

# AN INTRODUCTION TO TACTILE GRAPHICS

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national:braille  
press

# Our Mission and Vision

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National Braille Press empowers the blind and visually impaired with programs, materials, and technology supporting braille literacy and learning through touch.

We promote braille globally to advance literacy for blind and visually impaired people, and to increase access to braille, tactile graphics, and assistive technology. Our investment in innovation will encourage greater engagement and independence in education, employment, community, and family life.

# What is a Tactile Graphic?

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Adaptation from visual media can occur in several different formats:

## Print Text

- BRF (Braille Ready Format)

## Images

- Tactile Graphic

## Non-tactile

- Audio
- Screen reader; DAISY

# What is a Tactile Graphic?

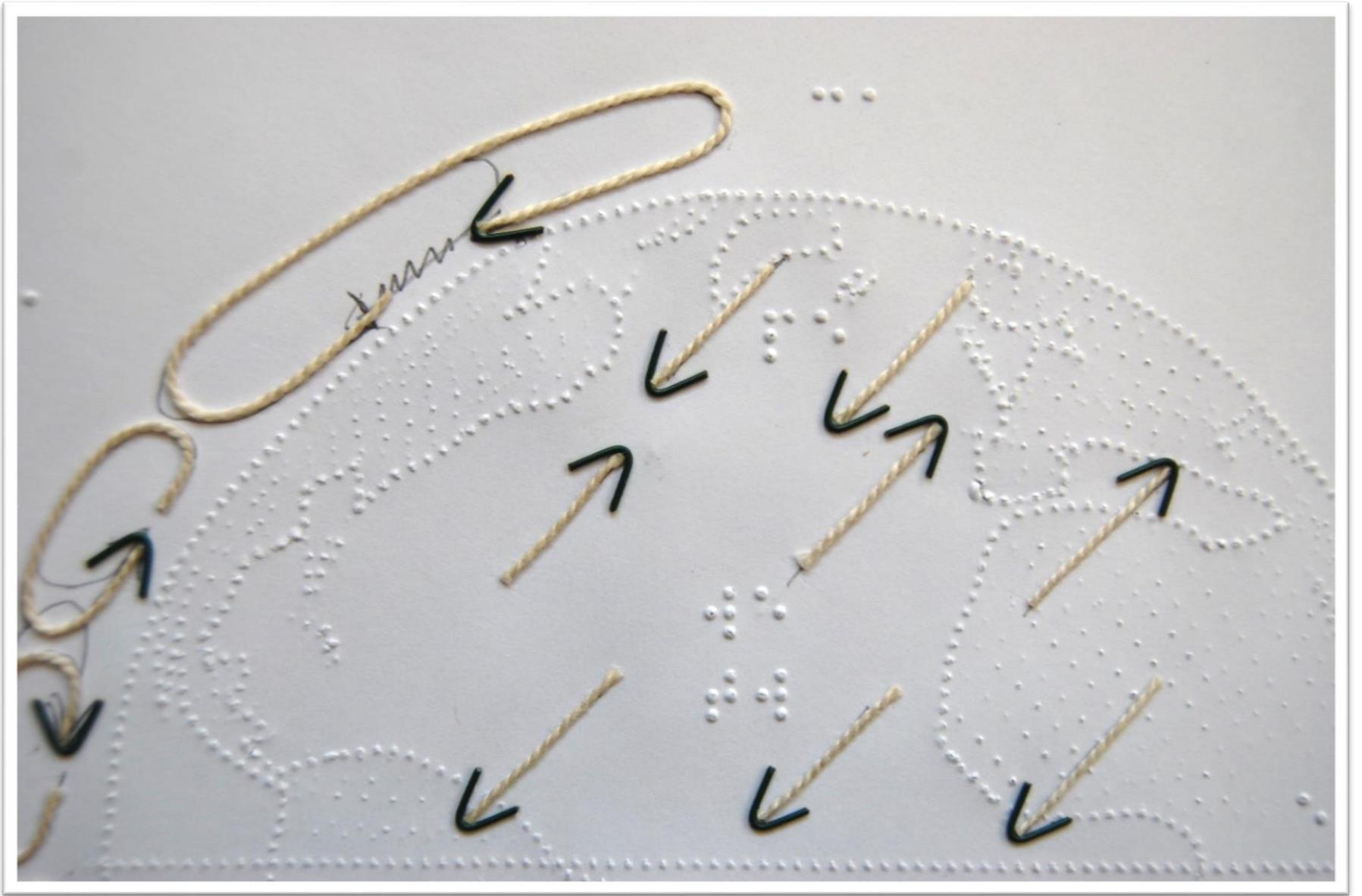
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A tactile graphic is a readily usable and understandable raised-line representation of an illustration, map, diagram, or graph that appears in print (Braille Authority of North America [BANA], 2011).

Two types of tactile graphics:

- Aesthetic, for skill building.
- Functional, for observation or data collection.





# Interpreting Images

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- What is necessary for the reader to understand?
- Is the image for aesthetic design? Or does it add information in context to the reader?
- If it's aesthetic, is there a caption that can be included?
- If it's required, can it be rendered with a description?
  - Can it be rendered in 120 characters?
  - When spoken aloud, does it convey the meaning and content of the image?
  - ...If not...maybe a tactile graphic is necessary.

# Resources

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Your best resource:

BANA Guidelines and Standards for Tactile Graphics  
([www.brailleauthority.org](http://www.brailleauthority.org))

- Includes general principles and detailed guidance for more complex use

# When is a tactile graphic needed?

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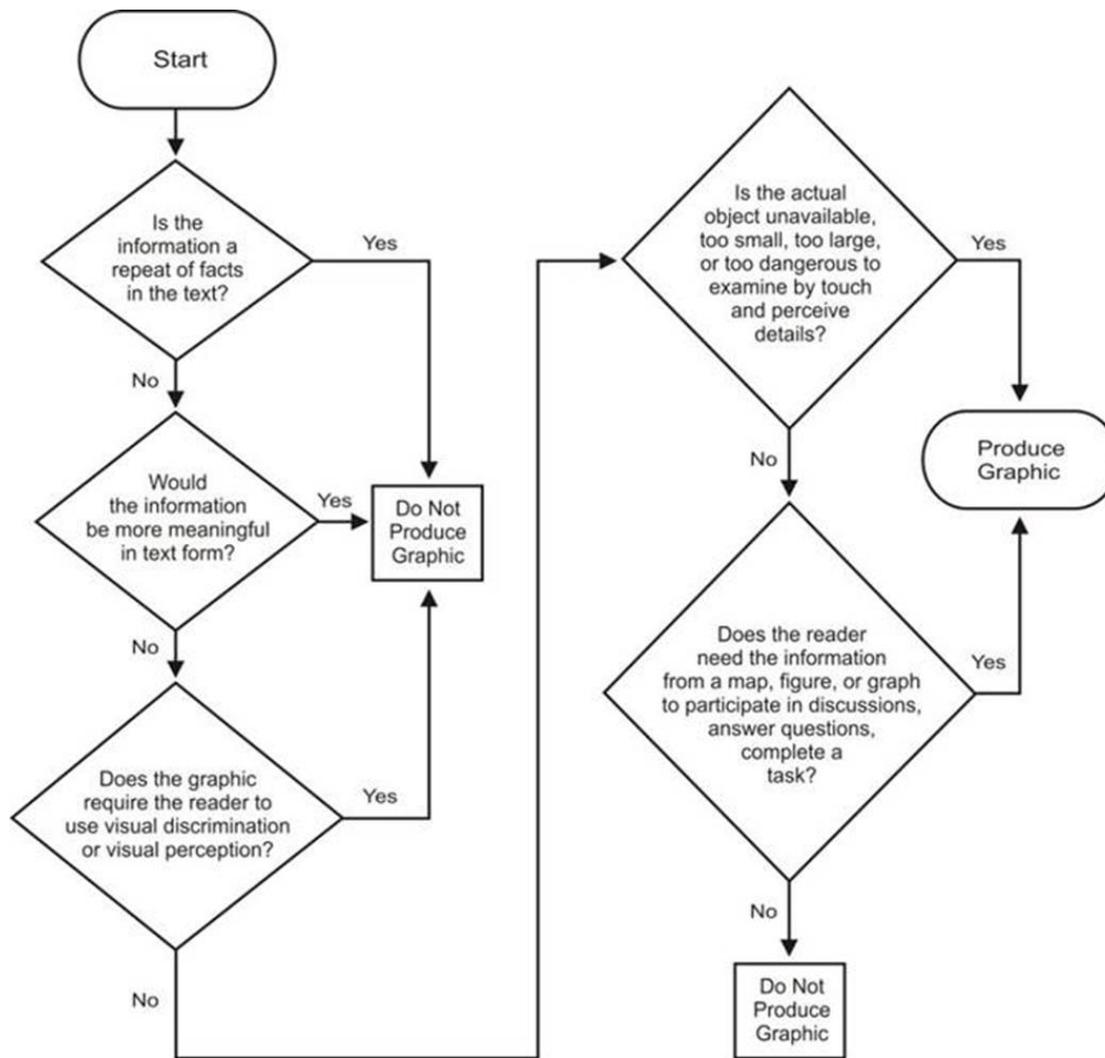
According to BANA:

No diagram should be routinely omitted if a viable method can be found to render it tactually comprehensible. On the other hand, diagrams that do not add additional, necessary information than what is stated in the surrounding text may be omitted. Sometimes the information in a caption is sufficient without including the graphic.

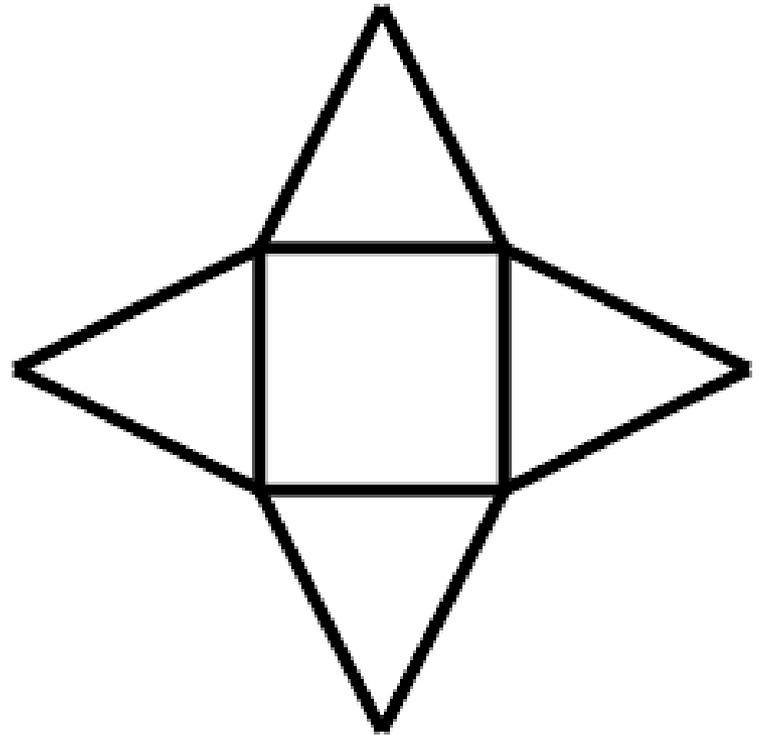
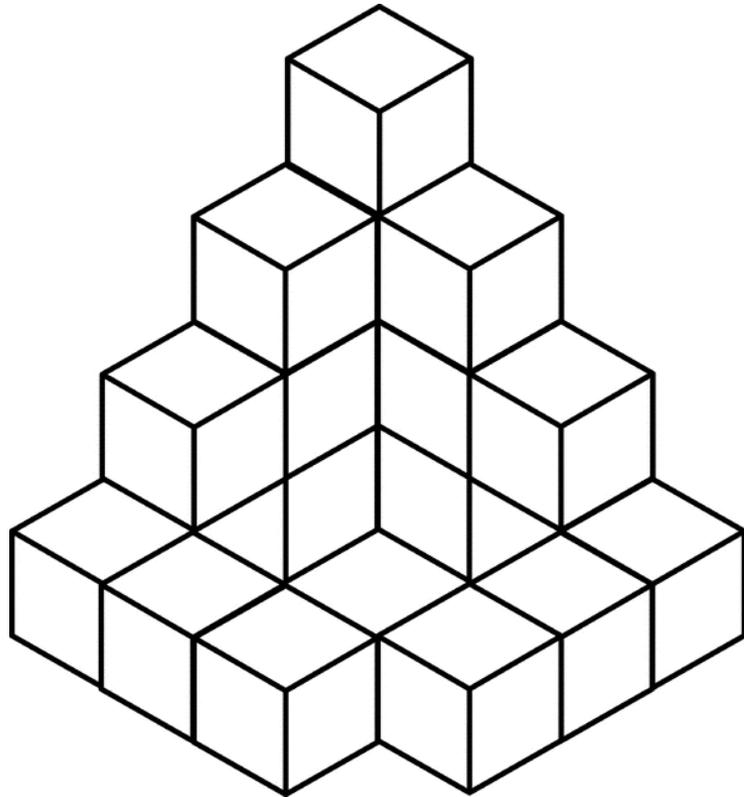
# BANA Decision Tree

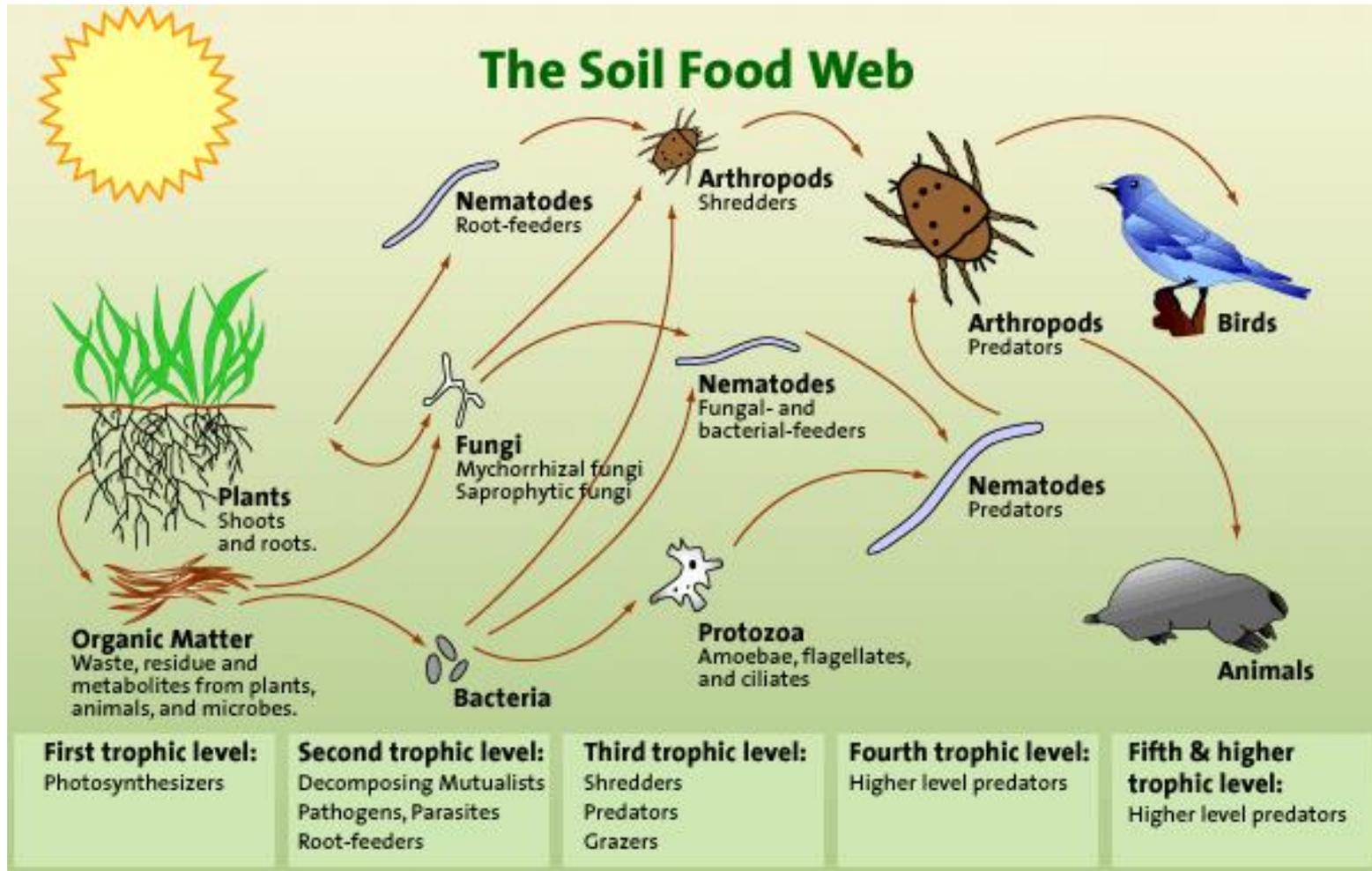
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- Considers best route for dealing with an image.
- Generally, 3-dimensional images are too complicated to represent 2-dimensionally, and are sometimes inaccessible by nature.
  - Nets
  - Top-down perspectives requiring counting or drawing of side view
  - Visual assessments involving backward images or text
- Even if a tactile graphic is possible, is it the best means to convey the information?
  - Picture description
  - Tangible objects or manipulatives
  - Audible description
- When you need to convey more robust information, a combination may be best.



Adapted with permission of the American Foundation for the Blind from Ike Presley & Lucia Hasty. *Techniques for Creating and Instructing with Tactile Graphics*. Copyright © 2005. New York: American Foundation for the Blind. All rights reserved.

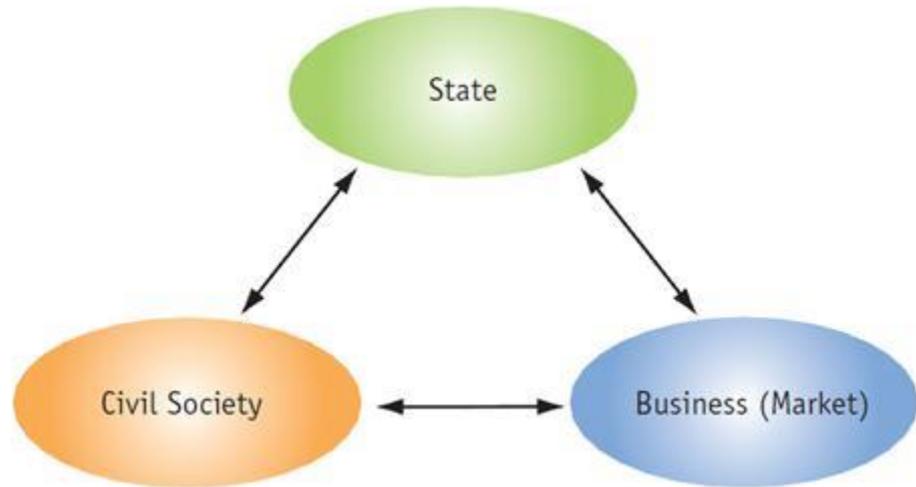




*The Soil Food Web* was reprinted from [http://www.soilfoodweb.com/sfi\\_approach1.html](http://www.soilfoodweb.com/sfi_approach1.html).

**Figure 13-2**

These three elements—state, civil society and business—influence our lives on national and international levels. The relationships among these elements need to be balanced so that one does not overpower the others. *Civil society* describes the collective actions of people based on shared interests. When people take collective action, they often choose to form organizations such as community groups, NGOs, trade unions, faith-based organizations, or advocacy groups.



*Figure 13-2* was reprinted directly from the *BANA Guidelines and Standards for Tactile Graphics*, November 2011.

# Creating a Tactile Graphic

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- Hard copy, emboss and collage
- Electronic

When creating a tactile graphic, you must consider three elements: **points, lines, and textures.**

- As a general guideline, do not use more than five types of points, lines, or textures within one tactile graphic.
- Each tactile element should be discernible by touch and contrast with others. No two tactile components should feel too similar.

# Tactile Graphic Considerations

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- What text needs to be included?
  - Text should be retained as shown.
  - Labels may need to be added to orient the reader, or when it is obvious what it is in print but would not be obvious in a graphic... like "person" , or "block" or "table".
  - A label may be added, as long as it does not give the reader an advantage or suggest the answer to a question.

# Tactile Graphic Considerations

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- Is it necessary to draw to scale?
  - Often a print image should be enlarged, but only enough to clearly convey the information.
  - Enlarge the image to a size that will provide room for necessary labels.
  - Too much white space can leave a braille reader searching for items on a page.

# Tactile Graphic Considerations

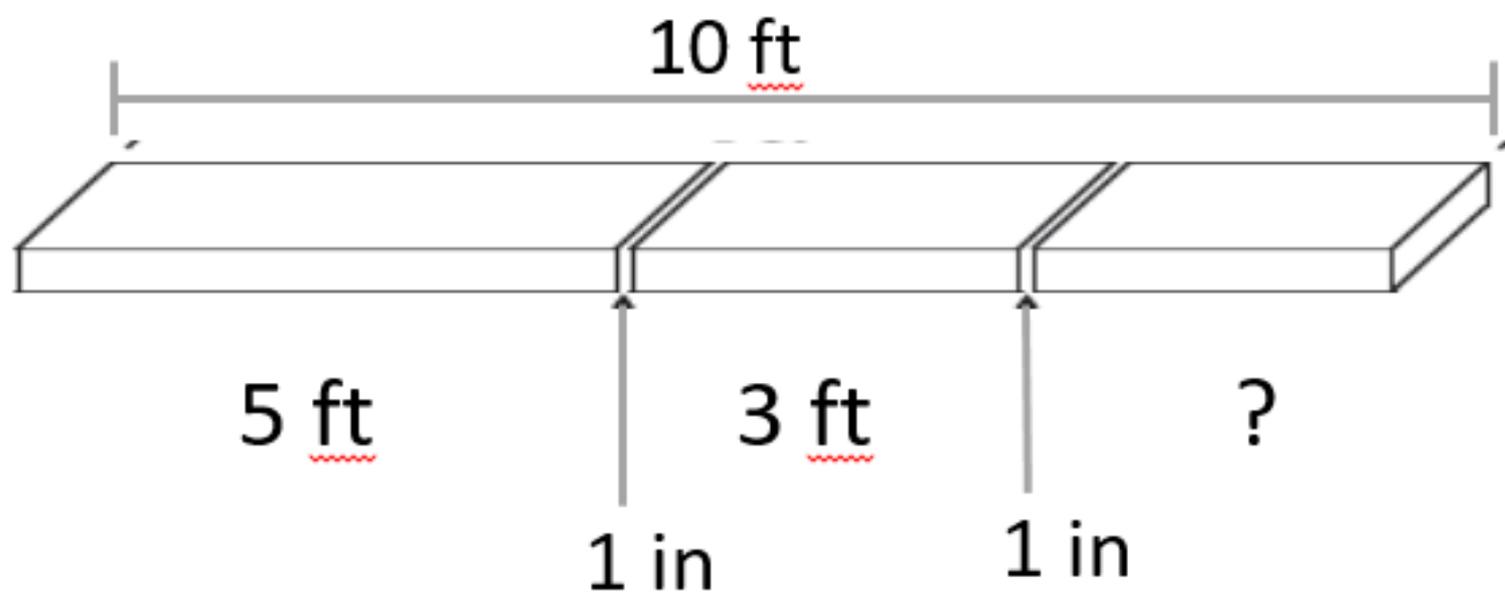
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- What shapes need to be retained or can be simplified?
  - When reviewed in context of the material, often elements within a print image can be safely omitted. For example:
    - a frame which shows unnecessary lines
    - a frame that provides boundaries is an example of a **necessary** frame
    - trees in the background of a diagram when they have no relevance to information conveyed
    - rivers and land formations on a map may not be necessary if the user is looking to locate the state and capital
    - visual aesthetics as opposed to functional information!

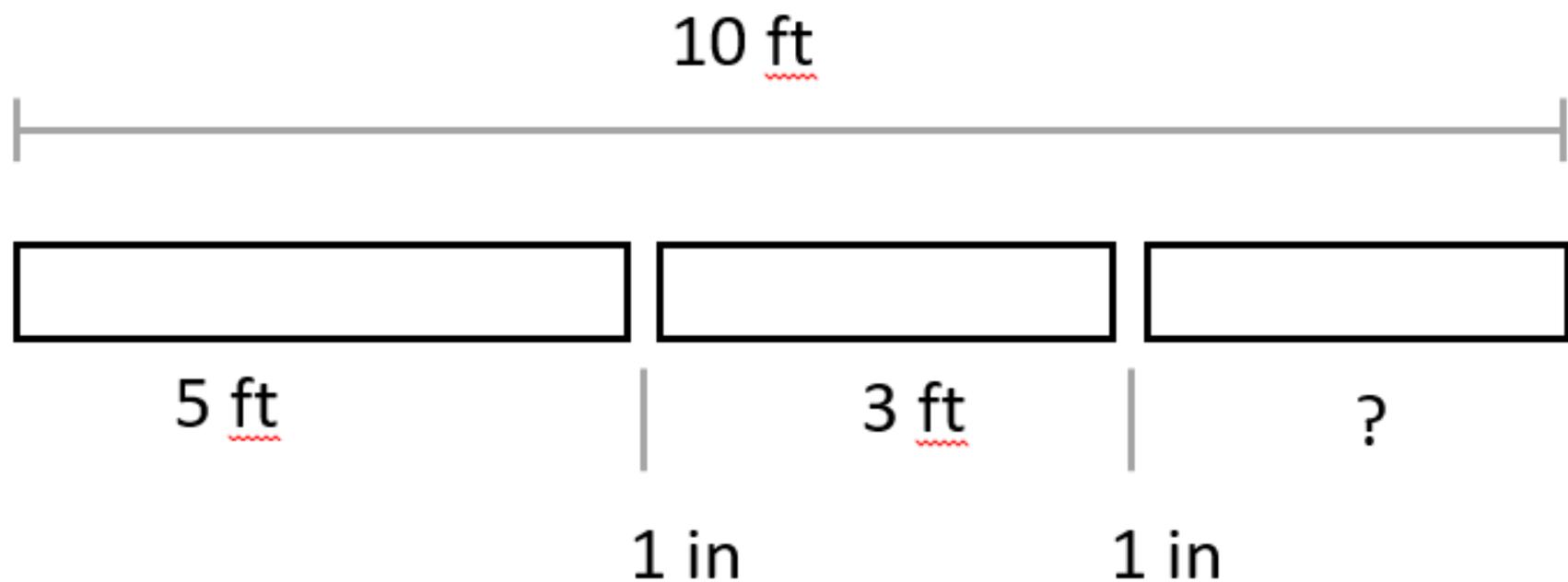
Anything that is 3-dimensional and the concept of depth is not required, should be changed to 2-dimensional.

## Simplifying a 3-Dimensional Figure

Print Version



Tactile Graphic Version



# Tactile Graphic Considerations

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- Should the print image be divided into several tactile graphic sections, to convey a lot of information in smaller chunks?
  - Snapshot (visual) vs. Pieced Information (tactile)

For example, a map may display cities, states, define political regions or climates, rivers and land formations. Too much information makes a map impossible to read, so it might be divided into multiple separate maps, showing:

- first, conveying boundaries of states with state capitals;
- a second, with climates in particular regions OR political regions;
- and possibly a third showing rivers and land formations.



### An Economic Activity Map

The special-purpose map above shows the distribution of land use and natural resources in Southwest Asia. Geographers use maps like this one to study the distribution of natural resources. Governments and industry leaders use land use maps and natural resource maps to monitor the economic activities of countries and regions.

# Collage Tools and Materials

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- spur wheels in several sizes
- rubber mat
- tweezers
- scissors
- hole punches in several different sizes
- carbon paper
- Elmer's glue
- string in several weights (lines)
- crochet thread in several weights (lines)
- thread (lead lines)
- Avery circular stickers in several sizes (points)
- cardboard, chipboard, cardstock (points, textures)
- sandpaper (textures)
- textured paper (textures)
- drywall mesh (textures)

# For Creating on the Fly...

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Considerations:

- weight of paper
- rubber mat or other spurring surface
- using a ruler vs. freehand

Take your time and practice makes perfect!

Other tools available:

- APH Tactile Graphics Kit
- Sensational Blackboard

# Electronic Graphics

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Designed for embossing or on a tactile graphics printer, or raised ink with heat-activated swell paper.

Can be created using several types of software:

- Microsoft Word
- CorelDraw
- ViewPlus Tiger Designer
- Adobe Illustrator
- Inkscape (freeware)

A significant consideration with electronic graphics should be the medium via which it is produced; embossed and swell graphics have inherent limitations for points, lines, and textures.

# Best Practices

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- **Contrast** is critical.
- The most important information should be drawn with the strongest textures. Strength demands attention, and allows the braille reader to prioritize.
- Vary heights of lines and spans of textures. Blank space between areas, around labels, and within textures can heighten contrast.
- Consider adding a transcriber's note to further inform the reader.
- **REMEMBER:** Anything that looks cluttered will be difficult to decipher with fingers! Never compromise tactile quality with visual attractiveness.

# Questions?

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