



Braille Connect the Dots



Beyond vision loss



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What is braille?

Braille is the reading and writing system used by blind people all over the world. It is bumps or dots that blind people read with their fingers. As well as braille books, there are braille menus, recipes, board games and playing cards. You can even find braille on some packaging, ATM machines, lift buttons and other signs.

In this booklet, we're going to teach you some braille basics. There are activities and some great links so you can get more information.



How braille began

Braille was invented by a French boy in 1824. His name was Louis Braille. Here's some of his story.

Louis Braille was born in 1809. He became blind due to an accident at the age of three, and later attended the first school for the blind in Paris from 1819. He was taught to read raised, enlarged print but found it very slow. Also, no one had yet found a way to enable blind people to write.

Louis began to look for better ways of reading and writing for blind people.

He came across the studies and surveys of Charles Barbier, a French army officer who had devised a 12-dot system of raised dots and dashes for soldiers to use for communicating by touch at night. This system was not a success, so Barbier offered it to the School for the Blind.

Louis Braille looked at Barbier's system but realised that a 12-dot cell was too big for the pad of a finger. He simplified Barbier's system and developed his own six-dot version, which was easier to read with the fingers.

In 1824, at the age of 15, Louis Braille introduced his system to the school. It met with considerable criticism from the sighted teachers; but the blind students and blind teachers adopted it immediately. They loved it. For the first time they were able to write down their own thoughts and read them back!

Although determined to obtain official status for the system, it wasn't until two years after Louis' death that success came in 1854. It became known as braille, after Mr Braille: the boy who wanted to read.

For more information on Louis Braille, visit:

louisbrailleschool.com

his.com/~pshapiro/braille.html

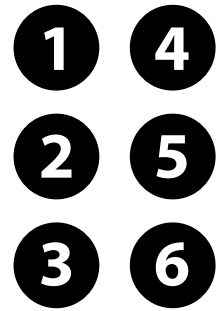
braillebug.afb.org/louis_braille_bio.asp

You can also type his name into a search engine, or look for books in your local library.



The alphabet

The basic building block of braille consists of six dots arranged like the diagram on the right. These six dots are called a cell, and with it you can make up all letters, numbers, punctuation marks and other signs.



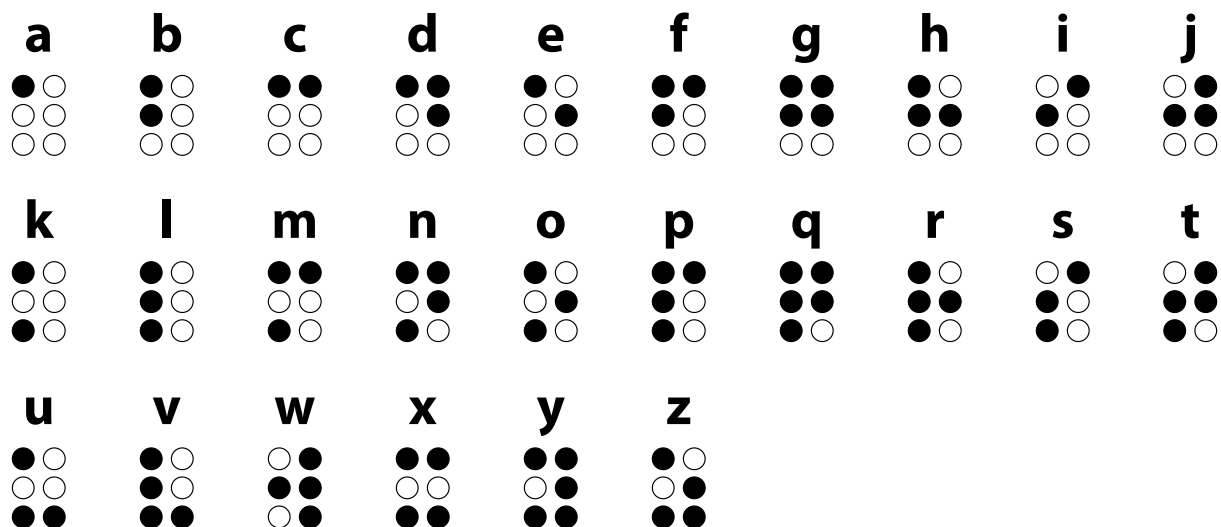
These dots can be given a number depending on their position in the cell. So:

a is dot 1 (top left corner)

b is dots 1 and 2 (top and middle dots on left side)

c is dots 1 and 4 (top left and top right)

Here is the braille alphabet



See how the pattern of letters repeats itself. k-t use the same shapes as a-j but have an extra dot in the bottom left corner. u-z (apart from w) use the same shapes as a-e but have two dots at the bottom.

At the time Louis was inventing his system, there was no w in the French alphabet. It was added later.

Although braille is made up of dots and not lines, you may spot some similarities

with print letters, and find patterns which help you learn the braille letters. For instance, the braille letters j and p are a little like their print equivalents.

You can write any language in braille. Like many languages in print, you read it from left to right across the page. When blind people read braille, they use the soft pads of the fingers which are more sensitive than the fingertips. Sighted people usually read braille with their eyes.

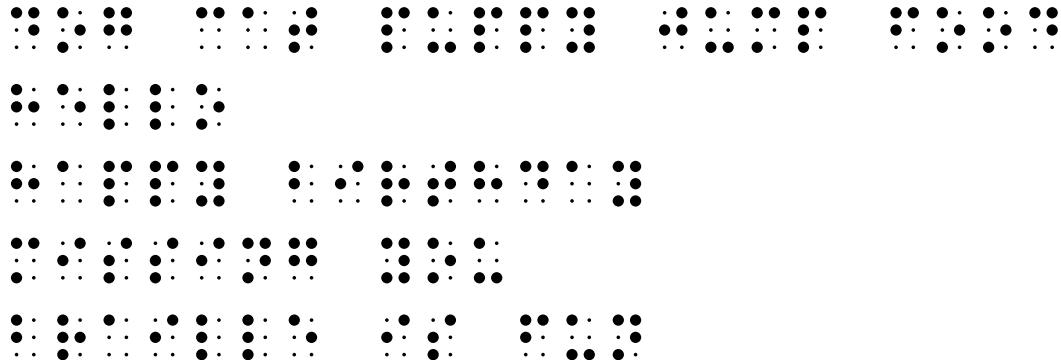
If you are losing your sight you could try to learn the braille shapes while you can still see, but do bear in mind that you will eventually need to train your fingers to do the reading.

Throughout this booklet simulated braille is used to represent braille. The large dots are those you would feel; the small dots are the blank spaces. The simulated braille in the activities is the same size as raised braille.

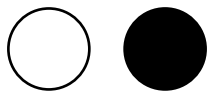
Activities


Using a six-hole egg carton and golf balls or plastic eggs, make some braille letters by putting them in the correct position in your carton. Start with A on the top left.

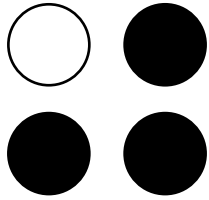
Here are some words written in braille. Can you work them out?













Numbers

















To write numbers in braille, use the letters a-j with a special number sign  in front of them like this:






1	2	3	4	5	6
					
7	8	9	0		
					

The number sign turns these letters into numbers until there is a space or a punctuation sign. Here are some examples. Can you work out the rest yourself?

23  18 
 692  275 

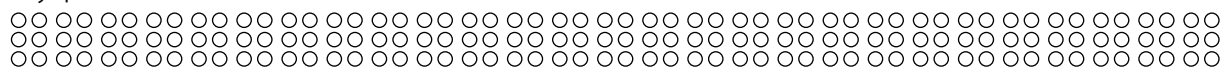
So a phone number could be written:

123 4567  
 0800 243333 

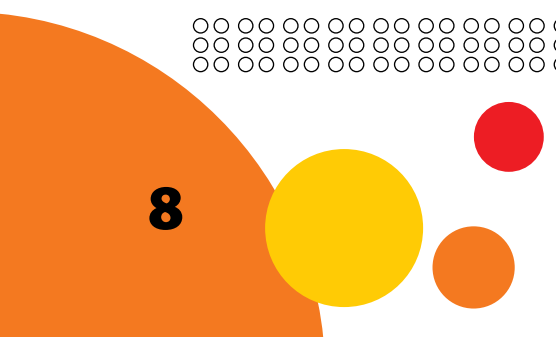
Activities

Answer the following questions in braille by shading in the dots:

My phone number is



My birthday is on (day month year)



Fill in the blanks by reading the braille numbers:

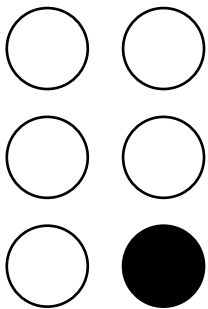
Louis Braille was born in ⠠⠠⠠⠠⠠⠠

He invented his braille system in ⠠⠠⠠⠠⠠⠠

Man first walked on the moon in ⠠⠠⠠⠠⠠⠠

4 plus ⠠⠠ equals ⠠⠠

Capitals, punctuation and spacing



Capital letters

Use a dot 6 in front of a letter to turn it into a capital letter.

Below is how the capital letter sign is used to write the word **Louis**:

⠠⠠⠠⠠⠠⠠

To turn a whole word into capital letters use two capital letter signs at the beginning of the word. Here is how **BLIND FOUNDATION** is written in braille:

⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠

Punctuation

Here are some basic punctuation symbols:

Full stop: dots 2-5-6 ⠠

Comma: dot 2 ⠠

Apostrophe: dot 3 ⠠

Question mark: dots 2-3-6 ⠠ Exclamation mark: dots 2-3-5 ⠠

Here is how we would write **Where are you?**

⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠





Contracted braille

The braille you have learned so far is called uncontracted braille. Every print character is represented by a braille character. All braille readers will be able to read uncontracted braille.

When braille readers become more experienced, they generally read contracted braille. This is like a shorthand version, saving space and making reading a lot quicker. We sometimes use something like it when texting, though these are not the contractions used in braille. You also use contractions as a short way of writing two words, such as “don’t” for “do not”. Braille extends this into a fully contracted code.

In contracted braille many common words and groups of letters are represented by one braille character. Eg. and ⠠ the ⠠

Most books and magazines are produced in contracted braille.

Getting more technical

Contracted braille uses the same letters, punctuation and numbers as uncontracted braille but it also has word signs, short forms and group signs. The following examples will give you an idea of what you would meet in contracted braille.

Word signs: some words are represented by single letters or other dot combinations.

but can do it

I like it

Short forms: these are shortened words.

braille

today

great

almost

Today I am almost great!

Group signs: these represent frequently used groups of letters.

ing

ity

tion

Here are some examples of words using group signs:

sing

city

option





Writing braille

You will learn how Louis Braille wrote his braille system and how blind people still write braille in many parts of the world.

The device shown on the opposite page is called a slate and stylus. A slate is two strips of metal or plastic hinged at one side which opens up to hold a piece of paper. The top piece of the slate has braille cell shapes cut out to guide the user when writing braille. The bottom part has rows of six indented dots, with each set of dots making up the six dots of a braille cell.

A stylus has a metal point to create braille dots. The tip of the stylus is pressed onto the braille paper to emboss each dot.

The braille cell shapes on the slate guide the writer.

You write from right to left in mirror image along the vertical axis so that you can read the raised braille dots around the right way when you take the paper out of the slate and turn it over. For example, dot 1 (which is in the top left hand corner) is written in the top right hand corner when using a slate and stylus.

A slate and stylus can be purchased from various websites including:

blindfoundation.org.nz/products/braille-products

aph.org

nbp.org

Activity

Copy some of the common phrases on page 11 using a slate and stylus.

In developing countries, the slate and stylus can be the only way blind people write braille. Many braille readers all over the world use the slate and stylus for jotting down notes.





For most writing tasks, braille readers write using either a mechanical braille writer or an electronic braille device.

The Perkins Braille is a mechanical braille writer which has been around since the 1950s. It punches dots into the paper and allows you to write.

Electronic braille devices (sometimes called notetakers) are small braille computers which can work alone or by connecting to other computers, smart phones or tablets.

They usually contain a braille keyboard and a braille screen or display. Some don't even have a print screen, but only have the braille display. Little dots pop up and down on the display, driven by the software. The display shows the text one line at a time. They cannot show pictures.



Braille on your screen

Another great way to practise braille writing is to use a smartphone or tablet as a virtual braille keyboard. Several apps on various platforms now exist. Some have a free version which simply lets you write in braille on the touch screen, giving feedback through speech. Here are a few tips:

- **Your left index finger is dot 1 and your right index finger is dot 4**
- **Your left middle finger is dot 2 and your right middle finger is dot 5**
- **Your left ring finger is dot 3 and your right ring finger is dot 6**



It's often easier to do this by feel alone, without looking.

Where you place your fingers on the screen depends on the app and you should read its instructions carefully.

If you want to write a letter with three dots, like an l, touch the screen with the three fingers of your left hand at the same time. Some people think of it like playing a chord on a piano keyboard. Do not put the fingers down one after the other, unless your app tells you to do that.

While you will not be writing physical braille dots, it's a fun way to practise writing braille.

There are also several braille reference apps where you can look up braille letters and symbols. Search on your app store and have fun with braille on your phone or tablet!





Using braille

Think of all the things for which you use print – now you know how braille can be used.

Around the home

- labelling tins or packets, cleaning products, battery chargers, medication, DVDs, cosmetics and important printed documents
- reading recipes or writing down personal information like passwords and credit card numbers – very secure!

You can make braille labels using self-adhesive labels purchased from the Blind Foundation's Equipment Solutions.

blindfoundation.org.nz/products/braille-products

If you are helping someone by labelling something in braille, take note of where the person places their braille when they label things. They will have a much greater chance of finding it if the labels are placed in a similar position.

If you have a braille-reading child and you know braille, you can help with basic reading and homework. Using lots of braille around your home will encourage your child to learn to read and write more quickly. Label special snack boxes and toy boxes; make books or a braille treasure hunt. This can also help them feel less different from sighted members of the family.

The Blind Foundation children's library loans braille, tactile and audio books to children who are blind or have low vision.

If you live or work with a braille reader, the ability to leave messages, phone numbers and so on in braille is invaluable. Your friends and family who read braille will enjoy receiving birthday and Christmas cards you have brailled.

The Blind Foundation also sells braille playing cards and other board games. Visit **blindfoundation.org.nz/product**

The Blind Foundation library has recipe books in braille and e-text which can be read on a braille notetaker or computer. Visit **library.blindfoundation.org.nz**





Out and about

Braille signage is becoming more common. Look for it:

- in taxis, some buses and trains
- on lift panels and ATMs
- on some packaging
- on hotel and restroom doors and other places

If you want to know more about braille on signage please visit [blindfoundation.org.nz/signage](https://www.blindfoundation.org.nz/signage). Here you will find information about braille and tactile signage, plus our Accessible Signage Guidelines which you can download for free.



In the classroom

Braille is the only reading and writing medium for people who are blind or have low vision that is truly comparable to print.

Subjects such as maths, sciences and foreign languages are much easier to learn in braille. Some children with remaining vision learn print and braille at the same time.

Music braille represents all the symbols of standard print music notation. It gives music students and musicians full access to a score.

At work

Braille readers make up a large percentage of blind people who are in work.

Accessing the computer screen through braille is a very efficient way to check documents or read fine detail such as determining how someone's name should be spelled. Synthetic speech does not provide the high level of accuracy that braille does.

Making presentations is much easier when using braille – no need to listen to speech from your computer or look down at your notes because your fingers can do the reading.

Reading complicated information such as financial statements is much easier in braille than listening to it from a computer.

Braille business cards are a great way to reach a blind audience. Visit **blindfoundation.org.nz/braille** to find a list of companies which can produce braille business cards.



Photo courtesy of
Brilliant Touch Australia.
brillianttouch.com.au





Braille opens doors

Louis Braille once said that “Braille is knowledge, and knowledge is power!”

For braille readers, braille is far more than a fascinating code. It is, quite simply, the only way they can truly read and write. It means independence, dignity and empowerment.

A blind person can reach their desired floor in an unfamiliar building because the lift has braille on the buttons. Otherwise, he or she would have to guess, or hope somebody comes along who can tell them which button to push. Being able to do it alone makes people more independent and in control.

For people who are deaf and blind, braille can be the only way they can read or use a computer. Various braille notetakers can be used in conjunction with phone apps to become communication devices with hearing people.



Where do I go to learn more about braille?

The official braille code in New Zealand is Unified English Braille (UEB). This is used in many English-speaking countries around the world.

The Blind Foundation teaches braille to people who are blind or have low vision if they want to learn it. The Blind Low Vision Education Network New Zealand (BLENNZ) teaches braille to children in their own school; this service is funded by the Ministry of Education.

For family members or professionals working with a braille-reading child

BLENNZ offers a distance braille course for parents and adults who support blind children who are learning braille.

Visit: **banzat.org.nz/braille.htm**

or: **blennzonline.edublogs.org**

Email: **admin@blennz.school.nz**

Phone: **(09) 266-7109**

Completing the distance course gives you the opportunity to sit the Trans-Tasman Certificate in Unified English Braille. This is a joint qualification with Australia.

The Hadley School for the Blind in the USA also offers more than 90 distance education courses to people who are blind or have low vision. Sighted professionals can also take advantage of these courses. Visit **hadley-school.org** for their course catalogue, to apply online, or to link to other organisations.

For those with a general interest in learning braille

The full Unified English Braille Manual is available from the Braille Authority of New Zealand Aotearoa Trust (BANZAT): **banzat.org.nz/BrailleCodes.htm**

While no direct support is available, the manual contains exercises and self-mark answers.

An online self-study course is available via Renwick University in Australia: **<http://uebonline.org>**

How can I get documents made into braille?

The Blind Foundation is New Zealand's leading braille producer. We produce menus, timetables, brochures, operating manuals, books, maps and lots more.

In the past this was done using a slate and stylus or a Perkins Brailler (see page 16). Today, it is done using braille translation software and large braille printers called braille embossers.

If you would like the Blind Foundation to produce some braille, contact Accessible Format Production on **0800 24 33 33** or by email on **afprequests@blindfoundation.org.nz**. Once they have a copy of the print to be transcribed they will negotiate the cost and timeframes with you. E-files are preferred as this can make translation a lot faster.

Letters in braille

If you would like to send a letter to somebody who reads braille, you can visit **blindfoundation.org.nz/learn/accessible-information/braille**. Just key in the text you would like and, for a small donation to the Blind Foundation, we'll send it in braille to you or your chosen recipient.



Several automated online braille translators also exist which will turn your text into a braille document. These automated translators can definitely be useful for a one-off or emergency situation, but can never replace the services of a braille transcriber. They may not be properly formatted, for instance, and will not contain reference page numbering. Choose the “unified English Braille” and “.brf” options to generate an electronic braille file which can be read on a braille notetaker or embossed using a braille embosser. Two such online services are: **brailletranslator.org** and **robobraille.org**

The National Braille Press is a US producer of braille books. From their website you can buy braille books in either a paper or electronic format for around the price of a normal print book. The electronic braille files can be read on a braille notetaker (see page 17). Visit **nbp.org**

The American Printing House for the Blind (APH) is the world’s largest non-profit organisation creating educational, workplace and independent living products.

APH also provides publications useful to adults, such as cookbooks and dictionaries, braille instructional programmes, braille writing slates and much more. Visit **aph.org**

The Royal National Institute for Blind People in the UK (RNIB) also sells braille materials. Visit **rnib.org.uk**

The Braille Authority of New Zealand Aotearoa Trust (BANZAT) aims to accredit independent braille producers, and advertises them on their website if available. Visit **banzat.org.nz** to find out more.

Important contacts and links

The Blind Foundation

0800 24 33 33

You can reach the Accessible Format Production Team, the library, the BLINK Library, the Braille Awareness Consultant and Equipment Solutions from this number.

Accessible Format Production:

afprequests@blindfoundation.org.nz (to transcribe print into braille)

The braille and talking book library:

library@blindfoundation.org.nz

library.blindfoundation.org.nz (for adult books)

The Braille Awareness Consultant:

braille@blindfoundation.org.nz

blindfoundation.org.nz/braille

blindfoundation.org.nz/signage

(for general information about braille such as signage or resources for your school)

Equipment Solutions:

equipserv@blindfoundation.org.nz

blindfoundation.org.nz/products/braille-products

(for braille equipment such as the slate and stylus and braille paper)

Hadley School for the Blind

hadley-school.org (free distance braille courses)

AFB braille bug

afb.org (teaches sighted children about braille)

National Braille Press

nbp.org (to buy braille books)

American Printing House for the Blind

aph.org (to buy braille books and supplies)



Summary of alphabet and numbers

Alphabet

a	b	c	d	e	f	g	h	i	j
⠁	⠃	⠉	⠙	⠑	⠋	⠗	⠈	⠇	⠊
k	l	m	n	o	p	q	r	s	t
⠅	⠇	⠍	⠝	⠕	⠏	⠒	⠞	⠎	⠞
u	v	w	x	y	z				
⠥	⠺	⠽	⠭	⠽	⠵				

Numbers

1	2	3	4	5
⠠	⠠	⠠	⠠	⠠
6	7	8	9	0
⠠	⠠	⠠	⠠	⠠

Number sign



Punctuation

full stop	⠚
comma	⠗
apostrophe	⠠
question mark	⠏
exclamation mark	⠏
Capital Sign:	⠠

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Produced by the Blind Foundation

Phone 0800 243333

blindfoundation.org.nz



Beyond vision loss