equations converted at the end.
Avoid doing any other activity on the PC while the equations are being converted as the file tends to hang on doing so.

Step 5. Save as a .docx file:
File > Save As > Save as Type: "Word Document (.docx)"

II. Inserting, Editing and Proofreading of Math Expressions & Symbols

> **NOTE:**
> **Inserting MathType in Semi-Technical books**
> Semi-Technical books here, refer to books other than Maths like Physics, Chemistry and Economics that have some level of or even little Math content in it. The equations appearing in these books, makes it a semi-technical book.
> For books like these too, MathType must be used for Math content.
>
> * Since adding a MathType Equation Editor Box, converts all numbers appearing in the book (even if that be outside the MathType Equation Editor Box) to Nemeth Braille (Braille code for encoding mathematical and scientific notation). Therefore it should be deleted before translating. Translate these equations separately and copy to word. Then copy to original DBT file adding one space before and after the equation.
>
> <div align="right">See Point 5 under Braille in Section 3</div>

All the sections for creating the Master copy file for literary books need to be followed for Math books as well, along with the additional points mentioned in this file. The exceptions to this are the following;
Section I Point 1. Image scan.
Section I Point 2. OCR scanning with Kurzweil
Section II Point 4. Naming and Saving of Image Folder
Section III Point 1. Copy Paste Unformat
Section III Point 13. Handling Fill in the Blanks

Caution:
For any new kind of symbol you are typing or unsure of, please highlight that symbol yellow and check with the relevant staff or someone with a Mathematics background. A wrong symbol will give errors when transliterated to Braille that may get missed out when proofreading the Braille file & will be read out incorrectly by the screenreader.

Software Requirement for Math Typing:
- MathType 6.9 by Design Science (dessci.com)
(Licensed version or the Free Lite version)

Software Requirement for Reading Math Expression with Screen Readers:
- MathType 6.9 by Design Science (dessci.com)
(Licensed version or the Free Lite version)
- MathPlayer by Design Science (dessci.com)
This is a free software that runs in the background and enables NVDA to recognise the Math equations.
- NVDA 2015.2 onwards (Non Visual Desktop Access) (nvaccess.org)
This is a free open source software.

The following are the steps to insert or edit Math Equations in the Word file:

Method 1:
- Go to the Start Menu and open "MathType"
A MathType Equation Editor Window as shown below opens on your screen.
- Type out the equation using the appropriate symbols, etc., from the MathType Equation Editor.
- Copy-Paste these symbols to the Word file.
Or
Method 2:

While keeping the cursor in the position where you want the Math equation or symbol, press 'Ctrl + Alt + Q' or select 'Inline' from the 'Insert Equation' section in the MathType menu ribbon in the Word file.

A MathType Equation Editor dialog box opens on your screen.

Type out the equation using the appropriate symbols etc. from the MathType Equation Editor Close and Save.
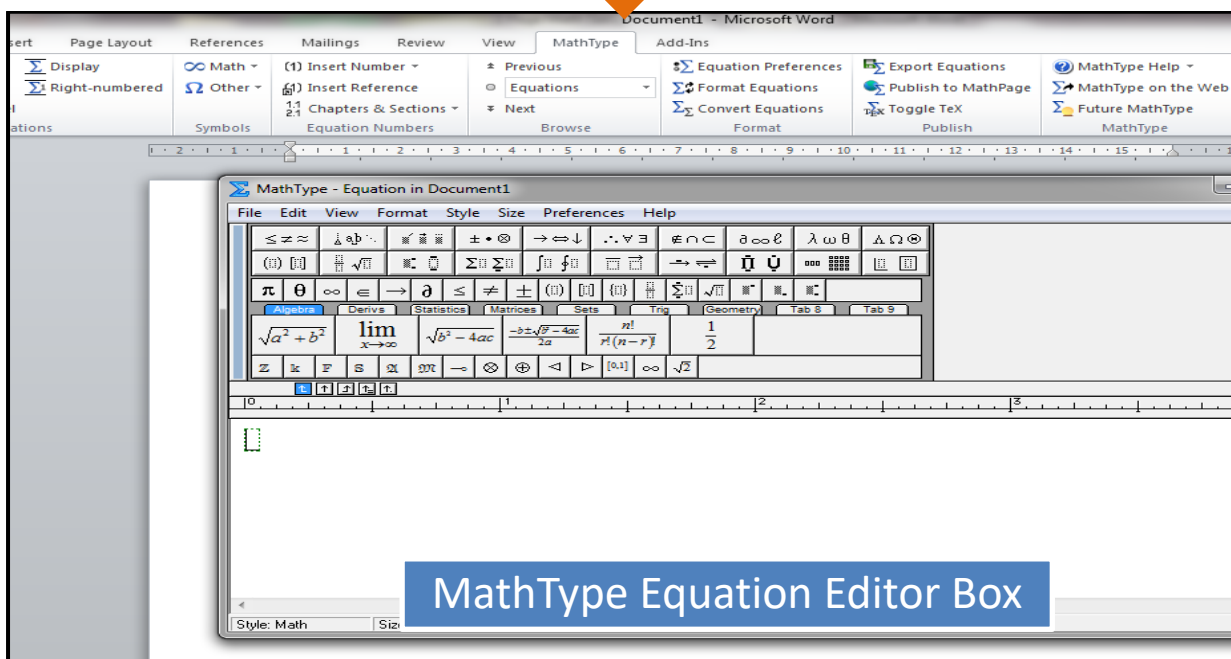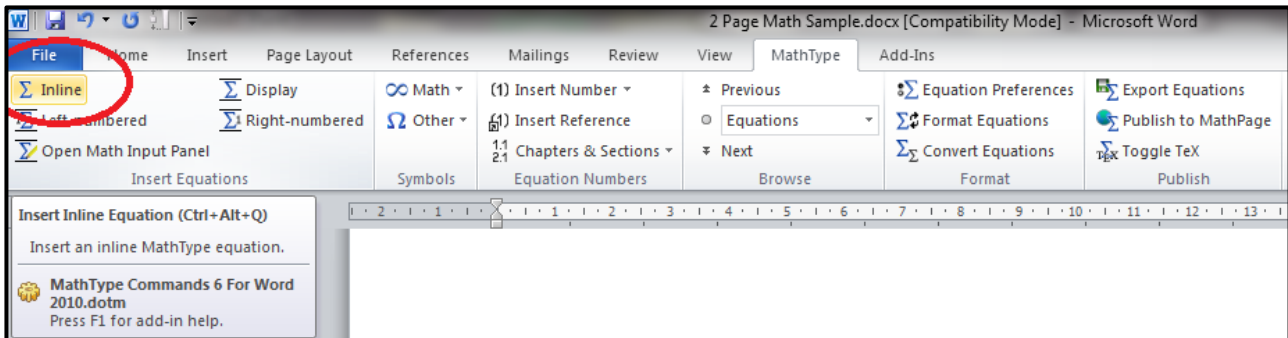
Refer to the links to the following in 'Additional Information' for more information on working with MathType:

https://www.dessci.com/en/company/training/misc/tipstricks-full.pdf

https://www.dessci.com/en/dl/MathType5WinManual.pdf

Or

Method 3:

- Double click on the MathType equation in the Word file

- The MathType dialogue box containing the equation opens up

- Edit the equation

- Close and Save the dialogue box

IMPORTANT NOTE:

Do not use the methods shown below – or any other methods – to insert Math expressions and symbols in the Word file.

- Do not Insert Math Symbols or Expressions directly from Word's Insert Equation and Symbols feature shown below.

- Do not Insert Math Symbols or Expressions directly from the "Symbols" section on the MathType ribbon shown below.
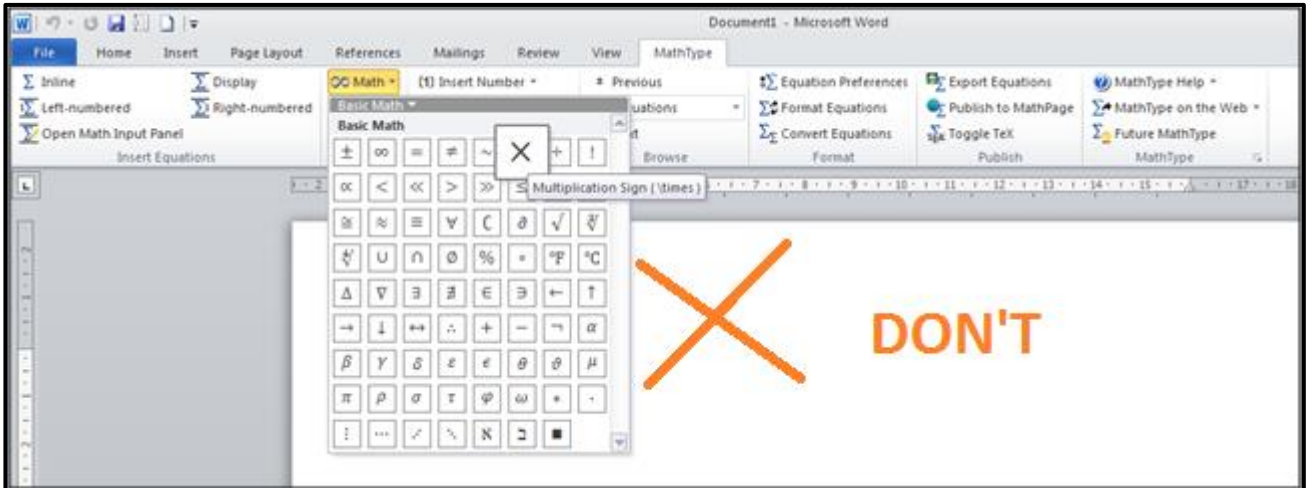
Rules for Typing & Editing Math Equations

The list appended below is important to follow because not following this process causes errors in the Braille file that are harder to spot and could also cause the equation to be read out or transliterated to Nemeth Braille wrongly.

Rule #1. All Mathematical Expressions (i.e. not including plain numbers that are not a part of Math expressions) should be inserted with MathType.

Here are some instances;

Example 1:

Plain numbers appearing throughout a book independently will not be Typed in MathType.

Example: Ram bought 50 pencils.

Here 50 is not typed in MathType.

Example 2:

Mathematical expressions in which all the symbols are available on the keyboard will also be typed in the MathType box.

$$2 + 3 = 5$$

Example 3:

$$10 \text{ ones} = 1 \text{ ten } (10)$$

*Note: In the above equations the words 'ones' and 'tens' will be written in **Style: Text** and with a space before and after it. This is discussed in a later point.*

Example 4:

$$2 : 3$$

Example 5:

$$25 > 20$$

Example 6:

$$(3 + 5)$$

Example 7:

$$Q = 122$$
$$R = 5$$

Example 8:

$$3x = \frac{2}{3}$$

is incorrect cause '3x' is not typed in MathType

$$3x = \frac{2}{3}$$ is correct, where the entire expression is typed in MathType

Note: In the above equations the colon/ratio sign, the greater-than sign, the plus sign etc. are typed from the keyboard but in the MathType window. There is no special symbol for some symbols like ratio sign, plus, minus, greater-than, less-than etc. in the MathType window. These are typed directly from the keyboard.
Signs of grouping (brackets) can be typed directly from the keyboard or can be selected directly from the options in the MathType window.

Rule #2. You don't have to type space within Mathematical expressions in the MathType window.

Example:
In the MathType window, when typing 'y=', you don't have to type a space between the y and the =, because MathType takes care of the spacing automatically. To help you break the habit of typing spaces, the spacebar is disabled most of the time in MathType, so pressing it will have no effect (other than producing a beep sound!).

Rule #3. Using Styles in MathType.

Note that the default style in the MathType window is '**Math**'. This is displayed at the bottom of the window as shown in the image below.
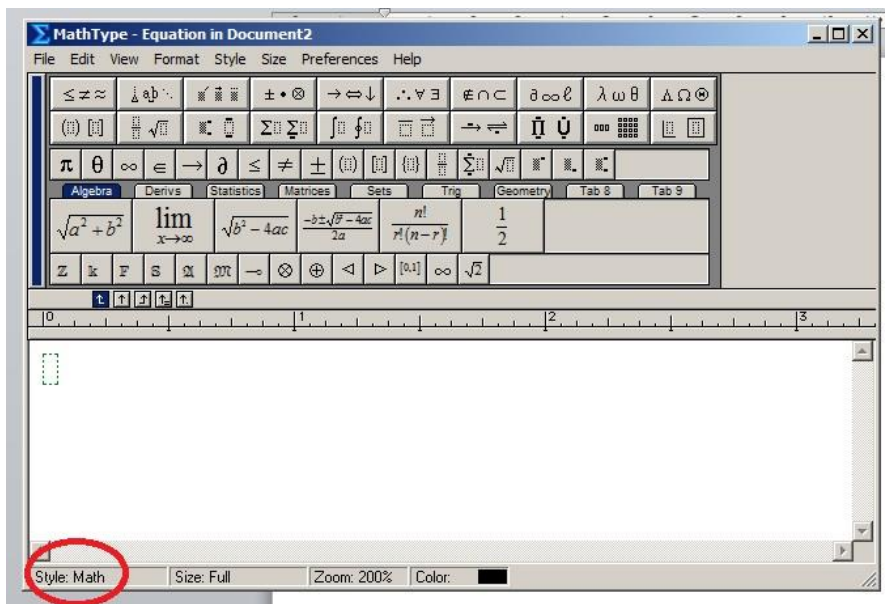
For any text appearing within an equation type the text in MathType and choose "Style: Text".
Example 1:

Here the style of the above text would need to be changed to 'Text' from 'Math'.
Hence select the word 'Numerator' and 'Denominator' and choose Style as 'Text' as shown below:

The corrected equation will appear like this –

$$\frac{\text{Numerator}}{\text{Denominator}}$$

Example 2:

$$10\,ones = 1\,ten\,(10)$$

The default Style setting is '**Math**'
Select the words 'ones' and 'ten' and select **Style: Text**
It will then appear like this:

$$10ones = 1ten(10)$$

Press control space when keeping the cursor before 'ones', and before 'ten', and after 'ten'. (This spacing is discussed again in a later point)
The correct equation will appear like this:

$$10\,ones = 1\,ten\,(10)$$

Example 3:

$$\text{Prob}(A\,|\,B) = \frac{\text{Prob}(A \cap B)}{\text{Prob(B)}} = \frac{\text{Probability that }\textbf{both}\text{ }A\text{ and }B\text{ occur}}{\text{Probability that }B\text{ occurs}}$$

Select 'Prob' and choose **Style: Function**
Select the word 'both', and choose **Other** from the **Style** menu. The Other Style dialog box will appear, which lets you directly change the font and style (bold & italic) of selected characters. Click on **Bold**, and then choose **OK**.
To get variables A and B in italics choose **Math** from the **Style** menu. This tells MathType to treat them as mathematical variables.

Some other functions for which we select **Style: Function** are as follows: sin, cos, tan, cot, log, max, min, lim, etc. The whole list can be accessed under **Preferences > Functions Recognized**.

Rule #4. Handling Bold & Italics in MathType.

To bold the word 'both', as shown in example 3 for the previous rule, we chose **Other** from the **Style** menu. However **Style: Other** must only be used with text. Math Equations or Functions must not be shown in Bold using this style. Rather, follow the following:

For the particular equation, go to **Style > Define > Advanced** and check all the boxes under **Character Style – Bold/Italics** and click on OK. Uncheck '**Use for new equations**', to avoid carrying forward these settings to the next equations.
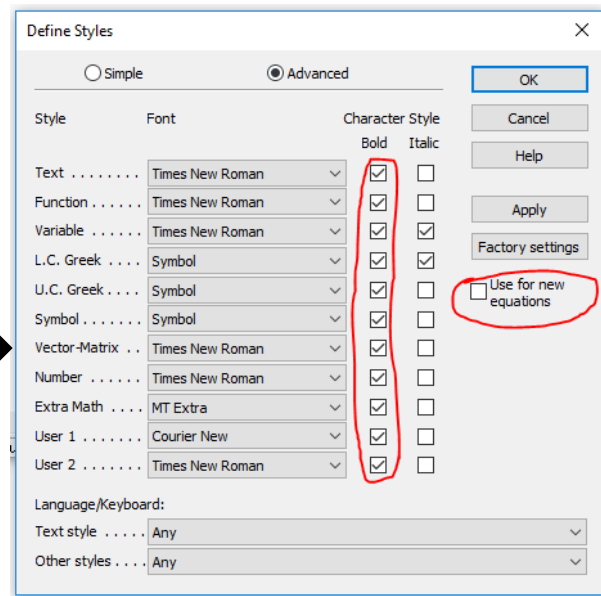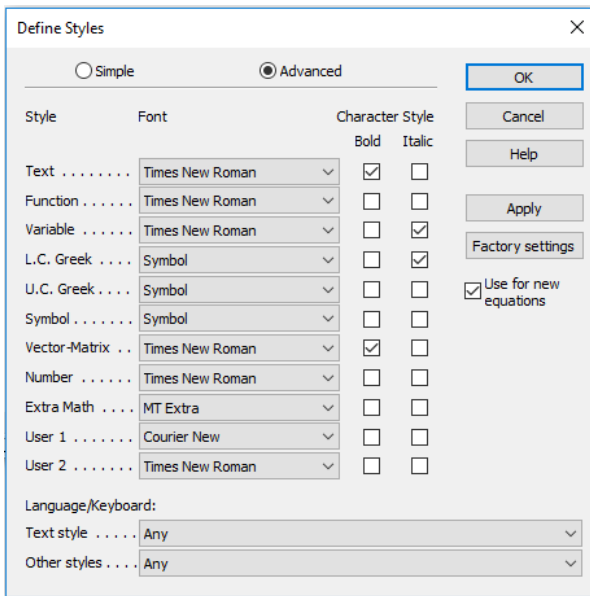
TO SUMMARISE:

When *Text* is in Bold, use **Style: Other** (checkbox **Bold**)

When *Math content* (symbols, variables, numbers etc.) is in Bold, use **Style: Math**, and then go to **Define** and check all boxes under Bold. **Uncheck Use for new equations** to get back to default settings in Define when done.

Similarly, when *Functions* (sin, cos, tan etc.) are in Bold, use **Style: Function**, and then, go to **Define** and check all boxes under Bold. **Uncheck Use for new equations** to get back to default settings in Define when done.

*Note: Bold & Italics do not appear in DBT.
*Note: Another limitation is that you cannot bold only one of the words, numbers or symbols within the same Math

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Rule #5. The MathType Equation box *in the Word file* should be treated as you would treat a word with appropriated spacing before and after it.

i.e. One space should be left before and after the MathType equation box at all times, except:
- if the equation is followed by a punctuation mark. (since no space is kept before a punctuation mark at all times)
or
- if the equation is at the end of or start of a line. (since no space is given after the last word on a line or before the first word on the line)

Example 1:

(g) $3\dfrac{8}{12}$

A space will be given after '(g)' and before the mixed fraction begins.

Example 2:

Is $2\dfrac{3}{8} < 3\dfrac{3}{5}$?

A space will be given between the word 'Is' and the MathType expression, no space will be given between the MathType equation and '?'

Rule #6. For text and punctuation marks within the MathType equations, spacing should be as per the rules of English.

To type space within the MathType equation press "ctrl key + space bar".
Example 1:
$$\frac{2}{7}, \frac{5}{7}, \frac{6}{7}, \frac{3}{7}$$
One space is given after the comma.

When percent sign follows a number, no space between the number and the sign. This is true also of all signs of punctuation.

Rule #7. Handling Punctuation Marks within MathType equations

When dealing with punctuation marks – comma, full stop, exclamation, etc., with the equations, note the following:
- **Spacing** of punctuation marks should be as per Grammar rules, i.e. no space before them but one space after if followed by some text or equation.
- When we change the Style of the punctuation mark to "**Style: Text**" we need to manually give space after the punctuation mark if we are typing anything ahead of it.
*(The spacing within equations is automated and correct only under **Style: Math**)*
- A punctuation within a Math expression should always be **inside the MathType box** with the style for that punctuation selected as "**Style: Text**"
***The Full Stop/ Period** is the exception to this rule. Keep the full stop outside the MathType box without any space before it, else it gets considered as a decimal point.*

Example 1:
$$10 \div 10 = 1,$$
Here the comma is typed in the MathType window and the **Style** for the comma is selected as "**Text**".
And there is no space before the comma in the MathType window.

Example 2:
$$1\frac{1}{6} > \frac{10}{8}?$$
Here the question mark is typed in the MathType window and the **Style** for the question mark is selected as "**Text**".
And there is no space before the question mark in the MathType window.

Example 3:
$$2 + 3 = 4, \, 3!$$
Here the question mark is typed in the MathType window and the **Style** for the question mark is selected as "**Text**".
And there is no space before the question mark in the MathType window.

*(However when the exclamation mark is used to signify the Mathematical concept of factorials this should be left as **Style: Math**. In case you are unsure of the context in which the exclamation mark is used please check this with someone having a Math background.)*

Rule #8. For Units of measurement (Rs., m, cm, l, ml, kg, etc) within MathType equations select the style as "Text" and give space before and after the units of measurement.

Example:

$2m + 3m$

Rule #9. For blanks within a MathType equation, type the question mark and not 3 hyphens or 1 underscore. Here the question mark sign is left as "Style: Math"

Example:

$1\frac{2}{3} = \frac{=}{9}$ is wrong

$1\frac{2}{3} = \frac{---}{9}$ is wrong

$1\frac{2}{3} = \frac{?}{9}$ is correct

Rule #10. Symbols available on the keyboard (Decimal Point, Percentage Symbol, Greater than or less than sign)

If a decimal number, a percentage symbol, greater than or less than sign etc. is not part of any Mathematical expression, it does not have to be typed in MathType.

The full stop/period key on the keyboard can be used to type the decimal point.

But if it is a part of any Mathematical expression, it has to be typed in MathType. The full stop/period and the percentage keys on the key board can be used to type the decimal point within MathType.

Examples:

> is the greater than sign.

2.5 apples

His Math score was 30%.

The following equations too qualify as Mathematical expression -

$0.54 =$

$5 = 5.0 =$

Note: A common error is using the dot multiplication from the MathType box for decimal. Please avoid doing this. Similarly, a dot multiplication sign is inaccurately put as a decimal point. This can be avoided by reading the book for context.
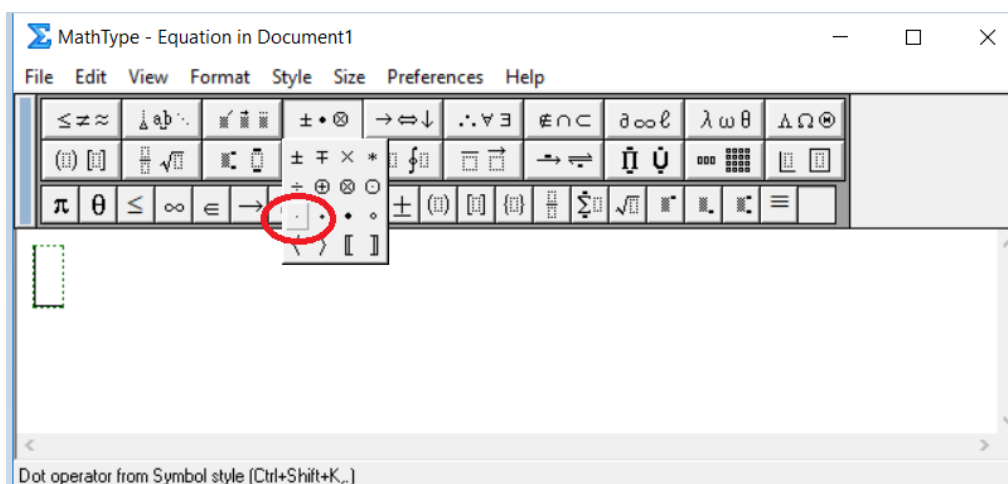
Rule #11. It is okay to type many equations in the same MathType window. However do not type full text sentences or phrases in the MathType window.

Example 1:
This is allowed;

$$\Rightarrow A \cup B = A \cup \left(\overline{A} \cap B \right)$$
$$\Rightarrow P\left(A \cup B \right) = P\left[A \cup \left(\overline{A} \cap B \right) \right]$$
$$= P\left(A \right) + P\left(\overline{A} \cap B \right)$$
$$= P\left(A \right) + \left[P\left(\overline{A} \cap B \right) + P\left(A \cap B \right) - P\left(A \cap B \right) \right]$$
$$= P\left(A \right) + P\left[\left(\overline{A} \cap B \right) \cup \left(A \cap B \right) \right] - P\left[\left(A \cap B \right) \right]$$
$$= P\left(A \right) + P\left(B \right) - P\left(A \cap B \right)$$

Avoid this:

The adjacent pair of angles whose sum is $180°$ is called a linear pair. Here $\angle BAC + \angle CAD = 180°$

This is correct where only $180°$ and $\angle BAC + \angle CAD = 180°$ is in MathType as shown below.

The adjacent pair of angles whose sum is $180°$ is called a linear pair. Here $\angle BAC + \angle CAD = 180°$

Rule #12. Algebraic Variables and Names for Geometry figures that are a part of Math Equations need to be typed in MathType with the style left as "Math".

- Type in the MathType box and leave style as "Math"
Example:
$A\,B + B\,C$

Rule #13. When typing a single letter / variable that is not a part of a Math Equation it need not be typed within the MathType equation window. But, any two or more letters together need to be typed within MathType equations and left as "Style: Math".

Example;

A and B are two points on segment AB.
Here "A" and "B" are typed outside MathType.
However "AB" is typed within MathType.

Rule #14. When selecting superscript and subscript, in most cases we choose the first superscript / subscript symbol option.
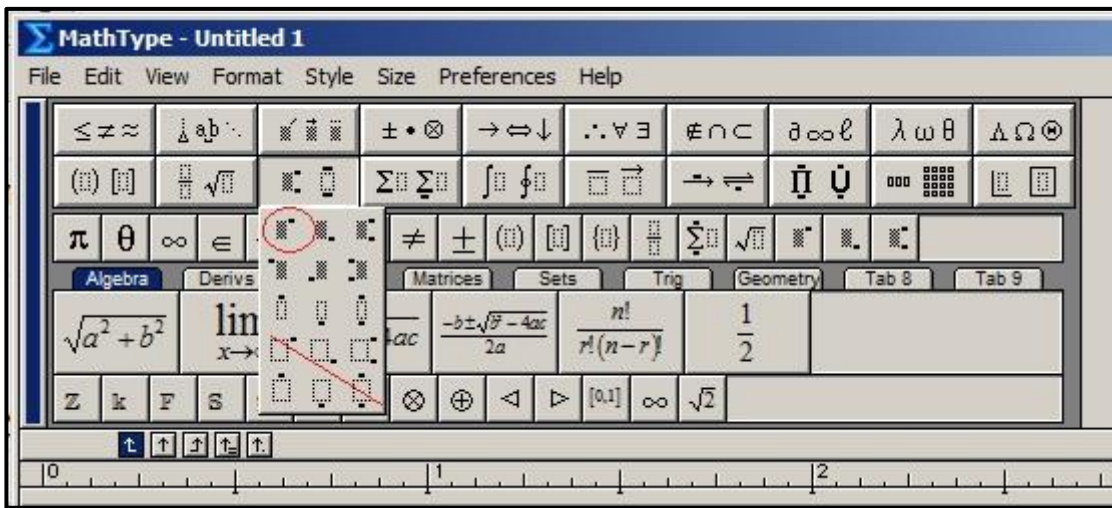
Rule #15. Point your cursor to the symbol and check the symbol name at the bottom of the MathType window as shown below before inserting the symbol.
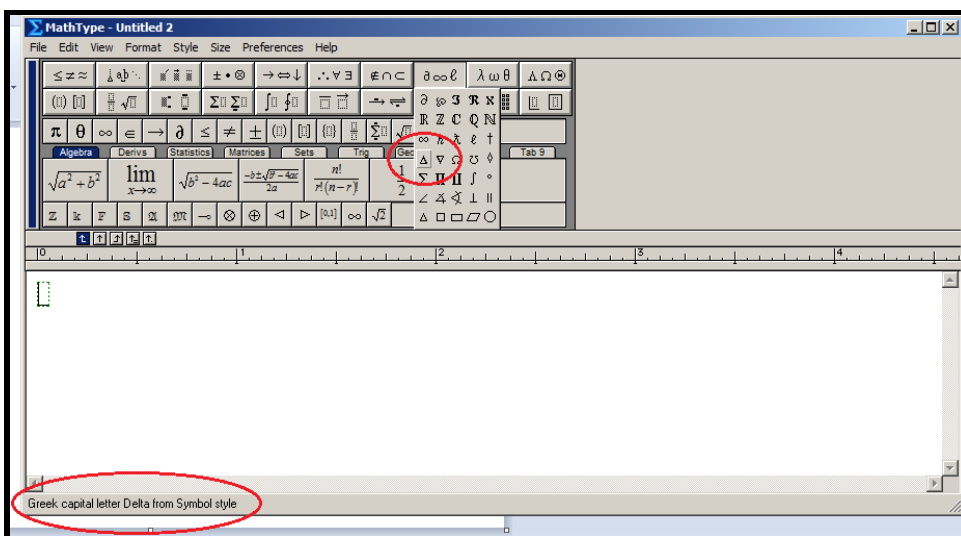
Example:

For the triangle symbol make sure to use the triangle – (△) in MathType and not the symbol for Delta (Δ)

Rule #16. Underline numbers in MathType as shown below. Do not use the Word underline feature.

Option 1
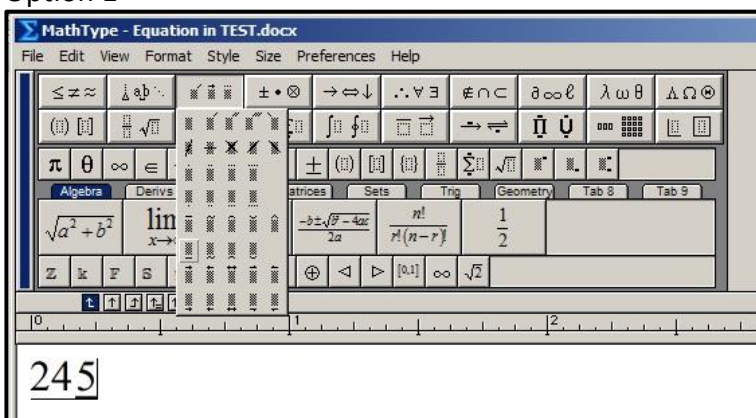
or

Option 2
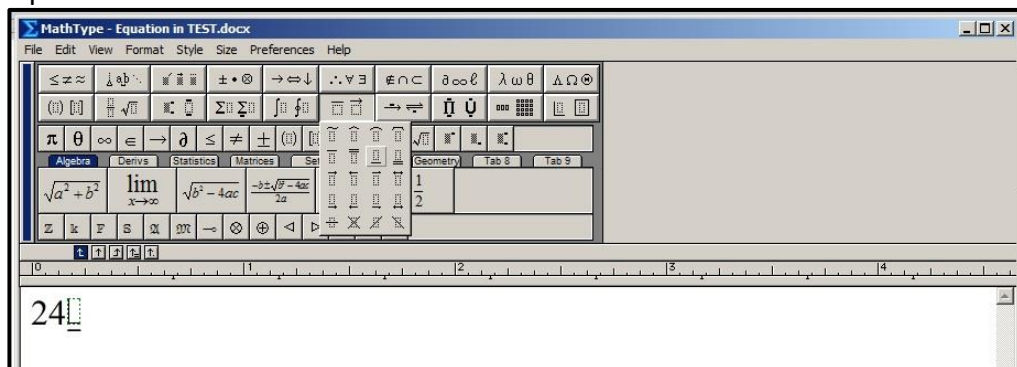
Rule #17. Use the strikethrough option from the MathType window only as shown in the image below.
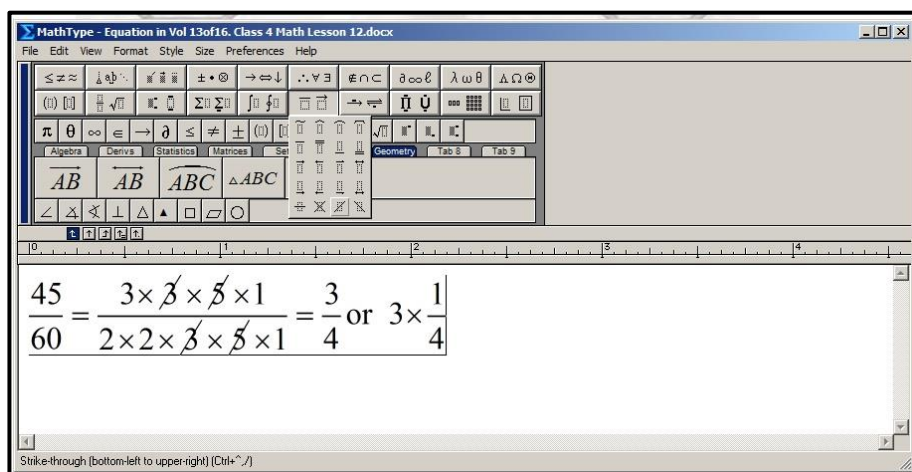
Do not use the strikethrough option shown in the image below;
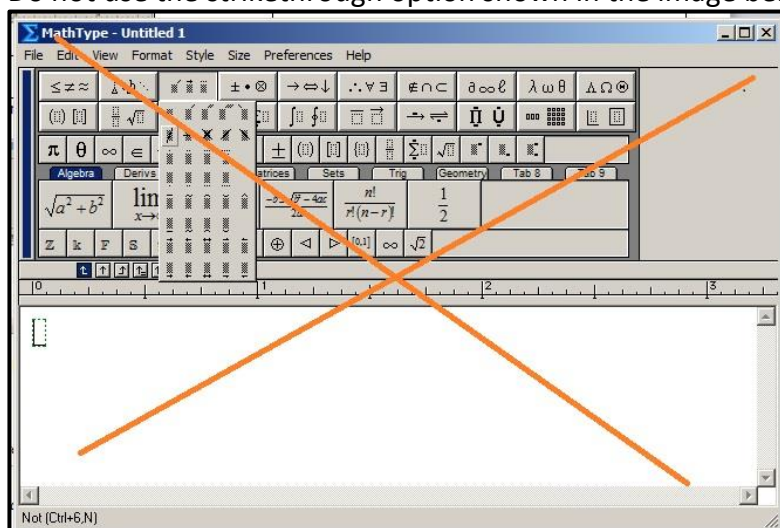
Rule #18. Chemistry Structures and Equations

Type 1 – Simple & Complex Chemical Structures
For simple and complex chemical structures insert image and give appropriate alt text.
Example 1:

$$H_3C-CH_3$$

Example 2:

$$\begin{array}{c} CH_3 \\ | \\ CH_3-CH-CH_2-CH_2-CH_2-CH_3 \end{array}$$
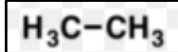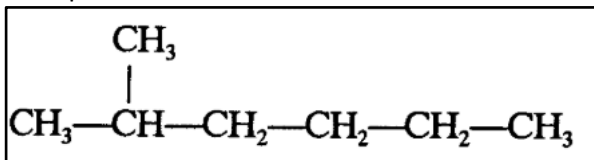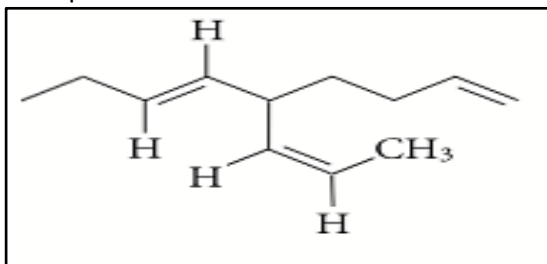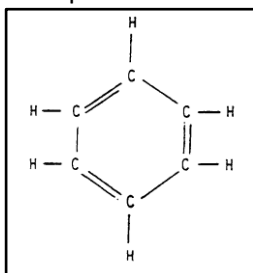
Example 3:

Example 4:

Type 2 – Chemical Equations

All Chemical equations must be typed in MathType. The molecular formulae can be left as style Math within MathType.

Example 1:

$$CaSO_4 + Na_2CO_3 \rightarrow CaCO_3 \downarrow + Na_2SO_4$$

Example 2:

$$H_2(g) + I_2(g) \rightleftarrows 2HI(g)$$
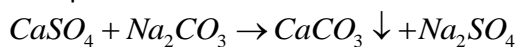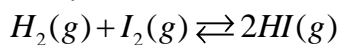
Type 3 – Equations with Chemical Structures

As in the examples below for equations with Chemical Structures and molecular formulae insert image of the entire equation and give appropriate alt text.

Example 1:

$$CaC_2 + 2HOH \ \rightarrow \ H-C\equiv C-H \ + \ Ca(OH)_2$$
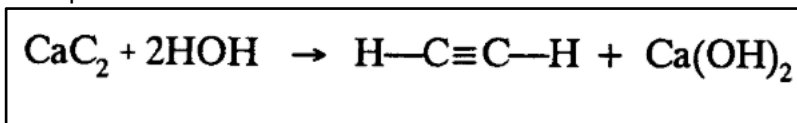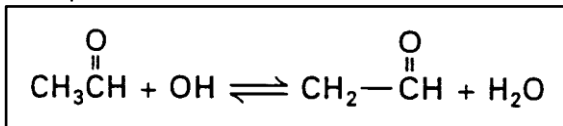
Example 2:

Example 3:
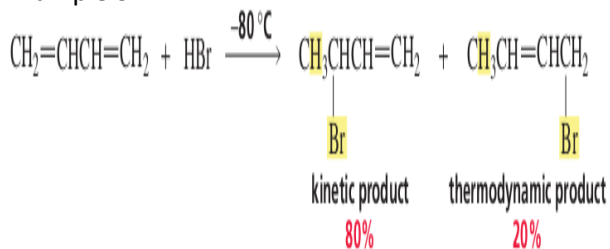
Some More Shortcuts & How tos

❖ 1. Customizing the Toolbar

The Toolbar can be customized to show symbols you use often in the licensed MathType version
The expressions in MathType's tabbed bars can be inserted into the equation you are working on with just a single click.
To add your own expression to a bar, just drag it to the desired spot.
To modify an equation on the bar, just double-click on it to open it in its own editing window.
To delete an expression from the bar, right-click and choose Delete.

❖ 2. Keyboard shortcuts

Quick Shortcut keystrokes when typing in the MathType window
As you hold the mouse pointer over the palette items their name as well as the shortcut keystroke to access them is displayed in the status bar at the bottom of the MathType window. This will help ensure that you pick the correct template and remember the shortcut key to access them as well.
Example:
You can also create a superscript slot by typing **Ctrl+H** ("H" = "high").
Ctrl+L inserts a subscript slot ("L" = "low").
Ctrl+F inserts the slot for typing a Fraction, and so on.
Ctrl+Shift+E to change style to text
Ctrl+9 for round brackets (parantheses)
Ctrl+[for square brackets
Ctrl+R for radical sign (square root sign)
Greek Characters: You can enter a Greek character using Ctrl+G and its equivalent letter, e.g. m for μ, P for π, d for δ.

❖ 3. Copying and Dragging

To re-use part of an existing equation, select the part and then use Copy and Paste, or drag and drop. To copy the selection hold down the **Ctrl** key when dragging.

❖ 4. To type something like $^2C_1$

Keep the cursor before C, select the superscript slot, and type 2 in it. Next, keep the cursor after C, and select the subscript slot, and type 1.

❖ 5. To type most Spatial Math Sums

To type all Spatial Math sums, Long Division sums etc. use the Matrices option in MathType as shown below. To create a matrix, use the 'matrix templates,' and select the variable-size matrix (shown below). This will allow one to create the matrix with as many rows and columns as needed.
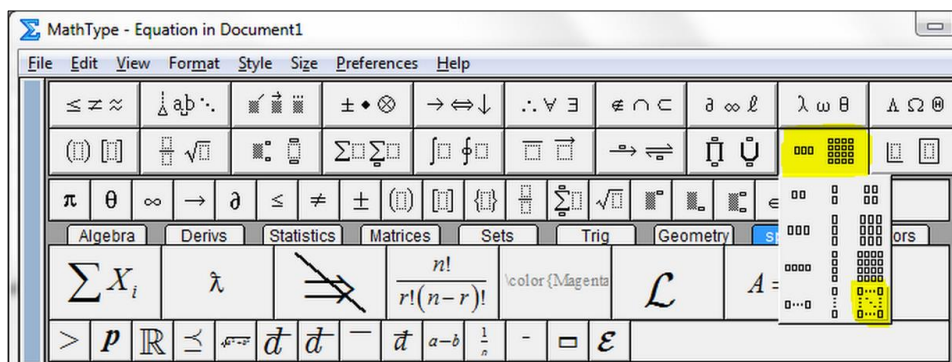

To obtain the horizontal and vertical lines in the Spatial Maths sums you need to follow the following steps:
a) In the Mathtype go to Matrix templates and then click on Variable size matrix or table.

b) Insert the number of rows and columns as per your requirement and then click on the space in between the respective row/column in order to get the required line.
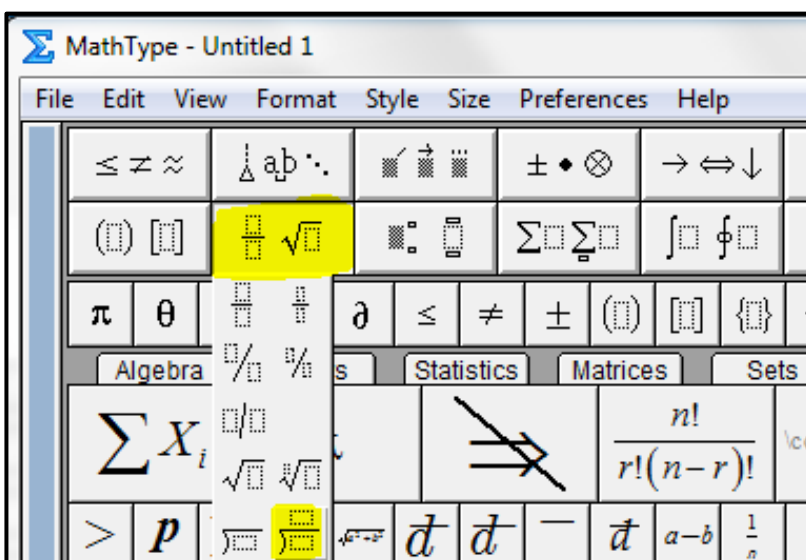
c) Click OK.
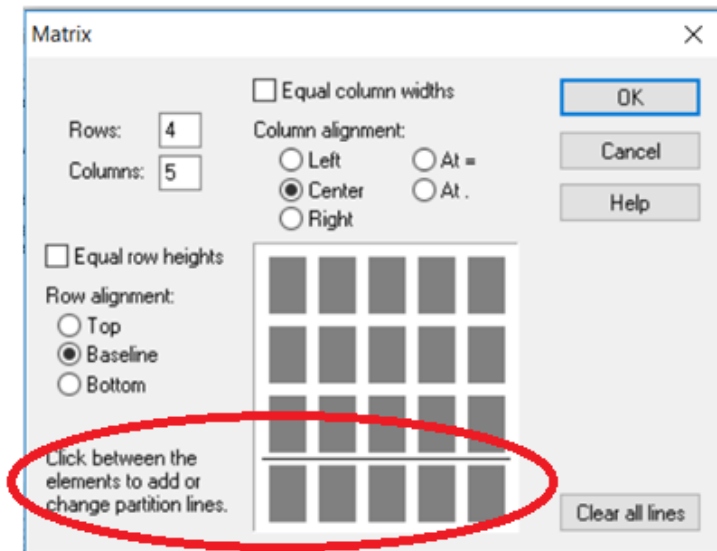
Example:

The equation below was created using a 3 by 5 matrix, with the top two cells in Column one being unused.

	Th	H	T	O
		3	2	5	1
+	4	0	3	6

❖ 6. Instructions to type Long Division sums

A Long Division sum can be typed out in MathType using the fraction template as shown.

You can use tabs for the Long Division sum underneath to line the numbers up. (The tabs are the arrows, of which the one used below is the one furthest to the left, to click and drag it along the ruler to the desired position.) Next, if you press ctrl + tab on the keyboard, it will bring the cursor to the desired position.

How to use tabs is actually a course in the MathType help (Help > MathType tutorials). It can be found by using the index to search for 'Formatting with tabs.'

Also, to get the line underneath the "0" you will want to use the under-bar template, which is in row 2 column 6. Also, the line spacing will need to be lowered. It can be found in the 'Format > Line Spacing' menu.

$$\begin{array}{r} 51 \\ 654\overline{)952} \\ -\ \ \underline{0} \\ 95 \end{array}$$
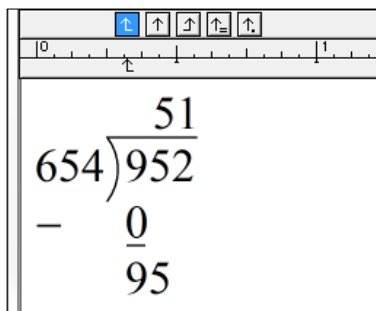
❖ 7. To type Cross Multiplication

Crop and insert image for sums with the cross multiplication symbol and add alt text to it. For example;

❖ 8. To Insert a Pascal Triangle

1. Insert a matrix:
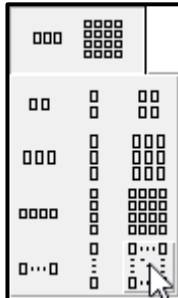
2. Set the dimensions of the matrix as described below:
$$(\#\text{ of 1s along a side})\times(2\cdot(\#\text{s along the base})-1),$$ which for this one is 5 rows, since there are 5 ones along the left or right side, and 11 columns, since there are 6 numbers along the base, so times 2 is 12, and minus 1 is 11. So what you see above is a 5x11 matrix. Before you close the Matrix dialog though, make sure Row Alignment is Baseline, Column Alignment is Center, and Equal Column Widths is checked.

3. Type the numbers inside in whichever way it works for you, but I think a good technique is to start by typing a 1 in the bottom cell of the first column, proceeding diagonally up and to the right, typing 1 in each cell along that diagonal until you get to the top row. Proceed downward and to the right the same way. Now fill in the middle, skipping a column between each entry.

4. When you're finished it won't look right – it will be way too spaced out. The one above looked like this at this point:

$$
\begin{array}{ccccccccccc}
 & & & & & 1 & & & & & \\
 & & & & 1 & & 1 & & & & \\
 & & & 1 & & 2 & & 1 & & & \\
 & & 1 & & 3 & & 3 & & 1 & & \\
 & 1 & & 4 & & 6 & & 4 & & 1 & \\
1 & & 5 & & 10 & & 10 & & 5 & & 1
\end{array}
$$

5. You can fix that in MathType by expanding the Format menu, and click the bottom entry: Define Spacing. You need to change 3 things in the Define Spacing dialog:
   Change **Matrix row spacing** to 100%
   Change **Matrix column spacing** to 1%
   Uncheck the box labeled **Use for new equations**.
   When you click OK, the triangle should look more normal. Like all templates in MathType, the green dashed rectangles are only to show you where the template slots are, and do not show up in Word.

❖ **9. To cancel many things together choose the option in the image as shown below;**
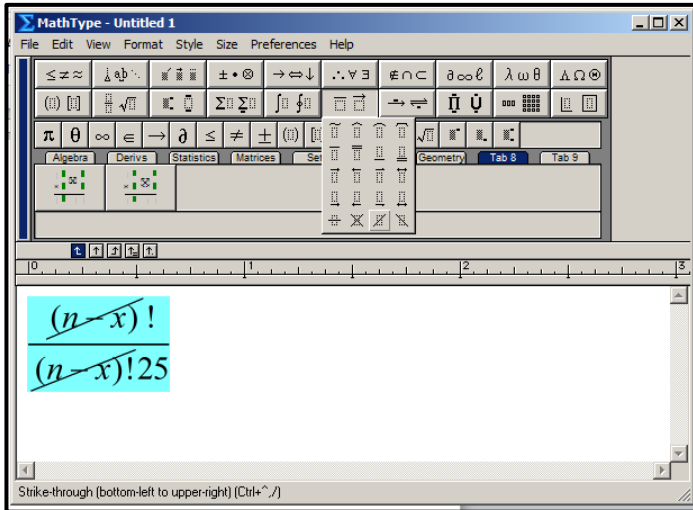
$$
\frac{(n-x)!}{(n-x)!25}
$$

❖ **10. To add Tally Marks**
   Tally marks are inserted as vertical lines using the vertical bar on the keyboard "|" in the MathType box. Then use the strikethrough option as mentioned above.

❖ **11. Number above or below a cancelled number will be written as superscript or subscript numbers as shown below;**

$$
\frac{11}{\cancel{15}_5} \times \frac{\cancel{8}^1}{2} = \frac{11}{10} = 1\frac{1}{10}
$$

❖ **12. For expressions with large brackets use the brackets/parenthesis from the MathType (Ctrl + 9) and not the ones directly from the keyboard.**
   Example:

$$
8\frac{2}{9} + \left(4\frac{5}{7} \text{ of } 343 \div 3\frac{2}{3}\right) - 1\frac{4}{5} = ?
$$

MathType - Equation in Math Points Handout - For Volunteers.docx

File   Edit   View   Format   Style   Size   Preferences   Help

rivs | Statistics | Matrices | Sets | Trig | Geometry | Tab 8 | Tab 9

$$8\frac{5}{9}+\left(4\frac{5}{7}\text{ of }343\div3\frac{2}{3}\right)-1\frac{4}{5}=\,?$$

Parentheses, or round brackets (Ctrl+9)

❖ **13. To insert the Slanting Cross lines shown below**

Example:

16.

1st Solution   2nd Solution
    30   45

45 − x   :   x − 30

$$\therefore\ \frac{45-x}{1}=\frac{x-30}{2}$$

∴ 90 − 2x = x − 30

∴ x = 40. Hence, [2].

and

4. Let mixtures A and B contain x% and y% alcohol, respectively.
Then by alligation rule, we get,

i.e., $\dfrac{4}{3} = \dfrac{x-30}{30-y}$

i.e., 3x + 4y = 210   ....(i)

and

i.e., $\dfrac{3}{4} = \dfrac{x-25}{25-y}$

i.e., 4x + 3y = 175   ....(ii)

Solving the equations (i) and (ii), simultaneously, we get, y = 45 and
x = 10.
Now again by alligation rule,

Note: It can be done in MathType, but it won't be accessible. Hence we will create it as a graphic, and add the Alt text.

❖ 14. To Insert Circled Numbers

Example:

How to insert in MathType:
For the circled numbers, the user would need to produce a circle and then nudge (move) the number inside it. MathType can use a circle from any font, so if there is a font on the computer that is being used containing a circle, that font can be used to produce it. Instead use the 'Insert Symbol' dialog, which is found in the 'Edit' drop down menu. Select 'Insert Symbol,' and then change the 'View by:' drop down menu to 'Description.' Click the 'New search...' button to search

for "circle". The results will show up below, then click the desired circle and click 'Insert.' This will insert the circle into the MathType editor.
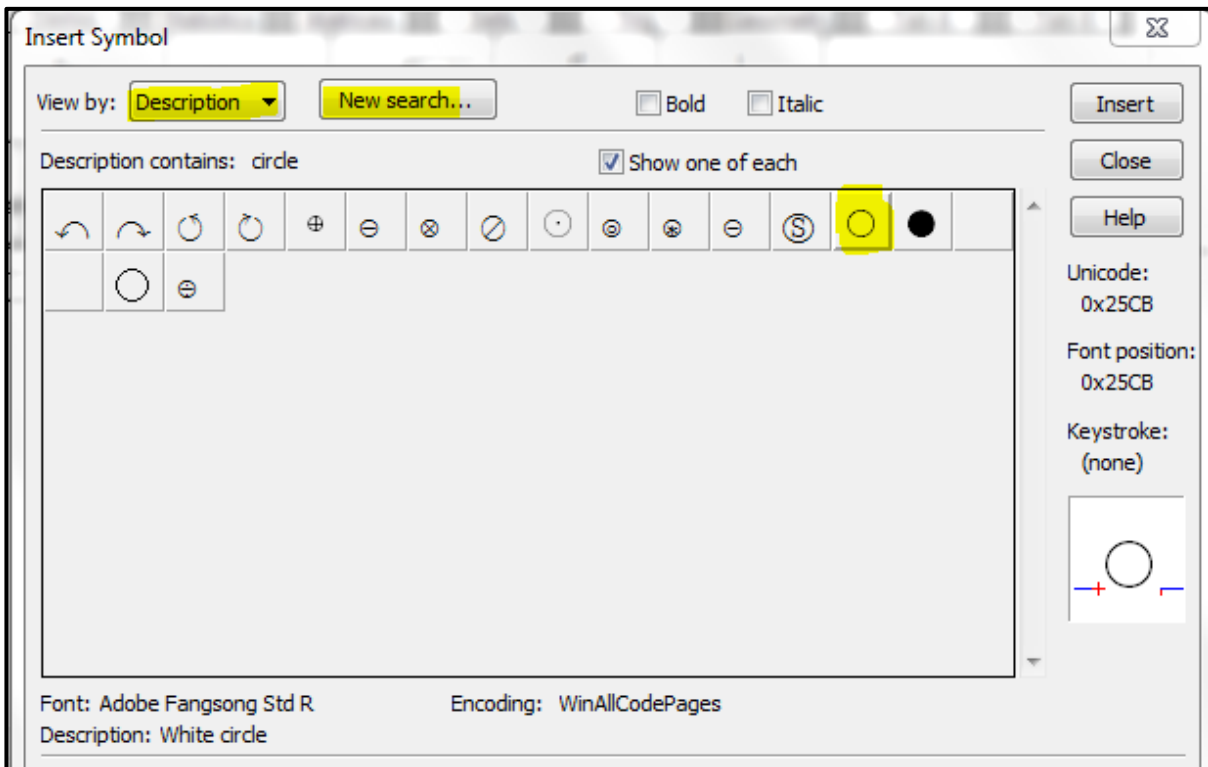

Once the circle is in the MathType editor, it can be highlighted, and then clicked and dragged into an empty place on the MathType toolbar for future use.
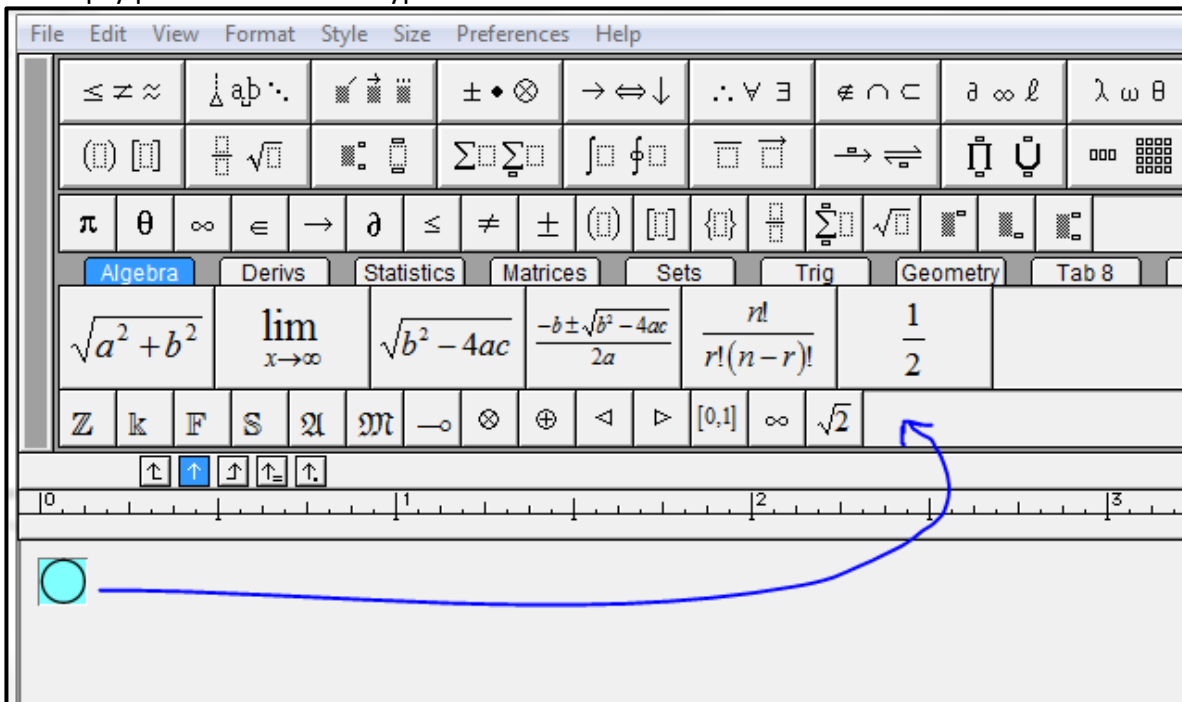
Once the circle is in the MathType editor, one can enter the number, size it (ctrl + > or ctrl + <), and then nudge (move) the number into the circle. To nudge the number into the circle or highlight the number, and then hold the ctrl key, and press the directional arrow keys on the keyboard to nudge (move) it into place.
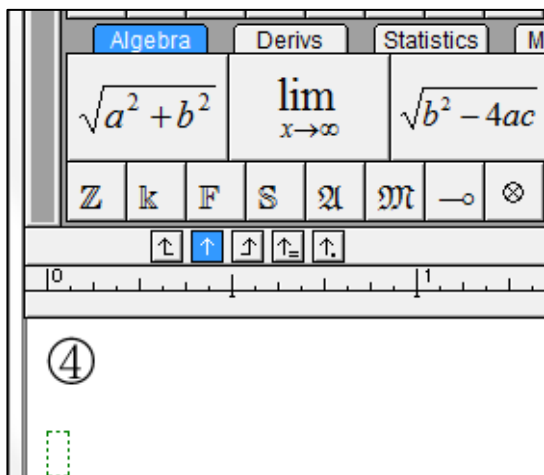
❖ **15. To insert Long Division with the quotient to the left or Long Division to find the HCF**

Example:

How to:

Use the open or close parenthesis, or use the long division template available for the rounded long division signs after the number 55224 and before the 2.

To achieve the line underneath the "110448," use the "underbar template."

The tab functionality, which is explained in the MathType tutorial, i.e. the arrows directly above the workspace, is used to align the numbers. The arrows are to be dragged down to the ruler to be used. After a tab has been inserted, the ctrl + tab shortcut is to be used to tab over to the tab position. This is how the equation is aligned properly.

55224)122012 (2

    <u>110448</u>

Handling Math Expressions & Symbols – in the E-Copy

The E-copy remains the same as the Master copy. Nothing changes here.

Handling Math Expressions & Symbols – in the Braille Ready Word File

1. Handling Spatial Math Sums
Let all spatial Math sums be in MathType as inserted in the Master copy. However add the following below the sum;
- To represent the horizontal line for the answer: Below the MathType equation in the Word file type 3 ten times below the equation to represent the horizontal line where needed.
Example:

```
    9,  9  9,  9  9  9
                  +   1
 1  0,  0  0,  0  0  0
3333333333
3333333333
```

- To represent the horizontal line for carry over: If there is any kind of carry over in the sum type 7 ten times above the equation.
- For all other spatial Math (Long division, matrices etc.) leave them in MathType.

Handling Math Expressions & Symbols – in the DBT file (Internally)

1. Spatial Math Alignment (long division, cancellation with fractions, cross multiplication etc) & removing and adding braille symbols as required.
2. Check & Correct spacing for Large Numbers that are written in the Indian place value system and that are a part of Math expressions.

***

SECTION 3 – HANDOUT FOR DAISY AND BRAILLE

DAISY

1. Naming
Add Space DAISY to the file name after the existing name
Example:
Murphy, Raymond, Essential English Grammar, 2nd Edition, 1998, 69th Reprint, 2012 DAISY

2. Page Numbers
Remove 20 dashes and the word *Page* and heading level of page numbers.

Remove 20 dashes and the word *Page,* this is done as follows:
 i. Copy the 20 hyphens, the word Page, as well as the space after that from any line with the page number, using **Ctrl+C**.
 ii. Press **Ctrl+Home**.
 iii. Press **Ctrl+H** to open the Find and Replace dialog box.
 iv. In the **Find what:** field, paste the 20 hyphens, the word Page, as well as the space (Page), using **Ctrl+V**.
 v. Leave the **Replace with:** field blank (in order to replace the hyphens with nothing).
 vi. Click **Replace All**.

***

Braille

1. Naming
Create a folder and name it as follows: Add Space BRF after the existing name
Example:
Essential English Grammar, 69th Reprint, 2012 BRF

2. Saving and keeping files
- All Literary and Maths books (of all levels) need to be divided into separate files volume wise.

In the new BRF folder, create separate files for each volume
Volume 1 will include:
Copyright / Preface / Foreword / Acknowledgements / Messages by Editor / About the Author / Contents

After creating Volume 1 as explained above, a separate volume is to be created for each of the following in the same order of the sighted print hard copy textbook:
Chapter Number with Name / Index of words / Glossary / Worksheets / Revision / Review / Answers / Solutions or any other similar non-chaptered and non-numbered key sections in the book

Name each volume as:
… space Vol 1
Example:
Essential English Grammar, 69th Reprint, 2012 Vol 1

3. Inserting Copyright Notice & cover page
Insert the Braille Book copyright notice as whole for the first Braille volume each volume and add volume number in the same.
For Braille volumes other than Volume 1, add only the Metadata and then after the sentence:
For the Copyright and Disclaimer, please refer to Volume 1.

e.g.
Essential English Grammar
Author: Murphy, Raymond
Pages: 300
ISBN: 978-8175960299
Edition: First published in 2014
Publisher: SAGE

Type of Book: Braille
Division of book: 10 chapters
Volume Number: 1 of 11

4. To cut alt text and paste below the Image.

When there is an image with alt text in the BRF file, before converting it to DBT make sure to cut the alt text from the image and paste it below the image.
Example:

Picture: Drawing of a prehistoric man standing with his hands spread apart away from his body. He is wearing a piece of woven fabric around his waist tied with a rope.

In case of long Image Description
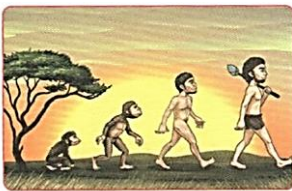
Picture: Drawing as described below.
Image description begins
This is a drawing of four beings walking one behind the other towards the right. On the extreme left, is an ape walking on all four limbs; next, there is an ape with less fur / hair walking on two limbs, then, there is a man with no clothes on using his legs to walk; finally, there is a man with a short piece of cloth wrapped around his waist and holding a tool over his left shoulder walking on his legs.
Image description ends

5. Handling Tables
(a) Aligning the Columns:
For Match the Column…
No change needed, unless it is a match the column having 3 or more columns:
Master Copy Example:

Subject	Verb	Object
1. Gopal	a. kept	i. sad.
2. The children	b. has turned	ii. quiet.
3. The milk	c. looks	iii. sour.

Braille Ready File Conversion:
Copy-paste and place the contents of each column one below the other.
The two columns are to be typed one below the other with titles as shown below.
Example:
Subject
1. Gopal
2. The children
3. The milk

Verb
a. kept
b. has turned
c. looks

Object
i. sad.
ii. quiet.
iii. sour.

For the Table of Contents…

Master Copy Example:

Contents

Braille Ready File Conversion:

No change needed.

If tables have more than four columns, or if the columns have headings, or if any cell has bullets & sub-bullets)

Master Copy Example:

Unit	Comprehension	Working with Words	Learning about Language	Listening and Speaking	Composition / Activity
1. Does He Remember ?	An interesting story • Questions • Reference to context	• Sentence completion: words from the passage • Spelling: error correction • Collective nouns	• Parts of speech • Word association • Punctuation	• Listening comprehension: marking a map	• Writing a paragraph about the dog in the story
Stopping by Woods on a Snowy Evening	An insightful poem • Questions • Rhyme scheme • Reference to context		• Functions of words: nouns and verbs	• Tongue Twisters Long/short medial vowels	• Creative piece: conjecture

Braille Ready File Conversion:

No change needed if table contains no MathType expressions.

If the table contains MathType expressions it needs to be converted to plain text appropriately as per the example below:

Example:

x	y	$x+y$	$y+x$	$x+y=y+x$
4	3	$4+3=7$	$3+4=7$	$4+3=3+4$
52	27	$52+27=79$	$27+52=79$	$52+27=27+52$
0	28	$0+28=28$	$28+0=28$	$0+28=28+0$

x: 4

y: 3

$x+y:\ 4+3=7$

$y+x:\ 3+4=7$

$x+y=y+x:\ 4+3=3+4$

x: 52
y: 27
$x + y : 52 + 27 = 79$
$y + x : 27 + 52 = 79$
$x + y = y + x: 52 + 27 = 27 + 52$

x: 0
y: 28
$x + y : 0 + 28 = 28$
$y + x : 28 + 0 = 28$
$x + y = y + x: 0 + 28 = 28 + 0$

(a) Editing the Questions
In case of tables where the columns are going to be presented one below the other, edit the question as follows:

Example:
The words on the left all begin with the letter 'boo'. Match each one with the correct meaning on the right.

BRF copy:
The words in Column A all begin with the letters 'boo'. Match each one with the correct meaning in Column B.

(b) Blanks in Tables
In case of blank cells in a table, leave the cell blank as it is.

6. When working with a Semi-Technical book (Books having some Math content)
All the equations in the book (which were added within the MathType box, must be checked manually.

7. Notifying the end of Chapters / Volumes
i. Press **Ctrl+End** to position your cursor at the end of the file.
ii. Add 12 colons to represent the end of each volume (::::::::::::)

***

SECTION 4 – CHECKLISTS

Master Copy (Math & Non-Math) – Check List

Section No	Section Heading	Item No	Item Name	Task	Applicable for Math Book
I	Scanning	1	Image Scan	All pages with images except plain border	Yes
				Front and back covers	Yes
		2	OCR Scanning	Complete Book: Cover to Cover	NA
II	Saving & Keeping files	1	Saving Book	Save Book in the fixed location	Yes
		2	Naming the Book Folder and Files	Author Surname, Author Name, Book Name, Edition Number, Year of the Edition	Yes
		3	Naming of OCR File	Author Surname, Author Name, Book Name, Edition Number, Year of the Edition	Yes
		4	Naming and Saving of Image Folder	Images	Yes Folder Name: Images Image File Name: Image01, Image02 etc.
III	Editing / Proofreading / Formatting Stages	1	Copy Paste Unformat	Unformatted	No
				Font: Calibri 11	Yes
				Left Aligned	Yes
		2	Cleaning up extra Spaces, Tabs, Enters etc.	Switched on the Paragraph Mode	Yes
				Removed Unwanted Extra Spaces	Yes

				Removed Unwanted Extra Tabs	Yes
				Removed Unwanted Extra Enters	Yes
				Line Spacing 0	Yes
				Spelling and Grammar check	Yes
				Checked for appropriate Extra Lines for Chapter names, page numbers, pictures, tables, text box, section heading, subheading	Yes
		3	Inserting Copyright Notice & Cover Page	Insert the XRCVC Copyright Notice & Cover Page	Yes
				Cover Page with Alt text Inserted	Yes
		4	Inserting Page Numbers	Added twenty "-"s with Page	Yes
				Checked for no space between - Page	Yes
				Hindi Page Numbers added appropriately	NA
				Added Non Numbers Pages and cover page titles appropriately	Yes
		5	Handling Images	Cropped Images	Yes
				Included Caption of images in the image	Yes
				inserted blank lines before and after	Yes
				placed images next to one another, one below the other	Yes
				Flow chart: as single images	Yes
				appropriate tag line for tactile diagrams, objects, activity	Yes
				Appropriate Alt Text	Yes
		6	Replacing Visual Words	Replaced Tick/Colour/Circle/Underline/Cross out	Yes

				Replaced Fill in the box/grid	Yes
				Replaced fill in the words given in box/tree/cloud	Yes
				Replaced Draw line for match the columns	Yes
				Replaced trace over for cursive writing exercises	Yes
				Replaced: Refer words in colour	Yes
		7	Handling Visual Marked Answers	Replaced Visual marked Examples with writing the answers	Yes
		8	Retaining Visual Instructions	Added Tactile Diagrams wherever applicable	Yes
		9	Additional Numbering	Match the Columns	Yes
				Question without MCQs	Yes
				Questions with MCQs	Yes
				Tree Diagrams	Yes
				Full stop and space for all numbering followed	Yes
		10	Multilevel Lists	Placed Numbered lists one below the other	Yes
				Bulleted lists appropriately arranged	Yes
				MCQ Bulleted lists numbered	Yes
				MCQ non Bulleted appropriately arranged	Yes
		11	Handling Bullets and Sub Bullets	two dashes for bullets	Yes
				1,2,3 numbering for sub bullets	Yes
				Numbers followed by full stop and space	Yes
		12	Handling Tables	Inserted tables for contents section	Yes
				Inserted tables for sections required	Yes

		13	Handling Fill in the Blanks	three dashes for sentence blanks	Not for blanks within equations
				No dashes for table blanks	Yes
				single dash for single alphabet blanks	Yes
				No dashes for full line blanks	Yes
		14	Handling Text in Boxes	5 dashes before and after with Text box Begin; Text box end	Yes
		15	Handling Bold Italics Underline	Applied Bold, Italics, Underlines	Yes
		16	Footnotes	Inserted Footnotes	Yes
		17	Headings and Sub Headings	Added Headings and Sub Headings	Yes
		18	Ending Scanning and Editing Work	Added your ending work entry	Yes
		19	Proofreading	Proofreading completed	Yes

Master Copy (Math Only) – Check List

Section No	Section Heading	Item No	Item Name	Task
I	Scan Math Hardcopy Books	1	Image Scanning	Key Settings: Image Color Mode: Black/White File Type: BMP Resolution (ppi): 600 dpi
		2	Naming the Image files	Name files as image01, image02, image03 etc.
		3	OCR scanning with InftyReader	Open File & Choose "Start OCR"
		4	Converting the Equations to MathType equations	Use "Convert Equations" button from MathType in Word
		5	Save as .docx	
II	Inserting, Editing & Proofreading Math Expressions & Symbols	1	Insert, Edit, Proofread Math Expressions	Proofread & Edit MathType Equations following the 15 Rules

				Rule #1. All Mathematical Expressions (i.e. not including plain numbers that are not a part of Math expressions) should be inserted with MathType.
				Rule #2: You don't have to type space within Mathematical expressions in the MathType window.
				Rule #3. For any text appearing within an equations type the text in MathType and choose "Style: Text"
				Rule #4. The MathType Equation box in the Word file should be treated as you would treat a word with appropriated spacing before and after it.
				Rule #5. For text within the MathType equations spacing should be as per the rules of English.
				Rule #6. Handling Punctuation Marks within MathType equations
				Rule #7. For Units of measurement (m, cm, l, ml, kg, etc) within MathType equations select the style as "Text" and give space before and after the units of measurement.
				Rule #8. For blanks within a MathType equation type the question mark and not 3 hyphens or 1 underscore. Here the question mark sign is left as "Style: Math"
				Rule #9. It is okay to type many equations in the same MathType window. However do not type full text sentences or phrases in the MathType window.
				Rule #10. Algebraic Variables and Names for Geometry figures that are a part of Math Equations need to be typed in MathType with the style left as "Math".
				Rule #11. When typing a single letter / variable that is not a part of a Math Equations it need not be typed within the MathType equation window. But any two or more letters together need to be typed within MathType equations and left as "Style: Math".
				Rule #12. When selecting superscript and subscript in most cases we choose the first superscript / subscript symbol option.

				Rule #13. Point your cursor to the symbol and check the symbol name at the bottom of the MathType window as shown below before inserting the symbol.
				Rule #14. Underline numbers in MathType as shown and not using the Word underline feature.
				Rule #15. Use the strikethrough option from the MathType window as explained in the handout only

Braille Ready File – Check List

Section No	Section Heading	Item No	Item Name	Task	Applicable for Math Book
II	Saving & Keeping files	1	Saving Book	Created a folder and Separated Volume files in the folder	Yes
		2	Naming the Book Folder	Added Space BRF to the folder name after the existing name	Yes
				Added Volume Numbers to each volume file	Yes
		3	Naming of OCR File	NA	
		4	Naming and Saving of Image Folder	NA	
III	Editing / Proofreading / Formatting Stages	3	Inserting Copyright Notice & Cover Page	Inserted the Braille copyright notice for each volume and added the specific volume numbers	Yes
				Added 12 : at the end of the volume ::::::::::::	Yes
		12	Handling tables	made appropriate changes	Yes
Additional Points for Maths - Braille Ready File					
			Handling Spatial Math Sums	Type the number 3 ten times (to look like 3333333333) for the horizontal lines	

				Type the number 7 ten times (to look like 7777777777) when the sum has numbers carried over	
			Handling Tables	For tables that contain MathType expressions do not use tables, but manually break them up appropriately in the BRF word file	
Additional Points for Maths - DBT Soft Copy					
			Spatial Math Alignment	(Long division, cross multiplication etc.) & removing and adding braille symbols as required.	
			Large Numbers in Indian place value system	Check & Correct spacing for Large Numbers that are written in the Indian place value system and that are a part of Math expressions.	

DAISY – Check List

Section No	Section Heading	Item No	Item Name	Task
II	Saving & Keeping files	1	Saving Book	NA
		2	Naming the Book Folder	Added Space DAISY to the file and folder name after the existing name
		3	Naming of OCR File	NA
		4	Naming and Saving of Image Folder	NA
III	Editing / Proofreading / Formatting Stages	4	Inserting Page Numbers	Remove 20 hyphens and the word Page (use **Ctrl + H**)
				Remove Heading Level for Page No.

~ The End ~