

Include Me

Braille literacy for children with multiple disability and deafblindness



Nandini Rawal, Vimal Thawani, Sri Ram Mittal, and Frances Gentle (authors)

Digby Smyth (illustrator)

**International Council for Education of
People with Visual Impairment (ICEVI)**

June 2021



INTRODUCTION

The overall aim of this resource booklet is to raise awareness about braille and its importance in education and social inclusion for children with blindness, deafblindness and multiple disability. The booklet's origins lie with the World Braille Council, which in 2018 resolved to work with ICEVI and the World Blind Union to provide educational support, including braille access, for children with multiple disability in developing countries. Underpinning the World Braille Council's resolution is the firm belief that all children can communicate and learn, and all children have the right to full inclusion in education and society. This right is proclaimed in the United Nations Convention on the Rights of Persons with Disabilities (2006, Articles 2, 9, 21 and 24), and the Inclusive Education Report of the International Disability Alliance (2020, Section 2.2.1).

This booklet serves as a braille resource for parents and family members, and educators and community-workers who are concerned with health, community-based rehabilitation, and the welfare of children. The focus of the booklet is braille literacy for the following two groups of children and young people:

1. Children and young with two or more disabling conditions (termed multiple disability), including children with blindness and low vision, combined with an intellectual, developmental, physical, and/or social-emotional disability; and
2. Children and young people with deafblindness (also termed dual sensory disability), including children with blindness or low vision, combined with deafness or hard of hearing.

The content is drawn from research and practice in the field of disability and deafblindness, and is inspired by the parents and professionals who have championed the rights of children with deafblindness and multiple disability.

Dedication

ICEVI dedicates this publication to Mr Ajay Kumar Mittal, former Executive Committee Member of ICEVI and Secretary General of World Blind Union. A braille user himself, A.K. was a strong advocate for the right to education and braille literacy for children with blindness, deafblindness and multiple disability.

CHILDREN WITH MULTIPLE DISABILITY AND DEAFBLINDNESS



Children and young people with multiple disability and deafblindness are a diverse group of individuals with unique abilities, needs and aspirations. In this booklet, the term **multiple disability** refers to sensory disability (vision, hearing) combined with one or more significant disabling conditions. These conditions may include brain injury, cerebral palsy, spina bifida, Down syndrome, Autism spectrum disorder, cleft palate, heart conditions, and cerebral malaria. The children may also have diabetes, thyroid disorders, epilepsy, and other medical conditions.

Some children are born with a disability (termed “congenital”), and others acquire their disability during childhood or later in life (termed “adventitious”). Causes of **congenital blindness, low vision and deafblindness** include premature birth, genetic conditions, trauma during childbirth, and exposure of the foetus to infection, injury, or harmful substances during the mother’s pregnancy. Causes of **adventitious blindness, low vision and deafblindness** include brain tumours, eye and ear infections, and injuries that damage the sense of vision and/or hearing.

The foundation of a child’s overall development is love and trusting relationships with parents and caregivers, and positive experiences of affection, physical closeness, comfort, and safety. Parents and caregivers of children with multiple disability and deafblindness may need to provide more structured exposure to people, emotions, experiences, objects, and community events to support their child’s development. The nature and impact of a child’s disability depends upon the combination and severity of conditions present. Children with multiple disability and deafblindness may have difficulties with communication, building social relationships, accessing information, interacting with others and the environment, completing

daily living tasks, and moving about safely and independently. Notwithstanding any challenges, children with deafblindness and multiple disability have the capacity to learn and contribute to their families and communities. It is important that families and caregivers provide opportunities for their participation in family interactions and conversations, community outings, and day to day routines and experiences that promote the child's developmental growth and ability to develop language and literacy skills.

LANGUAGE AND LITERACY DEVELOPMENT

Literacy in a broad sense refers to listening, speaking, reading and writing, with use of a variety of communication systems and literary formats (print, braille, audio, digital). Each child with multiple disability and deafblindness interacts with their world in their own way and according to their capabilities. One child may read regular print and communicate using speech, while another may use braille and sign language.

Literacy emerges from the desire to communicate and use language to share ideas and interact with loved ones and others. Literacy skills are built upon learned experiences, beginning at birth, and continuing throughout a person's life. Children are born with the capacity and ability to learn to communicate. Communication begins with parent and infant bonding and early vocalisations and gestures. Natural and meaningful experiences within the family help the child to develop concepts and learn language. As the child grows and develops, and depending on the nature of the disability, the child begins to understand and acquire more formal language. Over time, the child engages with their world through family and community relationships and interaction.

Young children with sight generally observe and copy the activities of parents and family members. Young children with blindness, deafblindness and multiple disability will require additional sensory experiences to initiate and take part in turn-taking games, exploring books, scribbling with writing utensils, and watching others engage in literacy activities. As they develop and grow, the children discover that reading and writing can be both fun and purposeful.

Lowenfeld (1975) suggested exposing children who are blind to experiences that are concrete, offering opportunities to learn by doing, and enabling children to develop a wholistic understanding of concepts. These experiences may include tactually exploring and manipulating objects, including objects that relate to stories, putting on clothes, and preparing a meal. Meal preparation, for example, may start with going to the local market with a parent

or caregiver. During the outing, the adult provides safe opportunities for the child to interact with shopkeepers and the busy market environment through the senses of touch, smell, taste, and hearing. The child begins to learn about where food comes from, local commerce, and how to engage with stall holders and exchange money for produce.



Listed below are some tips for promoting communication and early literacy skills for children with deafblindness and multiple disability. The usefulness of these tips will vary from child to child, depending on how they communicate and interact with others.

Tips for promoting language and early literacy skills

- Introduce the child to unaided and aided communication methods. **Unaided** communication methods include vocalisations, gestures, and manual signs, such as the deafblind manual alphabet which is spelled out on the child's hand. **Aided** communication methods include use of objects, pictures, tactile and large print symbols, pencils, braille slate and stylus, Braille machine, and paper.
- Encourage the child to use their hands to touch, explore and manipulate objects. Provide activities that promote the child's fine motor skills, including opening and closing containers; putting on clothes with buttons, belts and zippers; and taking part in growing plants and vegetables.
- Use a variety of intonation gestures, signs, objects, and tactile items to engage the child in conversation and storytelling activities.

- Involve the child in meaningful conversations. Talk to the child when cooking, washing, and sweeping. Describe what you are seeing and doing and give the child time to process what is said and respond. Encourage the child to respond by voice and gesture.
- Provide opportunities for turn-taking during shared activities, allowing the child to make choices and express needs and wants. Give the child time to respond.
- Encourage play with other children, as much of the learning in the early years is through play, imitation, pretend games and having fun.
- Introduce concepts into activities and routines, for example, soft/hard, dry/wet, up/down, in/out.
- Encourage family members to include the child in reading and writing games and activities.

INTRODUCTION TO BRAILLE

“The significance of braille’s contribution is critical: without a system of effective communication through reading and writing, the education of blind children would undoubtedly have remained as it had been through the Middle Ages” - Lowenfeld, 1975

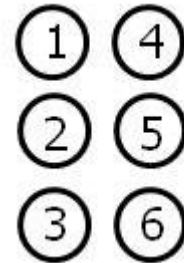
Braille is a tactile script used by persons with visual impairment for accessing printed material. Braille was developed by a Frenchman called Louis Braille (1809-1852), who was himself blind. Louis Braille was born on 4th January 1809 in Coupvray, a village 36 miles east of Paris, France. He lost his sight around the age of four years, and in 1821 at the age of 15, he developed a tactile script for reading and writing the French alphabet of 39 letters. Since then, Louis Braille’s tactile script has become the basis of national braille codes in over 142 countries and has made an enormous contribution to the dignity, self-worth, and empowerment of persons with visual impairment of all ages.

Braille provides people with blindness and severe low vision with the means to acquire essential literacy skills for excelling in all spheres of life, including education, employment, and the broader society. Braille provides people with multiple disability and deafblindness with an important means of communication, concept development, and access to information and the wonderful world of stories and books.

Braille script

The braille script (or code) is based on six raised dots, called the “braille cell”. These six dots are arranged in two vertical columns of three dots each, or in three horizontal rows of two dots each. The three dots of the left column are numbered as 1, 2 and 3 from top to bottom. The three dots of the right column are likewise numbered as 4, 5 and 6 from top to bottom. A space between words is represented by a braille cell with no dots.

The braille cell



The beauty and uniqueness of this tactile script is that all the languages of the world, including mathematics and other technical material, can be represented in braille using different combinations of braille dots.

Braille letters

The braille letters “a” to “j”, shown in the first line of the diagram below, consist of ten combinations which are formed using the four dots of the upper parts of the braille cell, that is, combinations of dots 1, 2, 4 and 5. The braille letters “k” to “t” in the second line repeat the first line with the addition of dot 3. For example, the letter “k” is made of letter “a” (dot 1) plus dot 3.

The third line of braille letters, “u” to “z”, except for the letter “w”, repeats the second line, with the addition of dot 6. For example, the braille letter “u” is made up of letter “k” (dots 1 and 3), plus dot 6. The braille letter “w” does not follow the dot pattern of the other letters as the French language does not include the letter “w”. As a result, Louis Braille did not include “w” in his braille alphabet. The letter “w” is formed by the dots 2, 4, 5 and 6.

In the diagram below, each braille letter is shown by the bold black dots in the braille cells.

	a	b	c	d	e	f	g	h	i	j
Line 1	⠁	⠃	⠉	⠑	⠅	⠋	⠗	⠕	⠏	⠎
	k	l	m	n	o	p	q	r	s	t
Line 2	⠅	⠃	⠉	⠑	⠅	⠋	⠗	⠕	⠏	⠎
	u	v	w	x	y	z				
Line 3	⠅	⠃	⠉	⠑	⠅	⠋				

Braille contractions

Words can be written in uncontracted and contracted braille. In **uncontracted braille**, each print letter is represented by its corresponding braille letter. The word “dog” for example, is shown in braille as “d” (dots 1, 4, 5), “o” (dots 1, 3, 5), and “g” (dots 1, 2, 4, 5). In **contracted braille**, braille signs are used to represent parts of words or whole words. The print letter “b” in uncontracted braille, for example, is represented by the braille letter “b” (dots 1, 2). In contracted braille, for example, the letters of the alphabet are used to represent whole words where they are standing alone and not part of a longer word. The word “but”, for example, is represented by the braille letter “b” when it is standing alone, that is, with a space on either side of the braille letter.

Appendix 1 presents some common braille contractions used in English braille codes.

Braille numbers

The numbers 1 to 9 and 0 (zero) are represented by the letters “a” to “j”, preceded by a numeric indicator (dots 3, 4, 5 and 6), as shown in the diagram below.

1	2	3	4	5	6	7	8	9	0
⠠⠁	⠠⠃	⠠⠉	⠠⠋	⠠⠍	⠠⠎	⠠⠏	⠠⠑	⠠⠕	⠠⠗

Examples:

- The number 6 is represented in braille by the numeric indicator followed by the letter “f” (dots 1, 2, 4).
- The number 10 is represented in braille by the numeric indicator followed by the letters “a” (dot 1) and “j” (dots 2, 4, 5).
- The number 105 is represented in braille by the numeric indicator followed by the letters “a”, “j” and “e”.

6	10	105
⠠⠋⠠⠋	⠠⠁⠠⠗	⠠⠁⠠⠗⠠⠃

BRAILLE FOR CHILDREN WITH MULTIPLE DISABILITY AND DEAFBLINDNESS

Helen Keller

“Through the magic of six dots the gates of knowledge have been flung wide, and the blind of each country can enter the world of enchantment beyond the reach of physical sense. Never at

any time are we so free as when we hold a beloved book on our knee, and the braille dots flash into our fingers the greatness, the wonder, the boundlessness of life." - Helen Keller, 1930

Education is as important for young children with multiple disability and deafblindness as it is for all children. The life story of Helen Keller (1880-1968) brings into focus the importance of braille and touch communication systems for persons with deafblindness. Helen Keller was born in Alabama, USA, in 1880 and lost her sight and hearing before the age of two. Until the age of seven, she communicated with her family using a system of home signs.

Helen Keller's world changed at age 7, when Anne Sullivan became her teacher and life-long companion. Using the sense of touch, Anne Sullivan taught Helen Keller language and how to read and write in braille. Helen Keller became the first person with deafblindness to complete a Bachelor of Arts degree. During her life, she was an educator, author, and campaigner for the rights of women and persons with disabilities.

Helen Keller's life story has inspired families and educators to demand the same rights for their children with deafblindness as all children, including the right to full inclusion in education and society.

Children with multiple disability and deafblindness

The child with multiple disability or deafblindness may take longer to understand braille concepts and the braille script than children with blindness and no other disability. An emphasis first on emergent literacy skills will assist the child to develop the sense of touch which is essential for braille reading, and willingness and interest in exploring objects and tactile materials. Depending on the nature of the child's capabilities, short braille reading and writing sessions of 15-20 minutes duration may assist in transferring the child's tactile experiences into stored memories. Reading and writing activities should be part of the family's daily routines, so that literacy development happens naturally. Shared reading and writing experiences, with the child in close proximity to the reader or writer will spark the child's awareness and interest in literary activities.

The following tips are offered as suggestions for sparking the child's interest in stories and books.

Tips for promoting an interest in books and stories

- Read interesting and favourite stories repeatedly with the child, to develop their familiarity with the structure of stories and memory of the story line.

- Encourage the child to feel the braille dots as stories are being read to them.
- Offer the child objects and other tactile items to explore that relate to the braille story.
- Provide opportunities for interaction. Pause during the story and allow the child to feel the braille dots and tactile items and anticipate what comes next.
- Include the child in creating tactile story books about their real-life experiences and interests, for example, stories about “My Day”, “My family”, and “I like”.
- Assist the child to hold the book and turn the pages, looking and/or touching the pictures.
- Encourage the child to play with braille writing equipment, such as a braillewriter and slate and stylus.
- Discover if the child prefers print and/or tactile books. Children with some remaining vision may prefer books with a combination of large print and braille, with visual and tactile pictures.
- Introduce print and book concepts:
 - Books have parts (front and back covers, titles, title pages, binding).
 - Books are created by authors.
 - Books may have pictures that are created by illustrators.
 - Publishers publish books.
 - Books are read from left to right, and top to bottom of page.
 - Pages are turned one at a time.
 - The words (and pictures) usually tell the story.

Tips for promoting development of fine tactile discrimination, finger and hand dexterity, and spatial orientation

- Promote spatial orientation and tactile discrimination through movement and touch during daily routines, including during shared music, songs, and dance.
- Provide opportunities for the child to touch and feel objects and materials with distinct textures and different functions, for example, different shoes, clothing or kitchen items, or the contrasting textures of a broom, mop, duster, and cleaning cloth. Begin with

textures which feel very different from each other and then introduce textures with smaller differences. These activities should be repeated regularly so that the child develops fine tactile discrimination, object familiarity, and willingness to reach out and explore with the hands.

- Encourage the child to sort, match and arrange small objects. Include items that are familiar to the child, ensuring the child is positioned comfortably and the objects are within easy reach. For children with blindness and restricted movement, objects should be close enough for the child to discover incidentally when moving their hands, arms, and legs.
- Invite the child to put small objects in containers that are lined up in a row. Encourage the child to use one hand to locate and hold each container, and the other hand to place an object in it, moving from left to right across the row of containers.
- Depending on the child's sensory, motor and cognitive abilities, introduce a communication schedule of objects arranged in order of activity or event. A breakfast schedule, for example, may include a cup (signalling drink), a bowl and spoon (signalling food), and a toothbrush (signalling teeth brushing). Teach the child to indicate their choice by touching the object representing the chosen activity.
- Introduce the child to matching braille with real objects and sounds. The child learns to associate the shape of the braille letter or word with the matched object or sound and starts to understand that the braille can be used to represent the matched objects. With practice and repetition, the individual shapes of the braille letters and words will make sense to the child.
- Attach large print and braille words in places where the child can touch them by chance or intentionally. Braille words may include the name of the child and easy to read words that have meaning to the child, such as "I", "me", familiar animals, the child's name, and names of family members. Finding the braille words will motivate the child to learn their meaning and to discover other brailled words in their environment.
- Over time, encourage the child to independently explore and use reading and writing materials, including braille and large print books, and braille writing equipment.



Tactile perception and braille reading and writing

The ability to read braille involves perceiving braille dots as meaningful letters, words, and stories. As a braille learner moves their fingers along a line of braille, touch receptors in the finger pads send electrical pulses to the visual cortex where the information is understood as language. This ability is known as tactile perception. Children who have reduced sensitivity in their finger pads will require additional time to develop their tactile perception abilities.

Children with multiple disability and deafblindness will benefit from activities and games that promote tactile perception and introduce braille concepts and the braille code. During the emergent literacy stage, braille dot patterns can be introduced as trees, houses, people, animals, birds, stones, ducks in a river, and cars and motorbikes on a road. Dr Sally Mangold (1935-2005), a respected researcher and teacher of braille in the United States, developed a program of tactual perception and braille letter recognition. Several of her ideas have been adapted in the activities presented in Appendices 2 and 3.

Presented below are early braille reading and writing tips which may be useful for braille teachers supporting children with deafblindness and multiple disability.

Tips for promoting effective braille reading techniques

- Use the fingers pads of both hands for reading braille.
- Read braille with the finger pads.
- Slightly curve the fingers and rest them lightly on each line of braille.

- Slightly elevate the wrists of both hands.
- Touch the braille dots lightly as it increases the sensitivity of the finger pads for braille reading.
- Read across lines of braille from left to right, keeping the fingers of both hands together, with the thumbs tucked underneath.



Tips for promoting early braille writing skills

- Introduce braille reading and writing at the same time.
- Encourage the child to observe and participate in writing activities, offering opportunities for the child to touch and feel the hands of the person writing and also their writing implements.
- Assist the child to poke holes or create tactile lines in a piece of paper using the tip of a pen, a braille stylus, or a spur wheel. Position a small piece of carpet material, folded newspaper, or rubber matting (e.g., mouse pad) under the paper during the activity, to help increase the tactile holes and lines made by the child. Turn the paper over and let the child feel the bumps they have made.
- Encourage expression through gestures, clay, scribbling, and use of writing implements that the child is comfortable with. This may include pens, pencils, braille slate and stylus, braille writing machine and paper.

Tips for promoting independence

- Provide hand-under-hand support when needed. The hands of the parent or braille teacher should be positioned under the child's hands, enabling the child to be in control of the activity and the decision to touch or withdraw their hands.
- Model braille reading techniques with child's hands resting on the reader's hands

- Avoid giving prolonged tactile or verbal guidance. Allow the child to concentrate on the task without distraction and self-discover.
- Allow time for the child to process the activity and to respond before intervening with extra instructions and support.
- Break tasks down into small achievable steps so that the child experiences success. Offer encouragement and celebrate the child's progress.
- Avoid making negative comments to the child. Errors are a part of life and provide opportunities for learning.

Braille writing equipment

In many countries, braille is written with a braille slate and a stylus. This equipment is low cost and portable. There is a variety of braille slates, including four- and eight-line slates, and multi-line slates that take A4-size paper. The paper is positioned between the front and back plate of the slate and each dot is punched separately into the paper using the point of the stylus. To read the braille, the paper is removed from the slate and turned over.

Another method is to write braille using a mechanical or electronic braille writer. Although far more expensive than the low-tech slate and stylus, braille writers are more convenient, as braille letters and words are created using the six keys of the brailier. The braille may be checked during the writing process and any errors corrected. Braille may also be produced using an electronic braille embosser attached to a computer. Braille embossers enable the rapid production of multiple copies of braille texts. In some countries, refreshable braille displays are used to read electronic braille. These devices are connected to a computer, smart phone, iPad, or other device for the sharing of print and braille files, accessing information on the internet, and communicating via email and social media.

The website of the American Foundation for the Blind (AFB) includes short instructional videos on braille writing tools and technology, including the slate and stylus, Perkins brailier, braille transcription software, and braille embossers (details included in Appendix 4).



Perkins classic braille writer



Slate and stylus

CONCLUSION

The impetus for this braille resource booklet was a World Braille Council resolution to provide educational support, including braille access, for children with multiple disability and deafblindness. Members of the Council recognised that many of these children are completely overlooked in matters of planning and delivering services in low and even middle-income countries and thus remain most vulnerable and excluded. This is especially so in the case of braille access.

The booklet offers an opportunity to lay the groundwork for facilitating global action in support of children with deafblindness and multiple disability and their families regarding braille access. It is the authors' intention to give families hope for their children and to promote positive attitudes towards braille among all stakeholders. An emphasis has been placed on the capacity of children with multiple disability and deafblindness to communicate and learn, and the important place and role of braille in their education and social inclusion. Included are practical tips for where to begin the journey towards braille literacy, including tips for promoting communication and language, early literacy skills, understanding the braille code, and activities for developing tactile perception and early braille reading and writing skills.

We close with a final quotation from Helen Keller:

"More than at any other time, when I hold a beloved book in my hand my limitations fall from me, my spirit is free." - Helen Keller, 1930

APPENDIX 1 Common braille contractions used in English braille codes

Line 1	Line 1, consisting of the first 10 letters of the alphabet, formed with dots 1,2,4,5 in the upper part of the cell. When preceded by the numeric indicator these cells have number values.									
	a	b	c	d	e	f	g	h	i	j
	⠁	⠃	⠉	⠑	⠅	⠋	⠗	⠈	⠊	⠚
Line 2	Line 2 adds dot 3 to each of the characters of Line 1.									
	k	l	m	n	o	p	q	r	s	y
	⠅	⠇	⠍	⠏	⠛	⠋	⠗	⠒	⠎	⠞
Line 3	Line 3 adds dots 3 and 5 to each of the characters in Line 1.									
	u	v	w	x	y	z	and	for	of	with
	⠥	⠦	⠪	⠦	⠞	⠫	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
Line 4	Line 4 adds dot 6 to each of the characters in Line 1.									
	ch	gh	sh	th	wh	ed	er	ou	ow	w
	⠠⠉	⠠⠗	⠠⠎	⠠⠈	⠠⠞	⠠⠑	⠠⠅	⠠⠥	⠠⠛	⠠⠞
Line 5	Line 5 repeats the characters of Line 1 in the lower portion of the cell, using dots 2,3,5,6. Most of the characters have punctuation values.									
	ea	be	con	dis		!	()	“		”
	⠠⠑⠠⠠	⠠⠃⠠⠠	⠠⠉⠠⠠⠠	⠠⠑⠠⠠	⠠⠅	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
	⠠⠑	⠠⠃	⠠⠉	⠠⠑	⠠⠅	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠
Line 6	Line 6 is formed with dots 3,4,5,6.									
	st	ing	#	ar	hyphen					
	⠠⠎⠠⠠	⠠⠊⠠⠠⠠	⠠⠠⠠	⠠⠠⠠	⠠⠠⠠					
	⠠⠎	⠠⠊	⠠⠠	⠠⠠	⠠⠠					
Line 7	Line 7 is formed with dots 5,6									
	capital letter	Grade 1 symbol								
	⠠	⠠								

Adapted from Diagram of braille cells, showing the construction of the braille code.

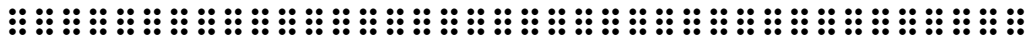
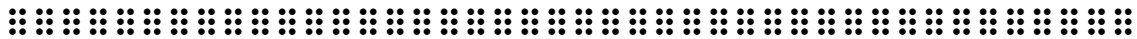
Source: [American Foundation for the Blind](#)

Appendix 2 Example activities for introducing tactile perception and tracking along lines of braille dots

Tracking left to right across lines of full braille cells, with double line spacing

- Leave blank lines between each row of braille dots.
- Gently assist the child to place their hands at the beginning of the first line of braille dots, and then leave them to move independently from left to right across the line.
- The child practices following along each line, returning along the line and dropping down to the next line.
- Ask the child if they can feel the differences in the braille lines, for example, differences in line length.
- Make it fun.

Tracking along full braille cells. “Follow the roads to school. Can you find the shortest road?”



Tracking along lines of braille that feel tactually different. “Feel the paths. Which one is the bumpiest? Which is the widest path? Which is the narrowest path?”



Appendix 3: Introduction of braille letters and words

- Start with introducing letters that feel tactually very different to each other. Sally Mangold recommends the following order of braille letter introduction:

g ⠠ c ⠠ l ⠠ d ⠠ y ⠠ a ⠠ b ⠠ s ⠠ w ⠠ p ⠠ o ⠠ k ⠠ r ⠠
 m ⠠ e ⠠ h ⠠ n ⠠ x ⠠ z ⠠ f ⠠ u ⠠ t ⠠ q ⠠ i ⠠ v ⠠ j ⠠

- An inclusive practice is to write the print letters above each braille letter. This enables sighted parents and braille teachers to participate in the activity, as they can see what the child is reading with their fingers and provide help if needed.
- Adding spaces on each side of the letter or word being introduced. These spaces provide the child with cues that help them to achieve success.
- Use double line spacing to assist the child with returning along each line of braille and dropping down to the next line.
- It is important to give the child lots of practice in identifying the letters and words being introduced.
- Once the learner knows enough letters, start combining letters to form words. For example, the letters “g, c, l, a, d, y, b, s” may be used to create words that end with ‘ad’ and ‘ay’ (word families).

Example activity introducing the letter “g”.

The letter “g” is placed at the top of the activity, followed by a line of braille dots (dots 1 and 3).

Example activity introducing the letters “g” and “c”.

“Can you find the cats and goats?” “Can you find the letters “c” and “g”?”

g c

g c

g c g c g c

g g c g g

g c c c g g

g g g c c g c g c g c g g c c g

Activity introducing the letters “g” and “c”.

“Can you find the letters “c” and “g” in each line of braille?”

“Which line is the shortest/longest?”

c g

c g

c c c g g c c g c g c g g g c c

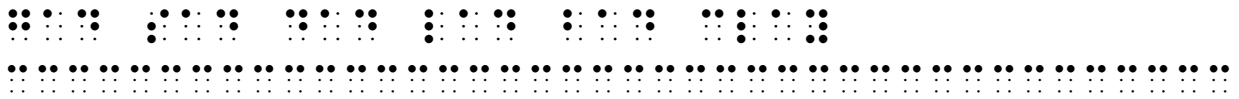
c c c g c g g c g c g g g c c

c c g g c g c g g c c g g

g g g c c g c g c g c c g g c c g

Introducing the “ad” word family, gad, sad, dad, lad, bad.

gay say day lay bay clay



g a y gay s a y say l a y lay

d a y day c l a y clay g a y gay

l a y lay b a y bay g a y gay

l a y lay b a y bay c l a y clay

Acknowledgement: The example activities in Appendices 2 and 3 have been drawn from a range of publications, including Lamb (1995), Swenson (2016), Wormsley and D’Andrea (1997), and those listed in Appendix 4.

Appendix 4 Sources of information

American Foundation for the Blind. (n.d.). Braille writing devices.

<https://www.afb.org/blindness-and-low-vision/using-technology/assistive-technology-videos/braille-writing-devices>

American Foundation for the Blind. (n.d.). Helen Keller: Our Champion.

<https://www.afb.org/about-afb/history/helen-keller>

Lamb, G. (1995). *Fingerprints: A whole language approach to braille literacy*. Auckland, NZ: Homai Vision Education Centre.

Lowenfeld, B. (1975). *The changing status of the blind: From separation to integration*. USA: Thomas Pub.

Mangold, S. (1977). *The Mangold developmental program of tactile perception and braille letter recognition* [kit]. California: Exceptional Teaching Aids.

Paths to Literacy: For students who are blind or visually impaired. (n.d.). *Braille*. Perkins School for the Blind, <https://www.pathstoliteracy.org/topic/braille>

Perkins School for the Blind, International Council on English Braille, National Library Service for the Blind and Physically Handicapped, Library of Congress, & UNESCO. (2013). *World braille usage* (3rd ed.). Washington D.C.

Swenson, A.M. (2016). *Beginning with braille: firsthand experiences with a balanced approach to literacy* (2nd ed.). New York, NY: AFB Press.

Wormsley, D.P., & D'Andrea, F.M. (1997). *Instructional strategies for braille literacy*. New York, NY: AFB Press.

Wormsley, D.P. (2000). *Braille literacy curriculum*. Philadelphia, PA: Towers Press, Overbrook School for the Blind.

Wormsley, D.P. (2005). *Braille literacy: A functional approach designed for non-traditional learners*. Presentation at RIDBC Renwick Centre, North Rocks NSW.

Wormsley, D.P. (2016). *I-M-ABLE: Individualized meaning-centered approach to braille literacy instruction*. New York, NY: AFB Press.