

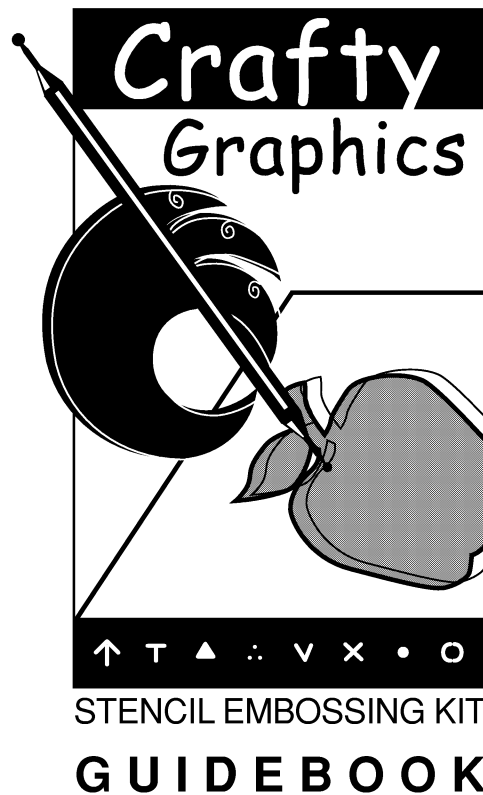


Crafty Graphics

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STENCIL EMBOSSING KIT

GUIDEBOOK



Developed by Jan Carroll

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Dedication

To Ralph E. McCracken “Mac”

My first boss

My mentor

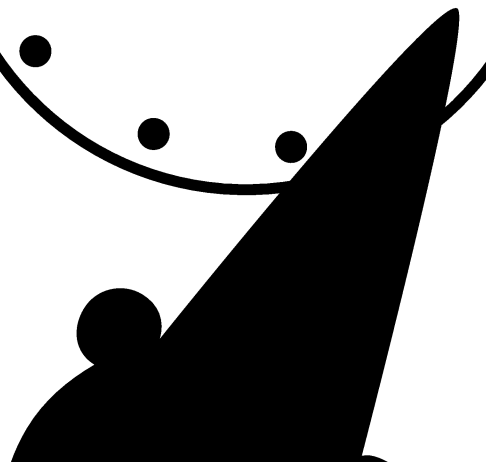
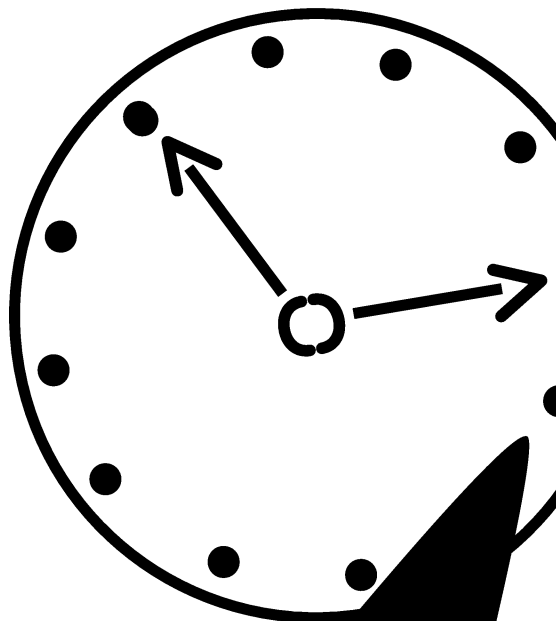
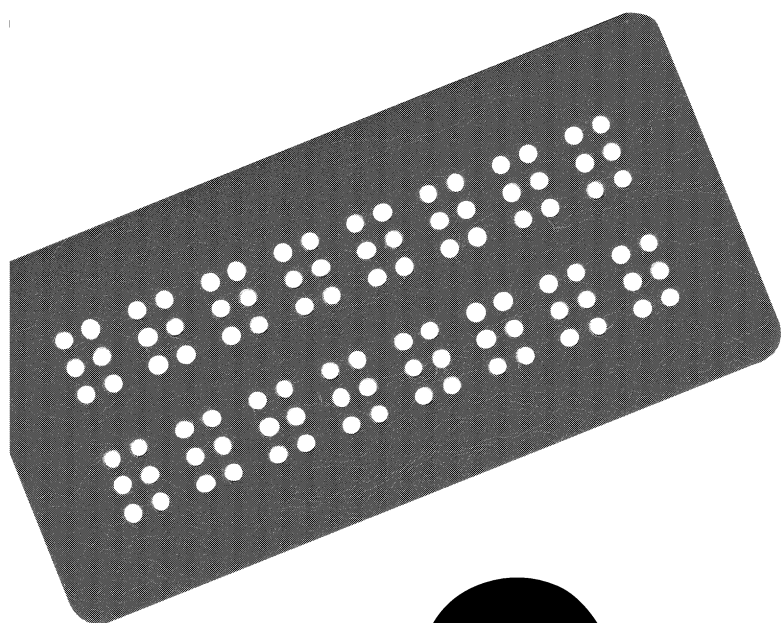
My friend

My smiley face, who said,

“I want you to learn braille, and some day you will thank me for it.”

Thank you, Mac. Wish you could see me now!

— *Jan Carroll*



Stencil Embossing

What Is Stencil Embossing?

Embossing is any technique that raises or lowers the surface of paper. Dry or pressure embossing requires a stencil, a stylus, and good quality paper. Stenciling is an old art you can master with a little practice. Some of the first stencils ever made were made from tin; today's stencils are available in a variety of shapes and materials. Stencil embossing produces a relief of the design of the stencil and creates a tactile effect.

How to Stencil Emboss



Before you begin to stencil emboss, you will want to have a light box or light source and a sheet of wax paper.

Your first requirement for stencil embossing is a light source. This source can be a light box, (such as the APH Mini-Lite Box or larger Light Box), a sunlit window or a homemade light box (see page 5 on Light Sources). Next, you will need a supply of braille paper or paper of similar weight (80 to 100 lbs). From your kit you will need a stencil, embossing stylus, wax paper, and the clear flexible vinyl sheet.

The following diagram shows the layers used for stencil embossing:

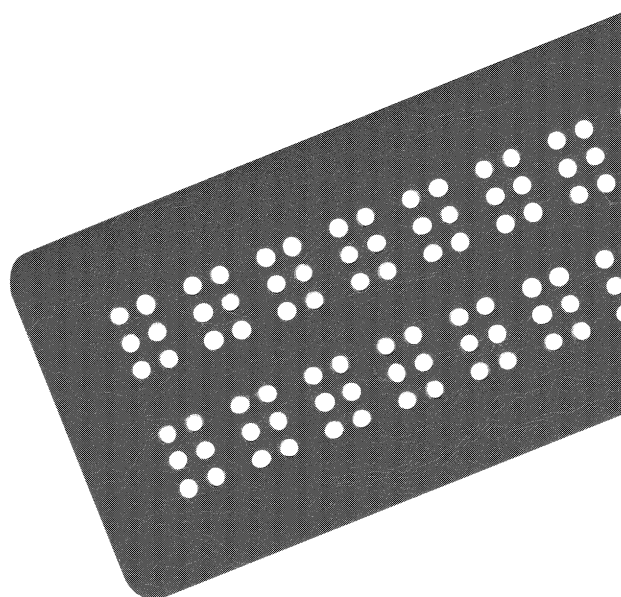


Diagram One:

Layered illustration of the order of materials for stencil embossing.

Layer 1: Light source

Layer 2: Light box surface

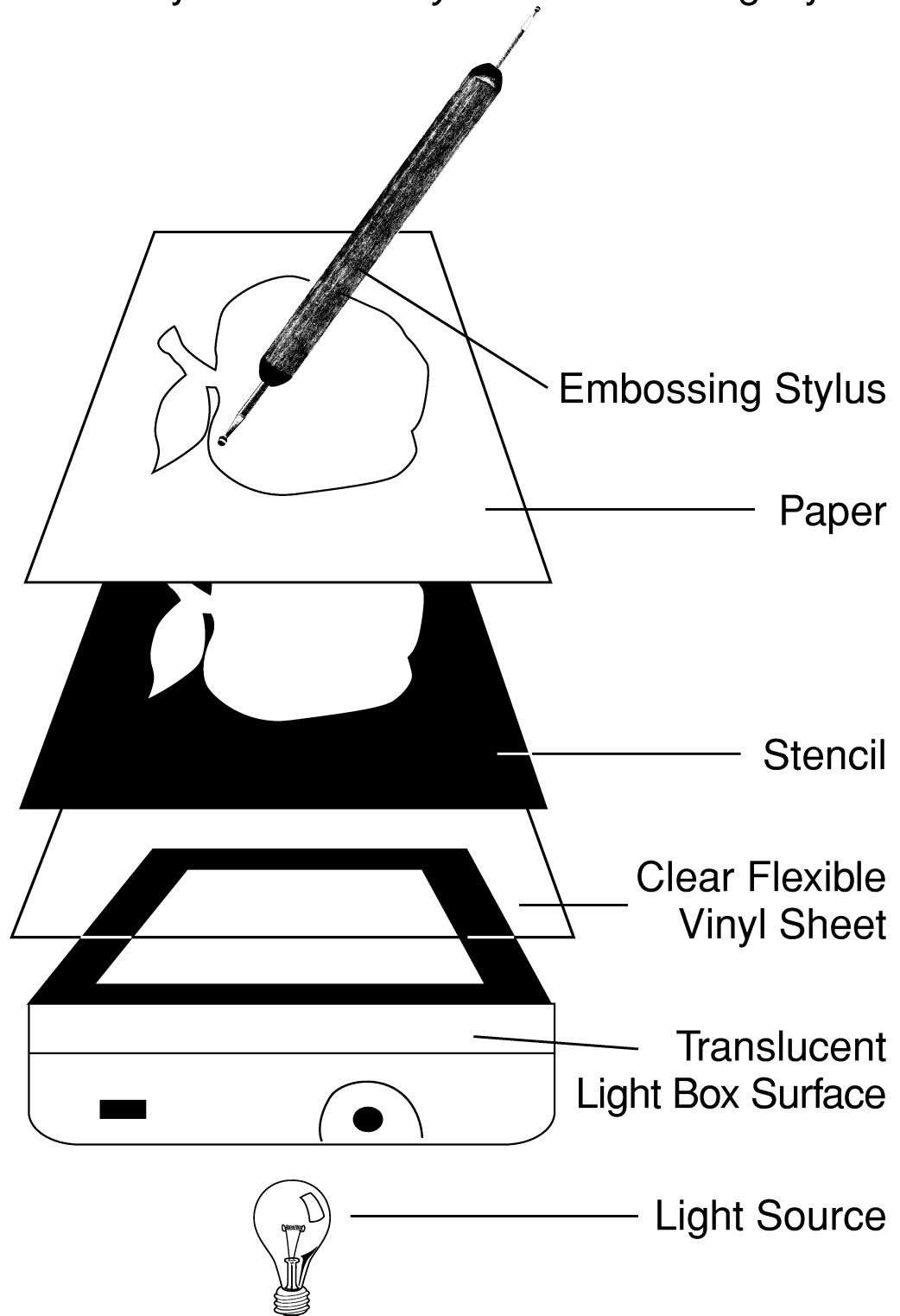
Layer 3: Clear flexible vinyl sheet

Layer 4: Stencil

Layer 5: Paper

Layer 6: Embossing stylus

Diagram 1:



To emboss an image using a stencil, begin by covering the stencil with a sheet of braille paper. The front of the paper becomes the side placed down onto the stencil. You will be tracing onto the back. Light reflecting through the paper allows you to see and follow the stencil design. Rub wax paper over the paper in the open area of the stencil design to help the embossing stylus glide easily over the paper and avoid any tearing. Using the embossing stylus, trace with light and even pressure around the outer edge of the open area of the stencil. When you remove the paper you will have a raised image of the stencil.

When stenciling to create a relief image for tactile readers,

there will be times that you will want to trace the design in ink first and then use your embossing stylus. Using a porous black pen, such as a marker, will allow you to see the drawn image through the illumination of the light source.

The tactile image produced by stencil embossing will thermoform well if the embossed area is a high, sharp image. Choose stencils that have the thickness of a credit card or driver's license to create a raised image without tearing the paper. When choosing thinner stencils, place a thin sheet of frosted packing wrap, found in the kit, under the stencil to give more depth and cushion to prevent tears.

Three Things to Remember When Stenciling:

1. There is never a right or wrong side of a stencil unless, of course, the stencil is a map, a specified layout, or includes cutouts for letters or numbers.
2. You never have to use the entire stencil—you can isolate parts of the stencil and use only the image needed
3. You will emboss from the back side of your paper, creating your tactile image onto the front.

Light Sources

APH Light Boxes

APH distributes two light boxes. The large table-size Light Box has a surface that measures 25" x 15". The Mini-Lite Box is smaller and more portable with a surface that measures 9 1/2" x 12 1/2". Each of these light boxes has enough surface space to accommodate stenciling onto braille paper.

Natural Sunlight

For quick stenciling, tape your stencil with masking tape to a window through which sunlight is shining. Place the paper over the stencil and tape it down using masking tape.

TIP

Stick the masking tape to a piece of clothing several times before you use it on the paper to prevent tearing the paper when you remove the tape.

Homemade Light Box

To make your own light box, purchase a sheet of clear or frosted Plexiglas™ or glass, choosing a size that will allow you to stencil onto a sheet of 11 x 11 1/2 inch braille paper. Balance the glass on the left-hand and right-hand edges of two book stacks that are high enough to leave space under the glass for the light source. A flexible lamp is an ideal light source. Other light sources to consider are stringed lights sold in craft stores for illuminating miniature ceramic houses, a long multi-plug power strip with nightlight switches mounted in the outlets, or a battery-operated domed closet light. Note: The selected light source will need to fit under the glass surface.

Stencils

Stencils are templates made of various materials. The most popular are made of metals and plastics and can be used over and over. Each stencil has a design, shape or figure which has been cut out of the material, leaving an open outlined area for stenciling with a pen, pencil, or embossing stylus. If a pen or pencil is used for stenciling, the finished product is an exact replica of the image detailed in the stencil; using an embossing method, however, will result in a *reverse* image of the figure traced.

Brass Stencils

In this kit you will find a collection of brass stencils. Some common images included are

Lines	Circles
Triangles	Squares
Block Letters	Stars
Block Numbers	

When using brass stencils, note that they may stick to the clear flexible vinyl sheet. To remove the brass stencils from this surface, merely lift up the clear flexible vinyl sheet and pop off the stencil.

Rigid and Soft Plastic Stencils

In this kit you will find the following plastic stencils:

Rigid Plastic Stencils

- Whole objects
- Letter-writing guide
- Signature guide

One use for the whole object stencils is to create a tactile storybook. A use for the writing guides is to produce bar graphs or embossed letter-writing paper.

Soft Plastic Stencils

- Plastic needlepoint canvas
- Fiberglass window screen

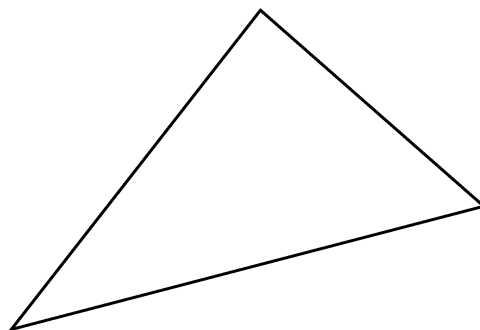
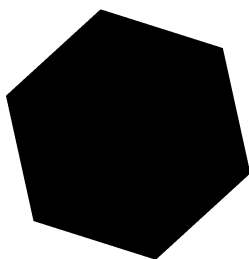
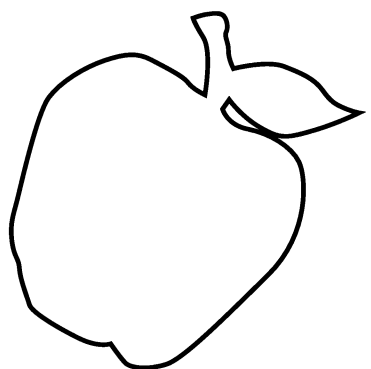
Use the needlepoint canvas as a stencil to produce straight dotted lines and areal patterns. Stencil dot by dot or rake the embossing tool across a line of holes to produce a quick dotted line. You can also produce jumbo braille with this stencil.

Use the fiberglass window screen as a stencil to produce quick raised-line drawings by raking the stylus across the paper, either following a pre-drawn diagram, or to do a freehand drawing.

Soft Plastic Stencils

- Standard braille signage
- Jumbo braille signage
- Strip of 8 point symbols

Use these stencils to add braille labels and tactile indicators to your maps, diagrams, and pictures.



Homemade Stencils Made from Laminated Plastic

You are encouraged to make your own “crafty graphics” stencils. To make your own, simply trace designs or objects onto a heavy card or cover stock paper (be sure to use a dark-colored paper). Run the paper through a laminator and then cut out the image using a sharp blade or scissors.

Designer Stencils

Another source for stencils that is **not included** in the kit are designer templates. These templates are generally found in stores that sell graphic artist supplies and are specifically designed for various diagramming projects.

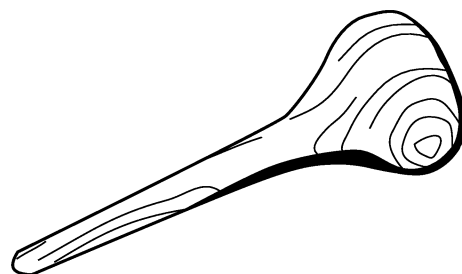
Stencil Embossing Kit Tools

Embossing Stylus

Two embossing styli are included in this kit. One has small and medium ball tips; the other has medium and large ball tips. As you gain experience in stencil embossing, you will be able to judge which tip to use with each stencil to get the maximum results for your tactile image.

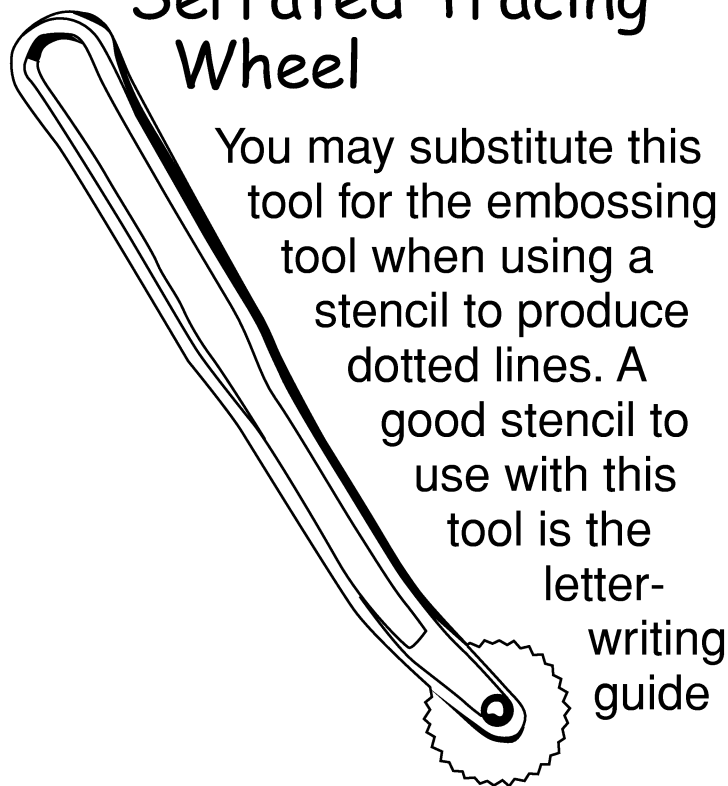
included in your kit for making embossed letter-writing paper. You may also use this tool with the frosted packing foam when tracing diagrams with illumination, or you may use it with the opaque foam sheet and trace mirrored images.

Wooden Braille Eraser



The wooden braille eraser can be used for erasing braille dots, removing excess tactile smudges, or you can substitute this tool for the embossing stylus as needed with larger stencils.

Serrated Tracing Wheel



You may substitute this tool for the embossing tool when using a stencil to produce dotted lines. A good stencil to use with this tool is the letter-writing guide

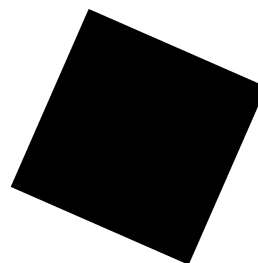
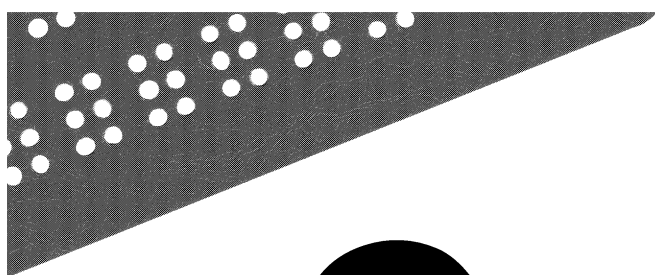
Clear Flexible Vinyl Sheet

The vinyl sheet is placed, as needed, directly on the surface of the light box. Lay the stencils

on top of this sheet to keep them in place when stencil embossing. **Do not use this sheet when working with thick stencils (i.e., the whole object stencils).**

Frosted Packing Sheets

There are two kinds of frosted packing sheets in this kit. The thin sheet may be placed onto the light surface under very thin or homemade stencils to provide a cushion and add depth when stenciling. The thicker sheet can be used with the tracing wheel following a pre-drawn diagram that is illuminated by the light source.



Opaque Foam Pad

This pad is used with the serrated tracing wheel to produce instant tactile images from prepared mirrored images using *no* light source. (See page 18 for directions on producing mirrored images.)

1/4" Grid Sheets

When necessary, use a grid sheet to align your stencils. You can tape the stencils to this grid with small pieces of masking tape. You will find this grid helpful when using multiple stencils at once or when lining up raised letters and numbers. Place the grid sheet with attached stencils onto the light source surface over the clear flexible vinyl sheet. You may want to laminate a grid sheet to avoid future replacements of this item.

Helpful Tips for Stencil Embossing

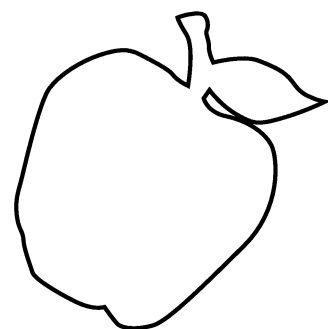
Embossing Stylus - Use the largest stylus tip possible for a given stencil design. The smaller the stylus tip the greater the possibility of tearing the paper. Another substitute for an embossing stylus is a Size H crochet hook.

Homemade Laminated Stencils - If you do not have access to a laminating machine, there are self-adhesive laminating sheets available at most stores where office supplies are sold.

Humidifying Paper - Images stenciled or embossed on braille paper that has been stored in a humid environment produce better tactile graphics than those produced on dry braille paper. A simple way to make a humid environment for braille paper is to construct a humidity chamber. To make a humidity storage chamber for

braille paper, you will need a plastic storage container with a tight-fitting lid and which is large enough to hold braille paper. Place a wet sponge inside the container. Place the braille paper inside the container on a raised platform to avoid contact with the bottom of the container. Close the lid on the container. The humidification process may take over 24 hours. Remember that damp papers grow mold. Do not leave the paper in the chamber for days or weeks at a time.

A quicker method for dampening one sheet of braille paper at a time is to wipe down both sides of the braille paper with a damp sponge then waiting a few seconds before directly embossing or stenciling.

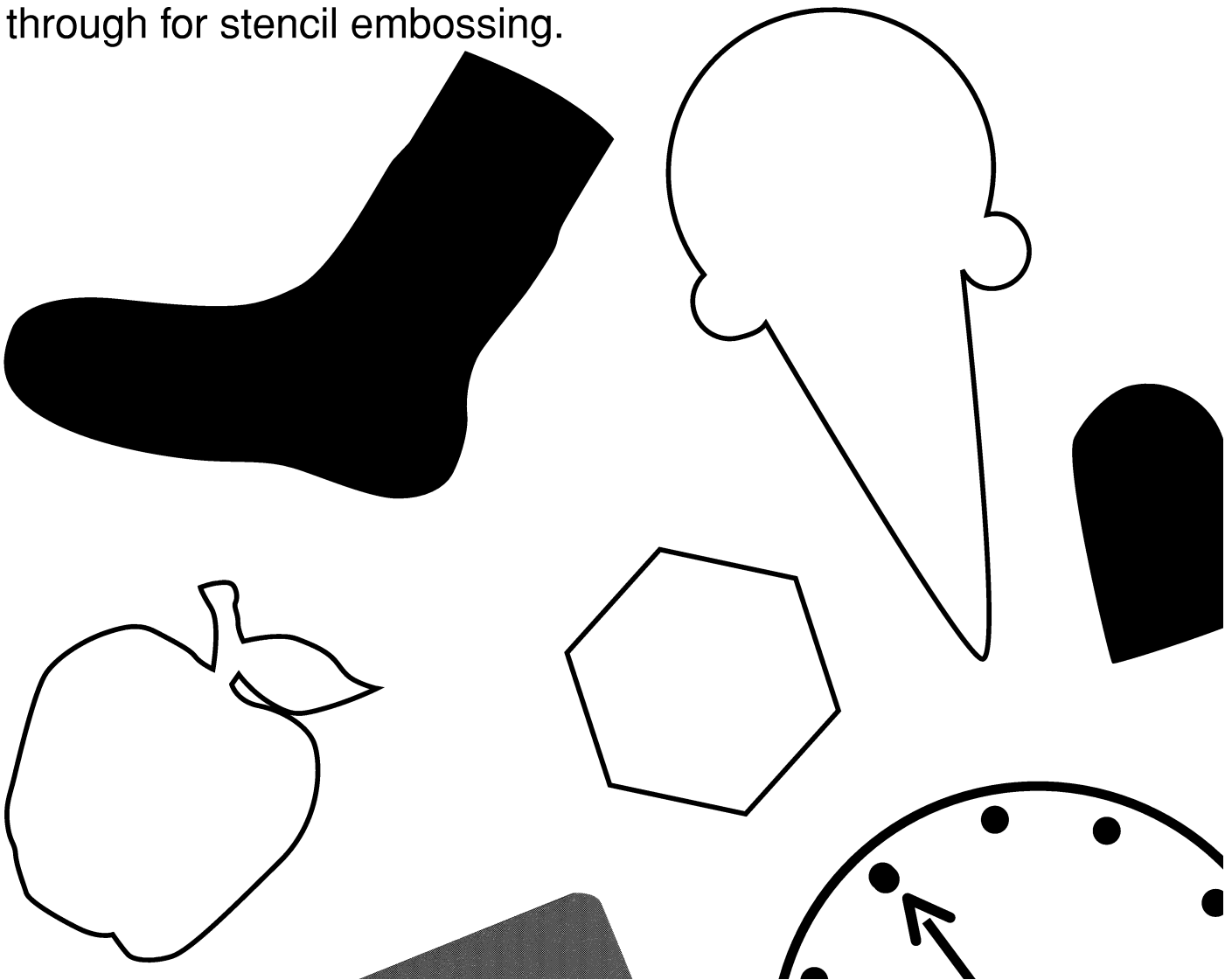


Masking Tape - When using masking tape be sure that you stick the masking tape to your clothing several times before adhering it to your paper or it will be too tacky and tear the paper when you remove it.

Paper Choice - Many heavy papers are suitable for embossing. Any 100-pound white braille paper is good, as is manila braille paper. Both of these papers allow light to pass through for stencil embossing.

Writing Guide Stencils - The writing guide stencils included in the kit work well in producing bar charts and graphs.

Variety of Uses - You may decide to use only a portion of a stencil. Remember there is no right or wrong side to a stencil. Exceptions to this are numbers and letters. Reversing an image is as simple as turning the stencil over.



Stories, Flash Cards, and More...

Stencil embossing is great for making instant tactile drawings. The kit contains enough stencils to get you started in making greeting note cards, flash cards, street maps, flowcharts, and graphs. Use the 20 rigid plastic whole object stencils to write a personalized tactile storybook for a student or friend.

In the kit you will find a sheet of plastic needlepoint canvas and a piece of fiberglass window screen. Both of these materials work well as stencils. You can rake the embossing stylus over these to create freehand tactile diagrams.

The kit also includes an opaque foam pad and a serrated tracing wheel. Without the use of a light source, you can create freehand tactile diagrams by placing a piece of

braille paper on the opaque foam pad and gliding the tracing wheel lightly over the paper. Follow a print outline on the paper or simply trace freehand.

There are two ways to create a print diagram for embossing with the tracing wheel. One, using the light source to trace the image. Two, using carbon paper to trace the image. This will produce a mirrored image.

Directions for tracing a mirrored image using carbon paper

The following two diagrams will help you in preparing a mirrored image for embossing with the tracing wheel and the opaque foam pad.

Diagram One:
Layered illustration of the order for tracing a print mirrored image.

- Layer 1:* Carbon paper, carbon facing up
Layer 2: Paper
Layer 3: Print diagram to trace
Layer 4: Ballpoint pen

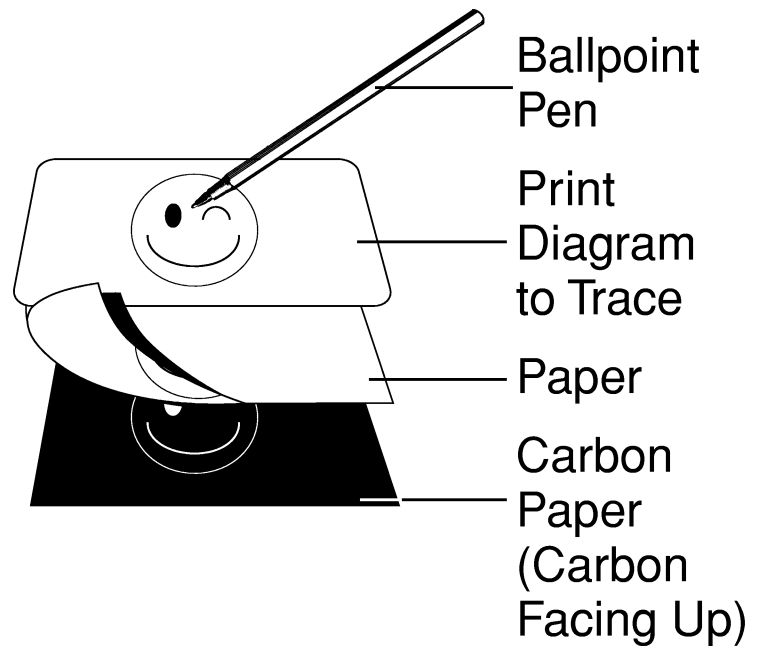
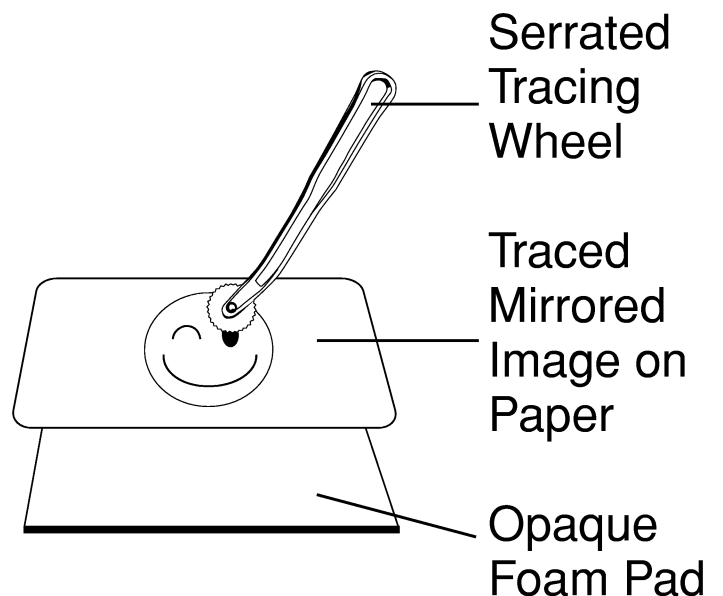


Diagram Two:
Layered illustration of the order for tracing a mirrored image with the serrated tracing wheel and opaque foam pad.

- Layer 1:* Opaque foam pad
Layer 2: Traced mirrored image on paper
Layer 3: Serrated tracing wheel



Sample Graphics and Instructions

At the end of this guidebook you will find thermoformed samples of tactile graphics produced using the kit materials. The directions for producing these follow.

Note

You will need a light source or light box, clear flexible vinyl sheet, pre-dampened braille paper, a stenciling stylus, and wax paper.

Sample 1

Top – Clock Face

Stencils used in this sample:

- Large circle whole object
- Point symbols
- Brass solid line

Instructions

Rub the paper area to be stenciled with wax paper. With the medium stylus tip and even pressure, trace the outline of the whole object stencil.

Strategically place the point symbol stencil under the embossed circle and stencil in the large dot for numbers and the donut hole for the center. Place the brass line stencil under the embossed circle and stencil in the short and long hands. Using the point symbol stencil once again, stencil in a triangle shape for the ends of the hands.

Bottom – Pie Chart

Stencils used in this sample:

- Large circle whole object
- Brass solid line
- Large brass dotted line

Instructions

Rub the paper area to be stenciled with wax paper. With the medium stylus tip and even pressure, trace the outline of the whole object stencil.

Strategically place the brass solid and dotted line stencils under the embossed large circle. Stencil in the solid and dotted lines to form a pie chart.

Sample 2

Top – Stop Sign

Stencils used in this sample:

- Six-sided whole object

- Metal large block letters

Instructions

Rub the paper area to be stenciled with wax paper. With the medium stylus tip and even pressure, trace the outline of the whole object stencil.

Strategically place the metal large block letter stencil under the embossed shape. Remember, when stenciling letters, place the stencil wrong side up and stencil from right to left.

Bottom – Sock

Stencils used in this sample:

- Sock shape whole object

- Braille double solid line

- Screen wire

Instructions

Rub the paper area to be stenciled with wax paper. With the medium stylus tip and even pressure, trace the outline of the whole object stencil.

Strategically place the screen wire under the embossed object. Rake over the screen wire with the stencil stylus to produce an areal effect for the cuff, toe, and heel of the sock shape. Place the braille double solid line stencil under the embossed sock and stencil in pin stripes.

Sample 3

Top – Embossed Line Writing Paper

Stencil used in this sample:

- Letter-writing guide

Instructions

Rub the paper area to be stenciled with wax paper. With the medium stylus tip and even pressure, trace the bottom lines of the letter-writing guide stencil to form embossed raised lines.

Bottom – Bar Graph

Stencils used in this sample:

- Letter-writing guide
- Screen wire
- Brass double solid line
- Plastic needlepoint canvas

Instructions

Rub the paper area to be stenciled with wax paper. Strategically place the letter-writing guide stencil horizontally under the paper. With the medium stylus tip and even pressure, trace the sides and bottoms of 3 outlines to form 3 bars. Place the screen wire under the first embossed bar and rake the stencil stylus down the bar to produce an areal pattern. Place the braille double solid line stencil under the second embossed bar and stencil in two solid lines to form a vertical line pattern. Place the needlepoint canvas under the last bar and stencil in large dots to form an areal pattern.

Sample 4

Floor Plan

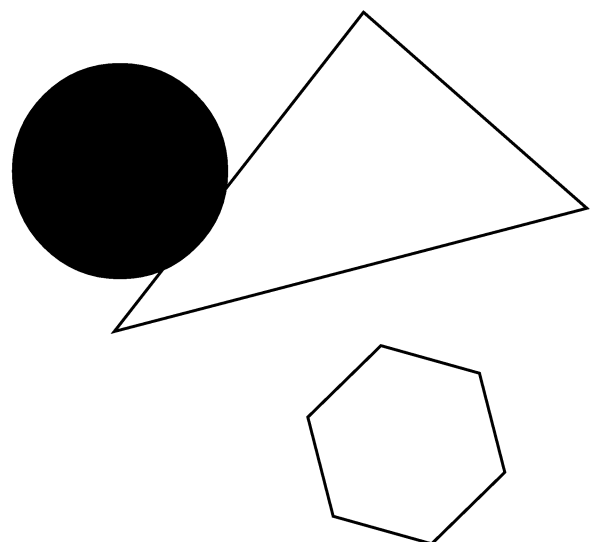
Stencils used in this sample:

- Brass solid line
- Point symbols
- Standard braille signage

Instructions

Start a project like this with a precise drawing. Remember to use a mirrored image for stenciling this type of graphic.

Rub the paper area to be stenciled with wax paper. Using the stencils noted above, stencil in lines. Strategically stencil in points symbols where needed. Lastly, stencil in any braille signage needed in your diagram.



APH Tactile Graphics Guidelines

Guidelines for Design of Tactile Graphics

General

1. Decide if a tactile graphic needs to be made at all. Omit the graphic if it doesn't convey essential content.
 - a. Consider using a description to replace all or part of a graphic.
 - b. Remember that children need to build up tactile skills with simple figures. Consider providing graphics in children's books even if they are not needed for content.
2. Graphics should be tactually clear and contain only relevant information based on an understanding of what is being taught and what the student's task is. Visual information that is irrelevant to the meaning or purpose should be omitted.
3. Graphics should be redrawn in 2 dimensions where possible, with the exception of some mathematical and scientific diagrams.
 - a. Replace three-dimensional figures with cross-sections or front-side-top views whenever possible.
 - b. Look for perspectives that allow you to redo a 3-D print picture in 2-D.
4. Follow the Braille Authority of North America's (BANA) "Guidelines for Mathematical Diagrams." In cases where a graphic has been replaced by a table or chart, use "Braille Code for Columned Materials and Tables."

Design

1. Avoid clutter and simplify.

- a. “Clutter” occurs when different symbols and lines are so close or so similar that they become hard to distinguish. Spacing is the key to avoiding clutter.
- b. Symbols and lines closer than 1/4" may be hard to tell apart, depending on the medium and tools being used.
- c. Shapes with sides less than 1/2" long may not be recognizable.
- d. Distort the spacing or shape of the original picture if necessary to allow uncluttered spacing of the tactile elements, providing this would not violate the purpose of the picture.
- e. “Simplify” means to eliminate unnecessary elements of the original picture. Focus on the relevant parts and omit details that are purely decorative or distracting.

- f. When the print picture includes people, animals, objects, etc., replace them with simple lines, symbols, and/or labels (e.g., use the label “hand” instead of drawing a hand).

2. Split complicated graphics into separate drawings showing layers of information, or into an overview and detailed view.

- a. Explain the separation in a transcriber’s note.
- b. Carry over some labels and common points from one drawing to another for reference.

3. In general, use texture sparingly and only to add information.

4. When necessary to avoid confusion or to give important information, differentiate between bodies of water and land on maps by using a different areal symbol (texture).

- a. Use a very low, closely spaced texture for water.

- b. An areal texture indicating ocean should extend far enough to be perceived as a continuing expanse, but need not fill the entire page.

Symbols (Lines, Points, and Textures)

1. Limit the lines, points, and symbols on a drawing to ones that can be easily identified one from another by touch.
 - a. Use the most prominent symbols for the most important features in the graphic. Don't allow high or "noisy" textures to draw attention away from the key features.
 - b. Feel the copy of the graphic the reader will receive to see if you can follow all lines.
2. Be consistent in using symbols within graphics of the same type within the same transcription (e.g., always use the same symbol for water on maps).

3. Use different tactile symbols for different types of information (e.g., in a map of the United States, the tactile line used to indicate state borders should be different from the tactile line used to indicate international borders).
4. Lines, points, and braille must be physically separated by at least 1/8". This may need to be 1/4", depending on the medium and symbols used. Apply the 1/8" separation rule to features that are separate, even if doing so introduces some spatial distortion.

Lead Lines

1. Use lead lines only as a last resort. Use keys or notes as alternatives.
2. Do not use arrows as lead lines.
3. The linear symbol used for lead lines should be different from any other lines used in the graphic and should be tactually distinctive but less prominent.

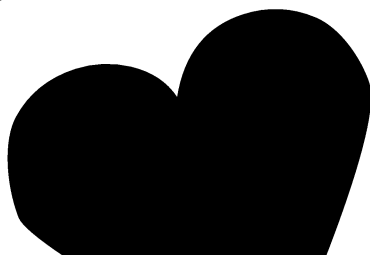
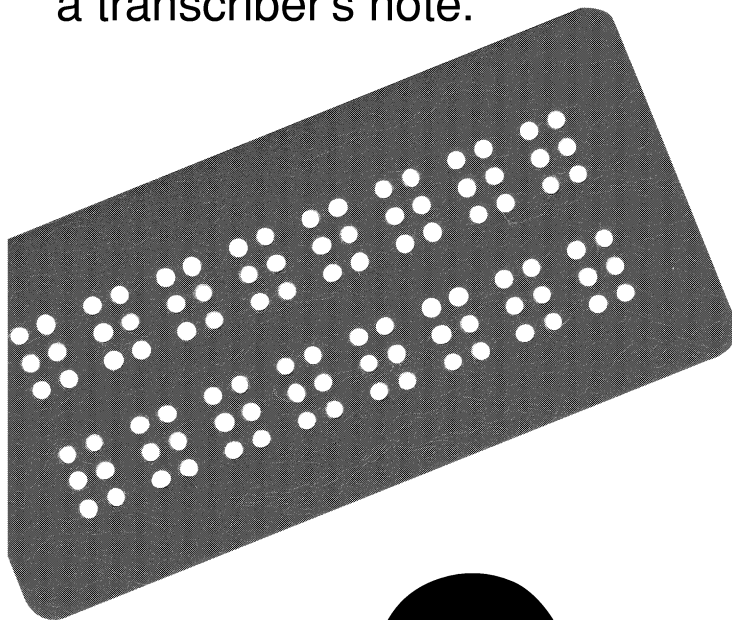
- a. A lead line should begin as close as possible, without causing interference, to either the first or the last letter in the label, and should end as close as possible to the feature being labeled.
 - b. Break the lines of the graphic to allow lead lines through.
3. Place labels in a manner that leaves the reader no doubt as to what is being identified. Single letters on the graphic should be preceded by either the letter sign or the capital sign.
 4. Use two-letter U.S. postal codes where applicable (and other two-letter codes where postal codes are not applicable) for labels on maps.

Labels

1. Explain and define all graphic symbols, either on the same page, facing page, or special symbols page.
2. Identify all important features (e.g., capitals, bodies of water, etc.) of the graphic, even things not labeled in the print version. Do not make unlabeled graphics. (There may be exceptions in some testing situations.)
5. Words in labels need not be capitalized if their meaning will not be confused.
6. Use Grade 2 braille contractions in labels.
7. A two-cell braille symbol is preferable to a one-cell symbol for labels.
8. Try not to break the integrity of a shape with a braille label (e.g., the border of a state with its braille label).

Indicators and Scale

1. In a transcription where north is at the top of the page on all maps, indicate this in a preface and do not indicate north on each map. On single maps, or when north is not the top of the page, indicate direction by using a simple arrow labeled N.
2. Position scale and other indicators as consistently as possible, preferably at the top of tactile graphics.
3. When it is necessary to change the scale, this fact may need to be indicated in a transcriber's note.

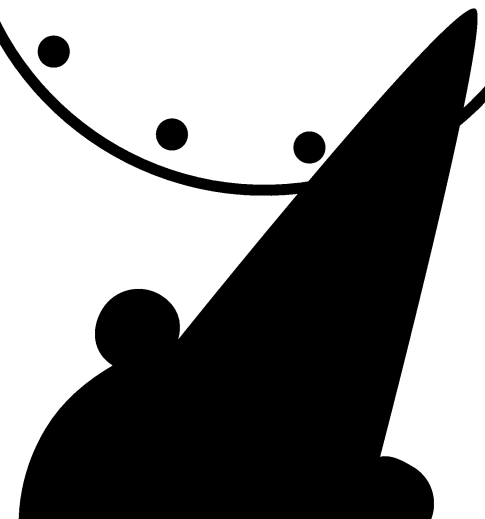
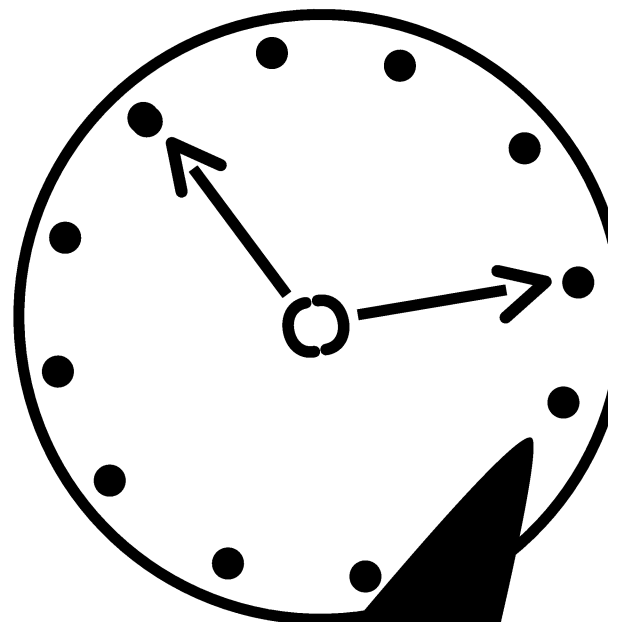


Preliminary Information

Place all titles, keys, and legends before the graphic. Author's keys and legends precede the transcriber's keys and legends. If there is not room on the page with the graphic, place on preceding page.

REMEMBER

Feel every graphic you make before sending it on. If you can't identify its features, your reader probably can't either!



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