Texas School for the Blind and Visually Impaired
Outreach Programs
www.tsbvi.edu | 512-454-8631 | 1100 W. 45th St. | Austin, Texas 78756

TETN #20437 Braille Formats: Principles of Print-to-Braille Transcription, 2011

Presented by

Olga Uriegas, State Lead for the Statewide Leaderhip Services for Blind and Visually Impaired, Region 11 ESC

ouriegas@esc11.net

Sue Mattson, Certified Braille Transcriber

Texas School for the Blind & Visually Impaired

mattsons@tsbvi.edu

Pat van Geem, Technology Consultant

TSBVI Outreach Programs

patvangeem@tsbvi.edu

Developed for

Texas School for the Blind & Visually Impaired

Outreach Programs

Principles of Braille Formatting

New and Improved!
The 2011 BANA Updates

Braille Formats Updates 2011

- PDF Portfolio located on the BANA website (Braille Authority of North America)
- Much improved from previous
- Examples are vastly improved
- Includes the Braille Reader's Perspective

Why is Formatting Important?

Unformatted Print Article

Getting Along With Others
As a new school year begins, you will have the opportunity to see old friends again and form friendships with new classmates. When people belong to a large group, such as a grade level or class within a school, it is important that they always try to get along with others. Of course, conflicts will arise, but how you handle them can make a difference.
Tips for Handling Conflicts
Stay calm and don't raise your voice or yell.
Have a positive attitude and don't blame others.
Consider the other person's feelings.
Listen and try to understand what the other person is saying.
Be willing to compromise.
Find a solution that is fair to both parties.
When the conflict is resolved, put it behind you and don't bring it up in the future.
A Healthy and Wise Classroom
Take extra steps this school year to make your classroom Healthy and Wise. Keep your classroom clean and organized and try to incorporate healthy lifestyle habits into your daily routine. Be courteous to your classmates and teacher. Accept each other's differences. Be a good listener and strive to make your classroom a good learning environment.
Describe your classroom.
Discussion Questions
How do you try to get along with others? How can you make your classroom a good learning environment? How can you improve your classroom environment?
Activities
(READING) The main idea is what a story or article is mostly about. What is the main idea of this article? A detail gives more information and supports the main idea. State three important details from this article.

Figure 1 This is an article in print with all the formatting removed. There are no headings, paragraph indentations or other styles.

Formatting: What a Difference!

Getting Along With Others

As a new school year begins, you will have the opportunity to see old friends again and form friendships with new classmates. When people belong to a large group, such as a grade level or class within a school, it is important that they always try to get along with others. Of course, conflicts will arise, but how you handle them can make a difference.

Tips for Handling Conflicts

- Stay calm and don't raise your voice or yell.
- Have a positive attitude and don't blame others.
- Consider the other person's feelings.
- Listen and try to understand what the other person is saying.
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- Find a solution that is fair to both parties.
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A Healthy and Wise Classroom

Take extra steps this school year to make your classroom Healthy and Wise. Keep your classroom clean and organized and try to incorporate healthy lifestyle habits into your daily routine. Be courteous to your classmates and teacher. Accept each other's differences. Be a good listener and strive to make your classroom a good learning environment.

Describe your classroom.

Discussion Questions

How do you try to get along with others? How can you make your classroom a good

Figure 2 This is the same article with formatting. There are headings, paragraphs and a bulleted list.

Unformatted Braille

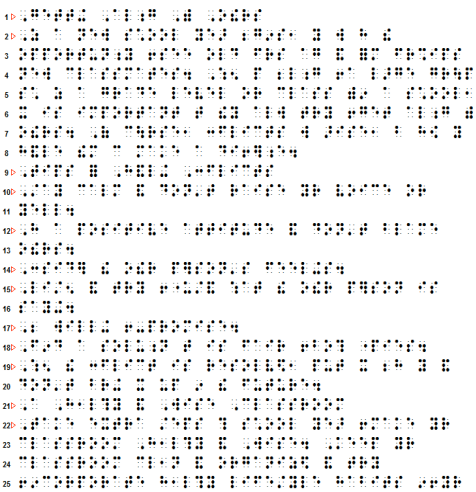


Figure 3 Example of unformated braille.

Formatted Braille

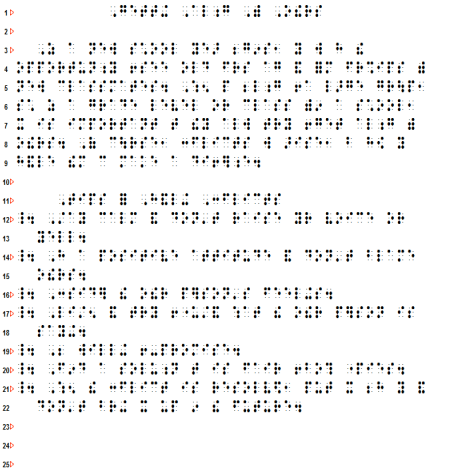


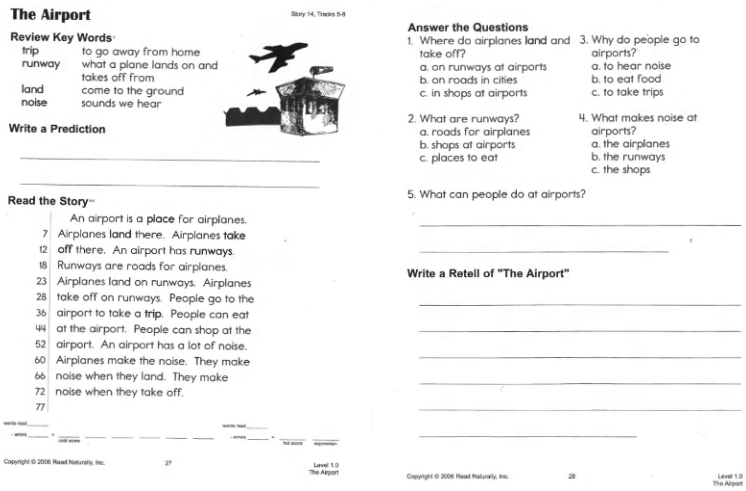
Figure 4 Example of formatted braille.

Transcriber's Role

- Classroom Materials
  - Short-term projects; needed ASAP
  - Multiple subjects
  - Full-scale production:
    - Scan and clean
    - Translating
    - Proofing
    - Embossing
    - Creating Tactile Graphics

Formats

Worksheets, Handouts, Articles, Tests



The Airport

Story 14, Tracks 5-8

Review Key Words

trip	to go away from home
runway	what a plane lands on and takes off from
land	come to the ground
noise	sounds we hear

Write a Prediction

Read the Story

An airport is a **place** for airplanes.
Airplanes **land** there. Airplanes **take off** there. An airport has **runways**.
Runways are roads for airplanes.
Airplanes land on runways. Airplanes take off on runways. People go to the airport to take a **trip**. People can eat at the airport. People can shop at the airport. An airport has a lot of noise. Airplanes make the noise. They make noise when they land. They make noise when they take off.

Copyright © 2006 Read Naturally, Inc. 27 Level 1.0 The Airport

Answer the Questions

1. Where do airplanes **land** and take off?
   a. on runways at airports
   b. on roads in cities
   c. in shops at airports
2. What are runways?
   a. roads for airplanes
   b. shops at airports
   c. places to eat
3. Why do people go to airports?
   a. to hear noise
   b. to eat food
   c. to take trips
4. What makes noise at airports?
   a. the airplanes
   b. the runways
   c. the shops
5. What can people do at airports?

Write a Retell of "The Airport"

Copyright © 2006 Read Naturally, Inc. 28 Level 1.0 The Airport

Figure 5 This is an example of a worksheet that accompanies a short story. It is entitled The Airport.

Braille Headings

- Centered
- Subheadings
  - Cell 5
  - Cell 7 (new in 2011)
- Paragraph headings
- Column headings

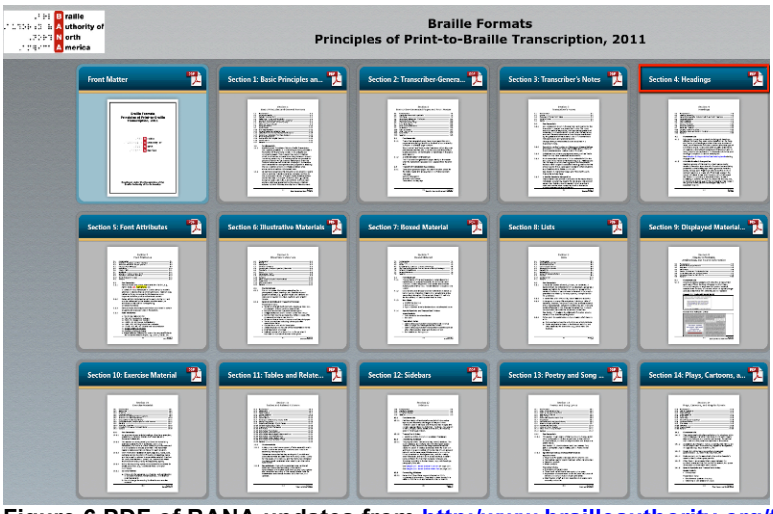
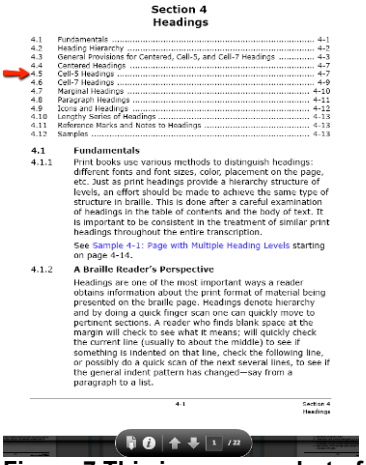


Figure 6 PDF of BANA updates from http:/www.brailleauthority.org/formats/formats2011.html



Section 4
Headings

4.1 Fundamentals 4-1
4.2 Heading Hierarchy 4-2
4.3 General Provisions for Centered, Cell-5, and Cell-7 Headings 4-3
4.4 Centered Headings 4-7
4.5 Cell-5 Headings 4-7
4.6 Cell-7 Headings 4-9
4.7 Marginal Headings 4-10
4.8 Paragraph Headings 4-11
4.9 Icons and Headings 4-12
4.10 Lengthy Series of Headings 4-13
4.11 Reference Marks and Notes to Headings 4-13
4.12 Samples 4-13

4.1 Fundamentals

4.1.1 Print books use various methods to distinguish headings: different fonts and font sizes, color, placement on the page, etc. Just as print headings provide a hierarchy structure of levels, an effort should be made to achieve the same type of structure in braille. This is done after a careful examination of headings in the table of contents and the body of text. It is important to be consistent in the treatment of similar print headings throughout the entire transcription.

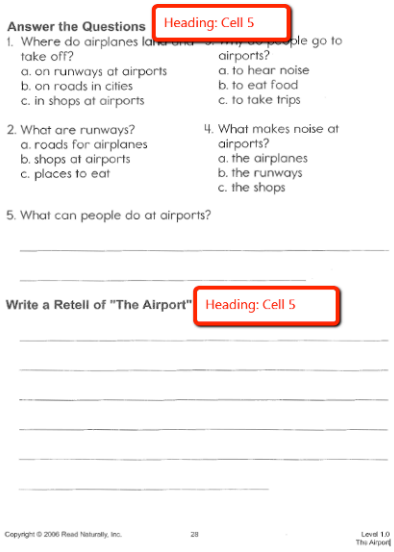
See Sample 4-1: Page with Multiple Heading Levels starting on page 4-14.

4.1.2 **A Braille Reader's Perspective**

Headings are one of the most important ways a reader obtains information about the print format of material being presented on the braille page. Headings denote hierarchy and by doing a quick finger scan one can quickly move to pertinent sections. A reader who finds blank space at the margin will check to see what it means; will quickly check the current line (usually to about the middle) to see if something is indented on that line, check the following line, or possibly do a quick scan of the next several lines, to see if the general indent pattern has changed—say from a paragraph to a list.

4-1 Section 4 Headings

Figure 7 This is a screenshot of Section 4: Headings of the new 2010 Braille Formats.



Answer the Questions Heading: Cell 5

1. Where do airplanes land and why do people go to take off?
   a. on runways at airports
   b. on roads in cities
   c. in shops at airports

2. What are runways?
   a. roads for airplanes
   b. shops at airports
   c. places to eat

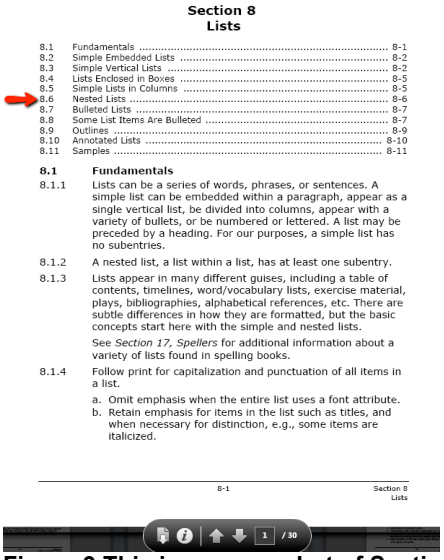
4. What makes noise at airports?
   a. the airplanes
   b. the runways
   c. the shops

5. What can people do at airports?

Write a Retell of "The Airport" Heading: Cell 5

 28 Level 1.0 The Airport

Figure 8 This is the same worksheet we looked at in slide 10, but we have indicated the heading level for braille. These headings would be a cell 5 heading.



Section 8
Lists

8.1 Fundamentals 8-1
8.2 Simple Embedded Lists 8-2
8.3 Simple Vertical Lists 8-2
8.4 Lists Enclosed in Boxes 8-5
8.5 Simple Lists in Columns 8-5
8.6 Nested Lists 8-6
8.7 Bulleted Lists 8-7
8.8 Some List Items Are Bulleted 8-7
8.9 Outlines 8-9
8.10 Annotated Lists 8-10
8.11 Samples 8-11

8.1 Fundamentals

8.1.1 Lists can be a series of words, phrases, or sentences. A simple list can be embedded within a paragraph, appear as a single vertical list, be divided into columns, appear with a variety of bullets, or be numbered or lettered. A list may be preceded by a heading. For our purposes, a simple list has no subentries.

8.1.2 A nested list, a list within a list, has at least one subentry.

8.1.3 Lists appear in many different guises, including a table of contents, timelines, word/vocabulary lists, exercise material, plays, bibliographies, alphabetical references, etc. There are subtle differences in how they are formatted, but the basic concepts start here with the simple and nested lists.

See *Section 17, Spellers* for additional information about a variety of lists found in spelling books.

8.1.4 Follow print for capitalization and punctuation of all items in a list.

a. Omit emphasis when the entire list uses a font attribute.
b. Retain emphasis for items in the list such as titles, and when necessary for distinction, e.g., some items are italicized.

8-1 Section 8 Lists

Figure 9 This is a screenshot of Section 8: Lists in the pdf portfolio. There is an arrow pointing to Nested Lists because the questions on the worksheet are an example of a nested list.

Lists

- A list with no subentries
  (1-3)
- A list with one level of subentries
  (1-5, 3-5) Main entry 1-5
- A list with two levels of subentries
  (1-7, 3-7, 5-7) Main entry 1-7

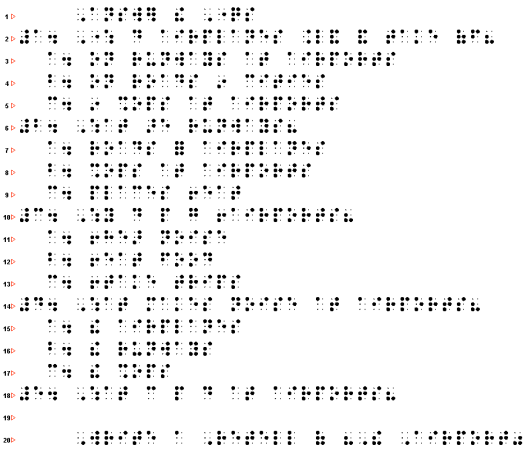


Figure 10 Braille example of the worksheet formatted with cell 5 headings and the nested list.

Print example

Tips for Handling Conflicts

- Stay calm and don't raise your voice or yell.
- Have a positive attitude and don't blame others.
- Consider the other person's feelings.
- Listen and try to understand what the other person is saying.
- Be willing to compromise.
- Find a solution that is fair to both parties.
- When the conflict is resolved, put it behind you and don't bring it up in the future.

Figure 11 Print example of a simple list.

Braille example

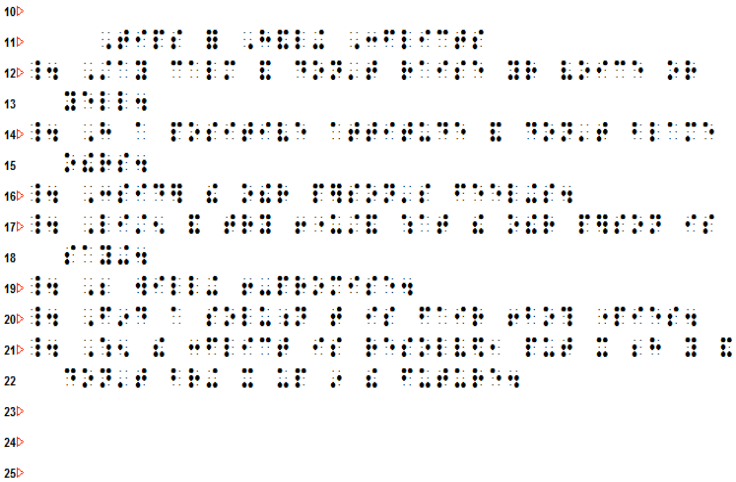


Figure 12 Braille example of a simple list formatted.

Print Example

1. How many braille transcribers does it take to change a lightbulb?
   a. 1
   b. 2
   c. 3
   d. None, we have to get this assignment into braille immediately! There is no time for lightbulbs!

Figure 13 Print example of a nested list. It is a joke with multiple choice answer selections.

Braille Formatted

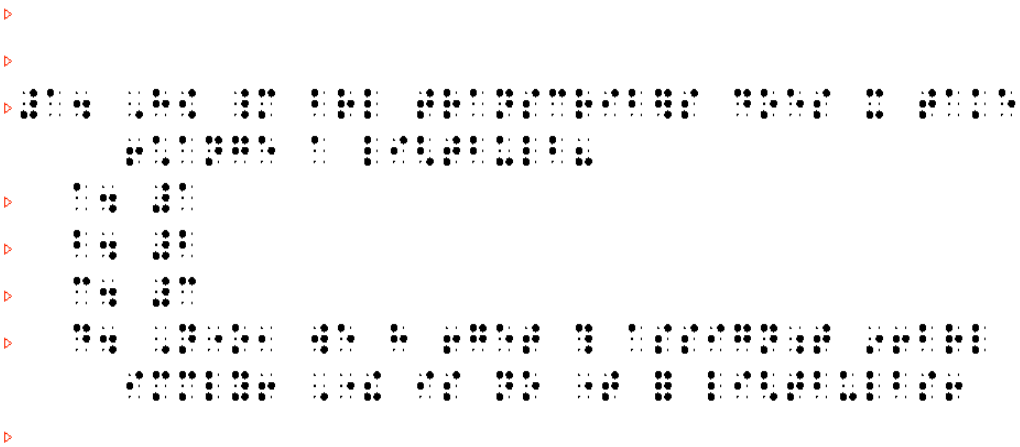
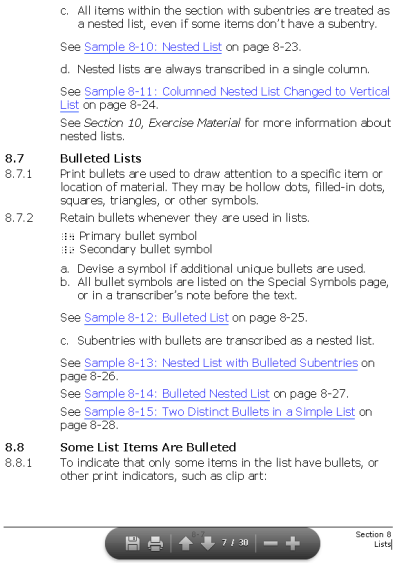


Figure 14 Braille example of the joke formatted.

Bullets

Figure 15 Primary bullet symbol

Figure 16 Secondary bullet symbol.



c. All items within the section with subentries are treated as a nested list, even if some items don't have a subentry.

See Sample 8-10: Nested List on page 8-23.

d. Nested lists are always transcribed in a single column.

See Sample 8-11: Columned Nested List Changed to Vertical List on page 8-24.

See *Section 10, Exercise Material* for more information about nested lists.

8.7 Bulleted Lists

8.7.1 Print bullets are used to draw attention to a specific item or location of material. They may be hollow dots, filled-in dots, squares, triangles, or other symbols.

8.7.2 Retain bullets whenever they are used in lists.

⠸⠸ Primary bullet symbol
⠸⠂ Secondary bullet symbol

a. Devise a symbol if additional unique bullets are used.
b. All bullet symbols are listed on the Special Symbols page, or in a transcriber's note before the text.

See Sample 8-12: Bulleted List on page 8-25.

c. Subentries with bullets are transcribed as a nested list.

See Sample 8-13: Nested List with Bulleted Subentries on page 8-26.

See Sample 8-14: Bulleted Nested List on page 8-27.

See Sample 8-15: Two Distinct Bullets in a Simple List on page 8-28.

8.8 Some List Items Are Bulleted

8.8.1 To indicate that only some items in the list have bullets, or other print indicators, such as clip art:

Figure 17 A screenshot of Section 8: Lists showing information in Braille Formats on Bulleted Lists.

Conclusion

- Become familiar with the 2011 Updated Formats
- Analyze your print document
- Then go to the Formats Portfolio
- Not sure, ask other transcribers—we all enjoy helping each other do our best for our students!
- You are all doing great work! Now like Emerill says “BAM! Let’s kick it up a notch!”

Thank you!

Sue Mattson
Certified Braille Transcriber
Texas School for the Blind and Visually Impaired
Austin, Texas
mattsons@tsbvi.edu
512-206-9448

Tactile Graphic Formats for Electronic Documents

How to Make Computer-Generated Tactile Graphics According to the BANA Tactile Graphic Standards

Presented by
Patrick Van Geem
vangeemp@tsbvi.edu

Introduction

According to the Braille Authority of North America, tactile graphics are not mere transcriptions of print illustrations or raised versions of a print graphic. They are the transformed representations of images that are adapted for the sense of touch.

BANA decided to write guide line standards that culminated in this manual called the Guidelines for Tactile Graphic Standards. After much research and field testing, the manual was finally completed in 2010.

This part of the TETN will touch (lightly) over some of the formatting standard that seem important for braille transcribers working in school districts who have to produce tactile graphics on a day to day basis for students.

Attention is also paid to computer-generated production, those that are drawn on a vector graphic application and then transformed into an embossed graphic by either a Tiger embosser or by encapsulated swell paper devices like a PIAF or Tactile Image Enhancer.

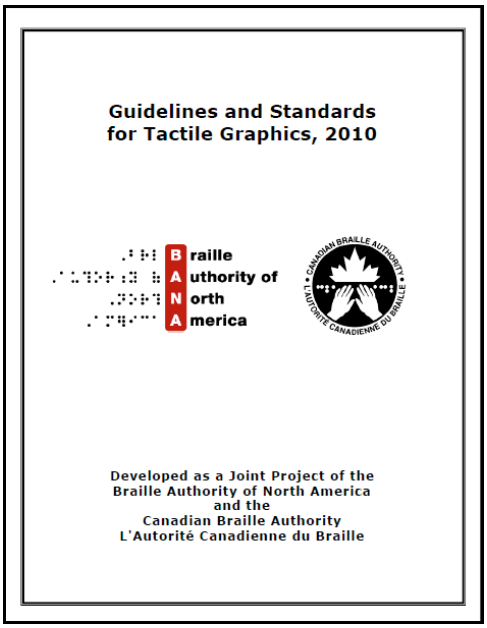


Figure 18: Front Cover of Guidelines and Standards for Tactile Graphics, 2010

The book along with an example supplement text can be ordered through APH.

Even though this book is mainly for textbook braille production, it is very helpful to braille transcription personal who do braille in an everyday instructional school environment.

Here is a web link to the Guidelines and Standards for Tactile Graphics, 2010.
This is the web address: http://www.brailleauthority.org/

Information From the Book

Most of the information in this TETN presentation comes form these three units.

- Unit 2: Design Principles
- Unit 3: Planning and Editing
- Unit 5: Braille Formats for Tactile Graphics

Unit 3 Examples

Unit 3 in the book is of particular interest because of the examples offered. You can use these as models for tactile graphic production.

These examples are very clear and easy to understand. Again, this is for textbook formatting which could be follow a similar standard on worksheets and daily instructional information.

Single Page Example

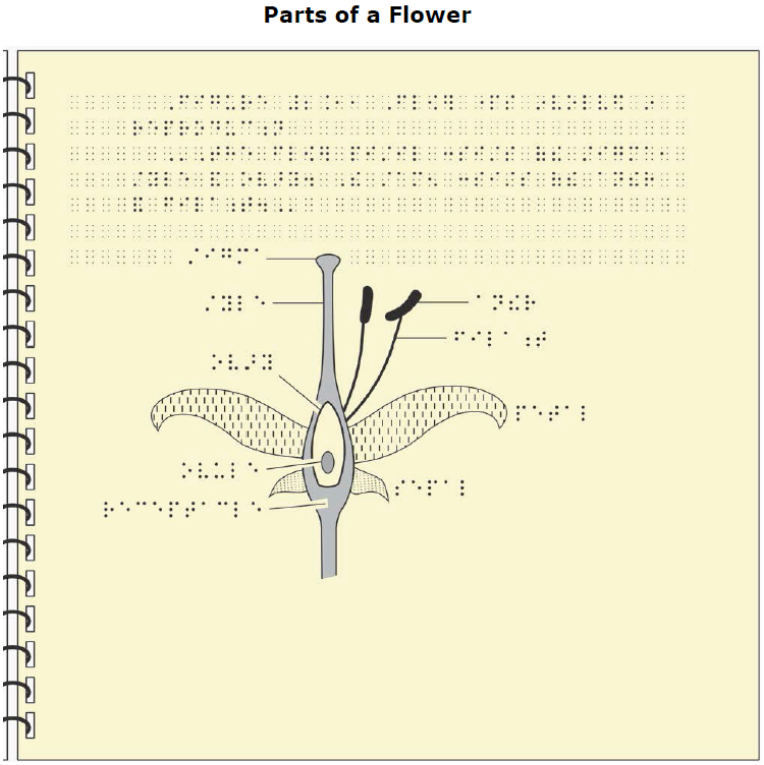


Figure 19: An Example of a Tactile Graphic Illustration from the BANA TG Guidelines Book

Key Examples

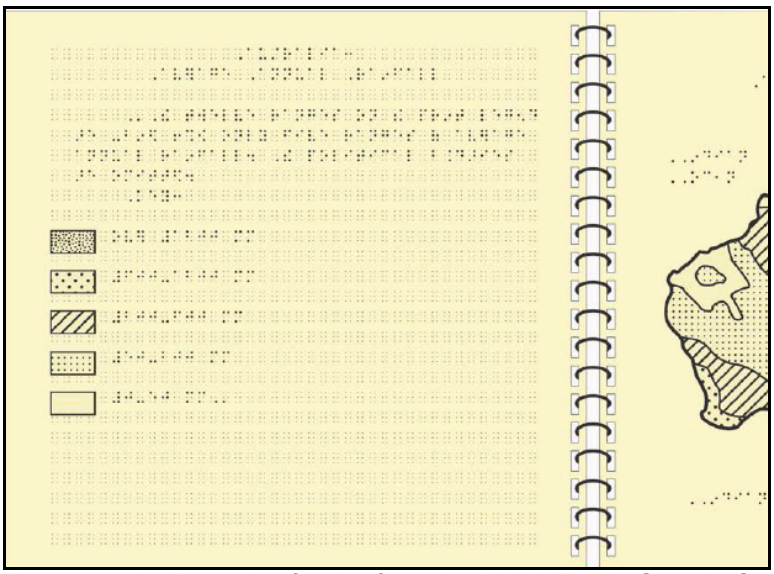


Figure 20: An Example of a Key from the BANA Tactile Graphic Guidelines Book

Stages of Consideration

There are four stages of consideration that go into the production of a tactile graphic. Thinking about it in this way, could help in the process of tactile graphic production.

- Criteria for Including a Tactile Graphic
- Planning and Editing
- Braille Formats for Tactile Graphics
- Object Components Used for Production

Stage 1: Critical for Including a Tactile Graphic

This is a “do’s and don’t” list. Tactile graphic production can get a bit complex. The BANA guideline book Unit 1, reviews the criteria for including a tactile graphic.

Criteria

- A tactile graphic and 3D needs to be introduced to students at an early age as possible.
- Required graphic must be included on the tactile graphic
- Place caution when omitting a graphic. No diagram should be omitted if it is needed to make the tactile graphic comprehensible.
- Keep tactile graphic meaningful. Some complex diagram will never make meaningful TGs.
- Include tactile graphics to answer a question. If an image is used to answer question, a tactile graphic is needed.

More Criteria

*From: *American Foundation for the Blind Braille Literacy Mentors in Training: The Next Generation - Teaching Special Codes: Nemeth, CBC, and Tactile Graphics* - Workshop in Fremont, California (August 7-9, 1997) and Atlanta, Georgia (September 11-13, 1997). Diane Spence and Susan A. Osterhaus

- Make the tactile graphic as clear as possible.
- Know the important facts.
- Omit unnecessary parts of the diagram.
- Keep in mind the student.
- Remember to keep it simple.
- Keep the scale if measuring is required.
- Edit/proofread the graphic with your fingers.

Stage 2: Planning and Editing

Unit 3 in the Guide lines book is devoted to this topic. It states that planning and editing is a critical stage in the development of a tactile graphic.

Unit 3 in the Guidelines and Standards for Tactile Graphics book is one of the most important section in the entire book. The unit reviews the planning process and how tactile graphics are structured to convey the information to the student.

Primary Object Components

Primary object components are all the graphic design illustrations objects used to convey instructional information to the student with a visual impairment. These components are:

- Area
- Line
- Point
- Label

Area

An area represents a region that has specific importance in a tactile graphic. They are usually the concrete portions of a diagram.

These are the questions you need to ask when planning to use areas. It is important because area on a tactile graphic can make or break readability of a tactile graphic.

Does the area(s)……..

- differ from surrounding areas?
- convey clarity in a bar graph?
- created tactual noise?
- define distinct areas?
- accurately portray different areas?

Lines

A line represents linear information such a river, geographic boundaries, or routes. They may represent either concrete or imaginary information.

Lines, if not used correctly can confuse the reader. Although there are many questions to ask about lines these are the main ones.

Does a line represent…

- An imaginary boundary
- Something to follow (river route, street, Oregon Trail)
- A lead line to a label placed somewhere else?

Points

A point symbol indicates a specific place within the graphic.

The main issue of points, especially Tiger produced points, are they easy to find and readable to the user?

Here are some planning questions about points.

- Are they far enough from a line to distinguish?
- Are they distinguishable from the area?

Labels

A label may be words (alpha or numeric) used to identify an area, line, or point symbol.

Labels are the defining part of a tactile graph. They are the traffic signs of a tactile graphic.

Here are some planning questions concerning points.

- How much decoding is required of the student?
- If the label doesn't fit without covering most of the area, where does it go?

Editing Content

Based on the purpose of the graphic.

Producers should not change the content or its meaning and should seek help from others when there are questions they might have on the print diagram. A tactile graphic is developed base on what the reader is expected to gain from the information.

Must read the text surrounding the graphic and questions asked.

Producer must carefully read the text in order to determine what is important for the reader to know.

No more than five different: area textures, line styles, and point symbols.

If more are needed to represent the information required, an alphabet key might be necessary. In reality, three textures on a tactile graphic is the norm.

Tactile Graphic Planning Process

Tactile Graphic Planning Sheets

TACTILE GRAPHIC PLANNING SHEET	
Title:	Method:
Transcriber:	Graphics Designer:
Due Date:	Proofreader:
Include (derived from surrounding text):	
Simplification and/or elimination:	
Re-sizing:	
Consolidation and/or distortion:	
Separation (List titles or headings for each part of the diagram):	
Transcriber's notes (explaining change in format or description to support graphic):	
Comments:	

TACTILE GRAPHIC PLANNING SHEET

AREAS

Information	Texture/Material

LINES

Information	Texture/Material

POINT SYMBOLS

Information	Texture/Material

LABELS AND KEY

Figure 21: Two Tactile Graphic Planning Sheets Example

Writing down the process or using a checklist might help with the planning process because it can get complicated.

This planning sheet and checklist is available in the Guidelines and Standards for Tactile Graphic book under the Planning Process 3.3 section of Unit 3.

You don't have to use this, especially if your system seems to work well but it can help you focus on the process of producing a tactile graphic in a simple yet systematic way.

Which Production Method?

- Tiger Embossing
- Swell paper embossing
- Collage
- Thermoform
- Combination
- Quick Drawing (Draftsman)
- Student-made or collaboration

You can use a combination of methods. For instance: collage, Tiger production, and thermoform. There are examples in the Guideline Supplement that comes with the book.

Planning Size and Layout

Size of the TG can be determined by how much and where information is positioned on the document. This can influence what paper size to use.

- Consider the amount of space available within the size of page.
- Maximum width of a tactile graphic is 40 cells.
- Maximum length of a tactile graphic is 25 lines.

What information will be conveyed

Simplify the Drawing:

- Lots of print illustration can be too complex so they might need to simplified in a tactile graphic.
- Example: 3D drawing turned into a 2D cross section.
- Careful not to simplify too much.
- Consult with the content and TVI about matters in question when simplicity is needed.

Elimination:

- Print information can be eliminated if it does not confuse or hinder the purpose of the illustration.
- Frames or borders around many print diagrams should be eliminated.
- Secondary information may be included in a caption or in transcriber's note.

Consolidation and Distortion:

- This can only be done if the original purpose of the diagram is not hindered or made impossible.
- Example: combining a archipelago of islands, some demographic information, or when there are too many textures or patterns on the original print diagram.

Separation:

- This is done to reduce clutter.
- A large complex diagram showing many different features and information can be divided into sections or parts.
- Be sure the separation make sense and follows a logical sequence that is not confusing to the reader.

Stage 3: Braille Formats for Tactile Graphics

Braille formats for tactile graphic section is Unit 5 in the Tactile Graphic Guidelines book. Much of the information is take from Braille Formats: Principles of Print to Braille Transcription, 1997 and the Nemeth Braille for Mathematics and Science Notation, 1972 Revision.

Most of guidelines on braille formats for tactile graphics are pertaining to textbook formatting. Worksheets, classroom tests, instructional activities, district-wide tests, and everyday assignments are a bit different when it comes to formats, however, standard guidelines need to be considered when producing everyday materials for student and should be produced as close as possible to the standard guideline.

This section talks about how that might be achieved with special emphasis on producing tactile graphics using the Microsoft Word drawing tools.

Placement of Tactile Graphic

- An illustration should be inserted as close as possible to corresponding discussion in the text. If an appropriate location is not possible, place it at the end of the print page.
- A blank line is required before and after a tactile graphic.
- If you need to move an illustration from its position in the print text, insert a transcriber's note before the illustration. This transcriber's note will explain what is occurring next on the document. It come before a key if there happens to be one.

Placement of Tactile Graphic

Numbering or lettering diagrams are presented vertically.

Tests number arrangement:

a. b.
c. d.

When individually numbered or lettered diagrams are presented in print, they should be placed one below the other (vertically) rather than side by side (horizontally).

For testing questions or answer choices where comparisons are made between diagrams, they may be placed side by side in order to keep them on the same page. Items would be spatially arranged in order, horizontally, regardless of what is shown in print.

Information continues on the next page.

Document Layout

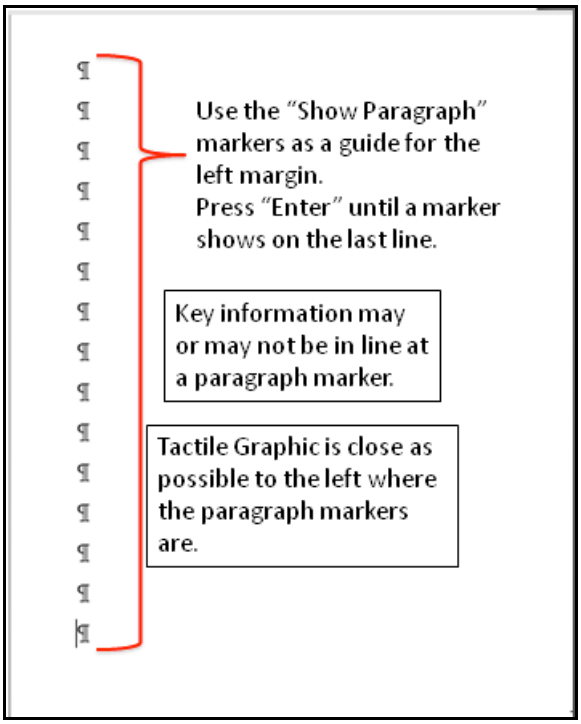


Figure 22: Illustration of a Document Layout showing the Paragraph Markers Indicating Left Margin Placement

- Set font to 29 pt. Courier New
- Enter the title in "cell 1 on line 1".
- Enter content in line at a paragraph marker
- Enter transcriber's notes symbols. It is inserted at cell 7 either before content or after content.
- Enter the word "Key" in line at a paragraph marker.

Order of Elements on a Tactile Graphic-Single Page

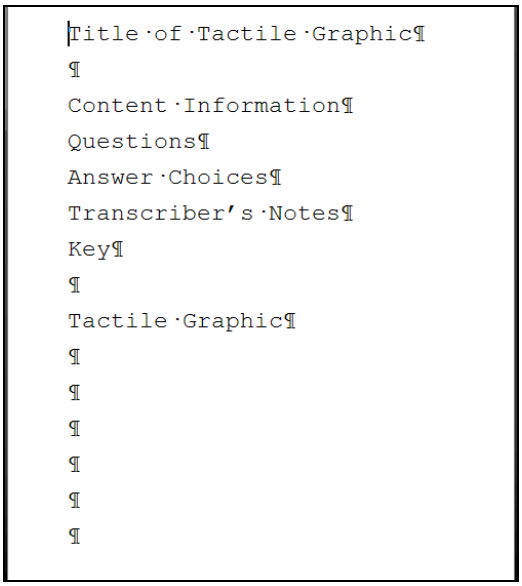


Figure 23: Illustration of a Document in 29 pt. Font showing Title, Content, Transcriber's Notes, and Tactile Graphic

- The title is the heading (some tactile graphics do not have a heading)
- Content Information
    - Questions
    - Answers
- Transcriber notes follows ,
    - If it is about the content it comes before the content information
    - If it is about the graphic it comes after the content but before the key.
- Key
- Tactile Graphic

Title Style

- The next line after a title is left blank.
- When a tactile graphic extends beyond one page, repeat the title.
- When there is no title to the print illustration, do not add a title to the tactile graphic.

Content

- Information has to be connected to the graphic.
- Transcriber's note symbols are not required.
- Do not leave blank spaces before and after information.
- If extra information is needed, include a transcriber's note.

Transcriber’s Notes

- Written by the braille production specialist.
- Precedes content if it is about the content.
- Precedes graphic if it is about the graphic.
- Starts in cell seven with the transcriber's note symbol.
- Notes should be short and concise.
- Written in the present tense and at the student's grade level vocabulary.

Keys

- Placed before the graph.
    - Again if the TG does not fit on the same page, it goes to the next page.
- Need to match the graphic illustration
    - This is especially apparent if there are more then one pattern.
- Single letter key are not recommends
    - Use two letter keys
- Below the title and before the illustration
    - Content comes before the key.
    - Transcriber’s notes come before the key.
- Before an illustration if key is on a facing page
- Line symbols must be 1 inch in length
    - It is more readable to the student if it is at least this long.

Order of a Key

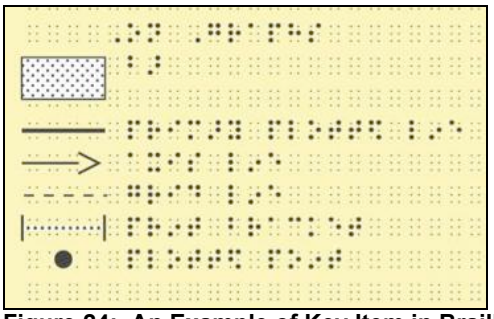


Figure 24: An Example of Key Item in Braille.

Transcriber's symbol comes first
The word Key follows after.
Skip a line
The list of key items is next.

Key Symbols order:

- Texture keys are listed first (regions on maps)
- Letter keys are next (state names on maps)
- Number keys are last (city names in a state)

Within a Texture Key the order of hierarchy would be as followed:

- Area
- Line
- Point
- Alphabet
- Numeric

The closing transcriber note symbol is place after the last item in the key.

Stage 4: Object Component specifications used for production

All throughout the BANA Tactile Graphics book, specifications for the major object components were conveyed. Most of the specifications did not differ that much even when the subject content was different.

For instance, specifications for an area used in math did not vary that much from areas used in maps. The same is true for science.

Area Specifications

Areas are used in all subject. They are of particular importance to maps and science cellular mapping and detail information. Areas, freeform and well as standard shape, are used in Geometry.

- Minimum area size is .25”
- No more than five different patterns.
- All patterns are clearly different.
- Smoothen lines of an outline map.
- Simple shapes should be the “no fill” area.

Line Specifications

Line can vary greatly because they are used for various reasons.

- Primary lines : 1⁄2 inch or 6 pt. weight.
- Dashed lines: 3-6 pt. weight (middle line)
- Tick Markers: extend .25” out from graph line.
- Lead Lines: 1 pt. (thinnest line)
- Arrow lines: a solid triangle or open arrowhead.
- Grid lines: 1 pt. on graph
- Axis lines: 3 pt. (middle line)
- Function lines: 6 pt. (thickest)

Point Specifications

- Represents specific data.
- In an area there needs to be a 1/8 inch blank space all around a point.
- Use only squares, circles, or triangles
- Do not use stars, plus signs or rectangles
- Use .125-.25" diameter point size
- Positioned outside objects.
- Placed horizontally on a tactile graphic.
- Many labels, consider a key.
- Do not use various size braille fonts.
- 1/8” (.13”) space between label and object.
- Runover line is left justified.
- Horizontal axis dots 4-5-6 are lined with tick marker.

- Vertical axis: dots 2-5 are lined with tick marker.

Grid Guideline Settings

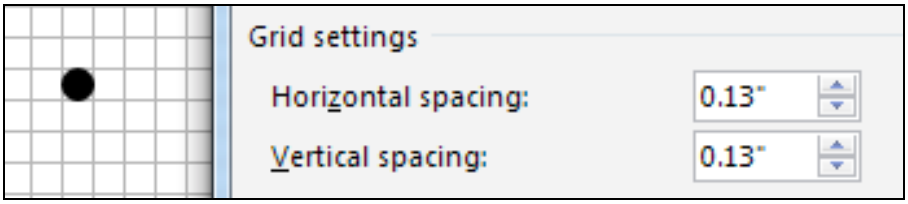


Figure 25: Illustration of Grid Settings with Horizontal and Vertical Spacing at .13"

Set Grid Setting to .13”

- Space between label and object
- Making points
- Clear space width for a lead line in a pattern.

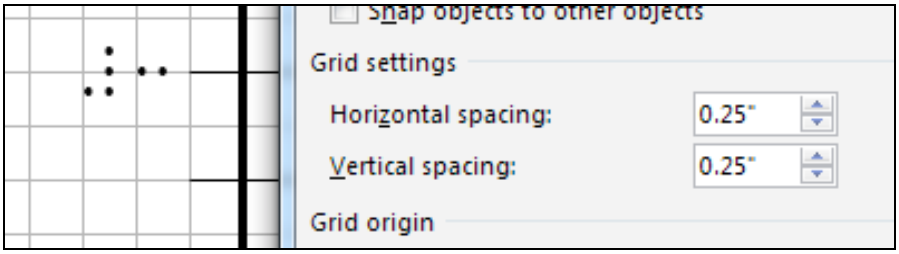


Figure 26: Illustration of Grid Settings with Horizontal and Vertical Spacing at .25"

Set Grid Setting to .25”

- Tick indicator length.
- Double space to .50” for space between coordinate lines
- Double space to .50” for tick indicator spacing on a number line.

Texas School for the Blind & Visually Impaired

Outreach Programs

Figure 27 TSBVI logo.

"This project is supported by the U.S. Department of Education, Special Education Programs (OSEP). Opinions expressed here the authors and do not necessarily represent the position of the Department of Education."

Figure 28 IDEA logo