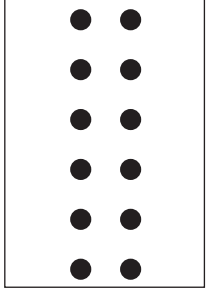
2 Braille

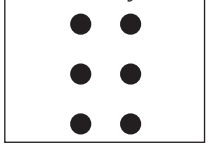
Braille is a method of representing letters, etc. by raised dots which blind people can read by touch. It was invented in 1833 by the Frenchman, *Louis Braille*. When he was three years old he lost the sight of one eye while playing with one of his father's knives (his father was a harness maker), and soon lost his sight completely.

Barbier's system



An earlier system for soldiers passing messages in the dark had been developed by another Frenchman, *Charles Barbier.* This uses up to *twelve* embossed dots, 6 vertical in 2 rows, as shown opposite. Each letter is made up of a pattern of raised dots which the reader can feel with his fingers. Of course, it is just as important to be able to tell when a dot is missing.

Braille's system



Braille revised the pattern by using a base of *six* positions, 3 vertical in 2 rows, as shown opposite.

Note

For diagrams in this unit we use *black circles* to represent the *raised dots* and *white circles* for the *blank spaces*.

Exercise 1

How many different patterns exist using the Braille system?

Exercise 2

(a) *Apart from the alphabet and numerals 0 – 9, what other symbols or words need to have a Braille code?*

(b) *Are more than 63 codes needed?*

(c) *Does the* 3×2 *system a have sufficient number of different patterns to code everything that is needed?*

Activity 1

Investigate how many different patterns exist using arrays of dots in the form

(a) 1×2 (b) 2×2 (c) 3×2

(d) 3×3 (e)* $n \times 2$ (f)* $n \times m$.

Check that your answers to (a) to (e) are consistent with your answer to (f).

Braille codes for the alphabet, numbers and punctuation are given in the Appendix.

You will notice that some configurations represent more than one letter or symbol. For example, ● ○ / ○ ○ / ○ ○

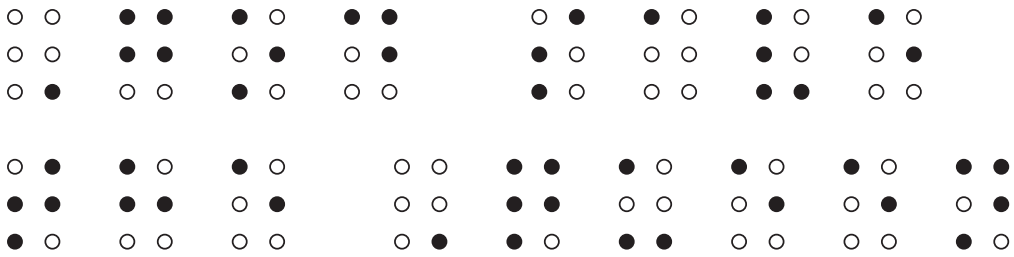
stands for both the letter 'a' and the number '1'.

To use this as '1' you must first switch on the number sign, ○ ● / ○ ● / ● ●, and then switch back to letters with the letter sign, ○ ○ / ○ ● / ○ ●.

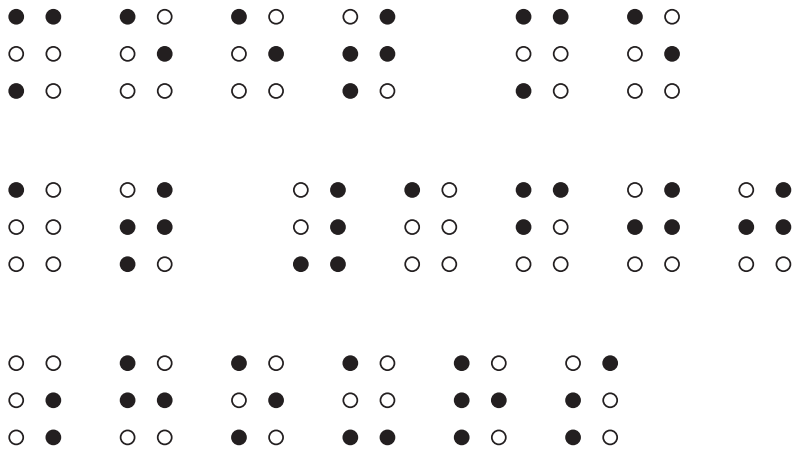
Exercise 3

Decode these short statements given in Braille.

(a)



(b)



Study the codes carefully and then proceed to Activity 2.

Activity 2

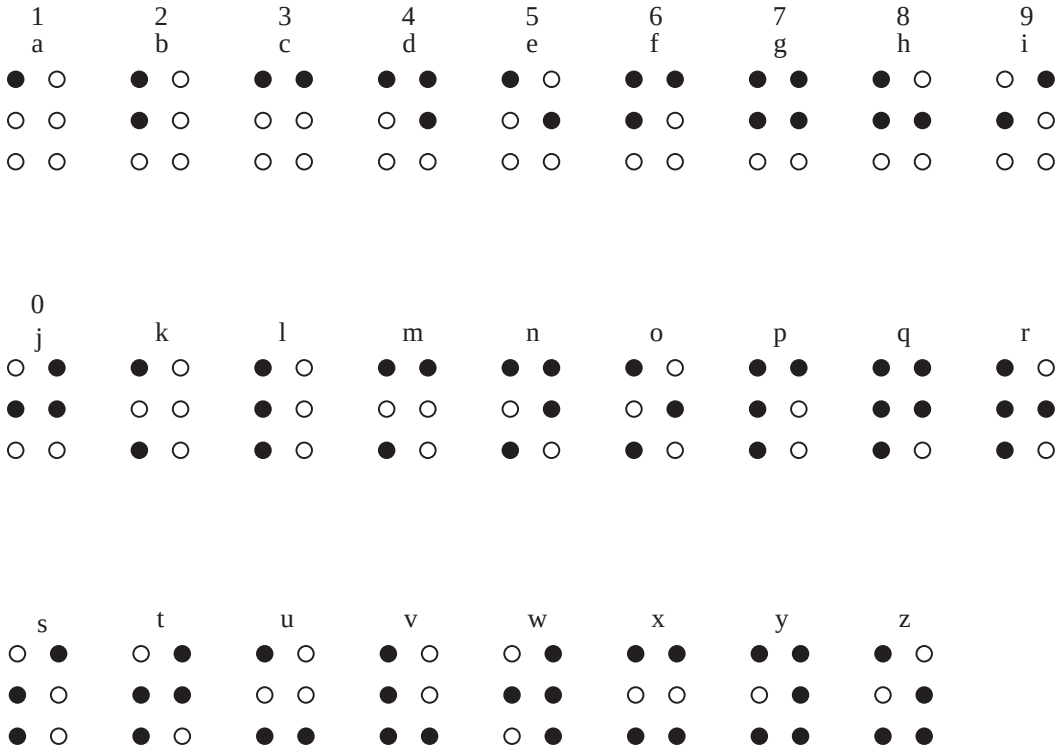
(a) What patterns have not been used in the Braille chart given in the Appendix?

(b) Can you suggest what these other patterns can be used for?

(c) Consider systems that use either a different number of dots or a different configuration in place of the 3×2 configuration. What are the advantages or disadvantages of such systems?

Appendix Braille

Letters and numbers



Punctuation