PRATHAM BOOKS
A Book in Every Child's Hand

Level 3

Talking in Twos

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When Siphar says ‘Enter’ to Gia, she understands.
That is because the meaning of the word is stored in her brain.

When Siphar presses ‘Enter’ on the computer, the computer understands.

That is because the meaning of the word is stored in its brain.

The instruction ‘Enter’ is stored in the brain of the computer in Binary.

Binary is the language we use to communicate with computers.

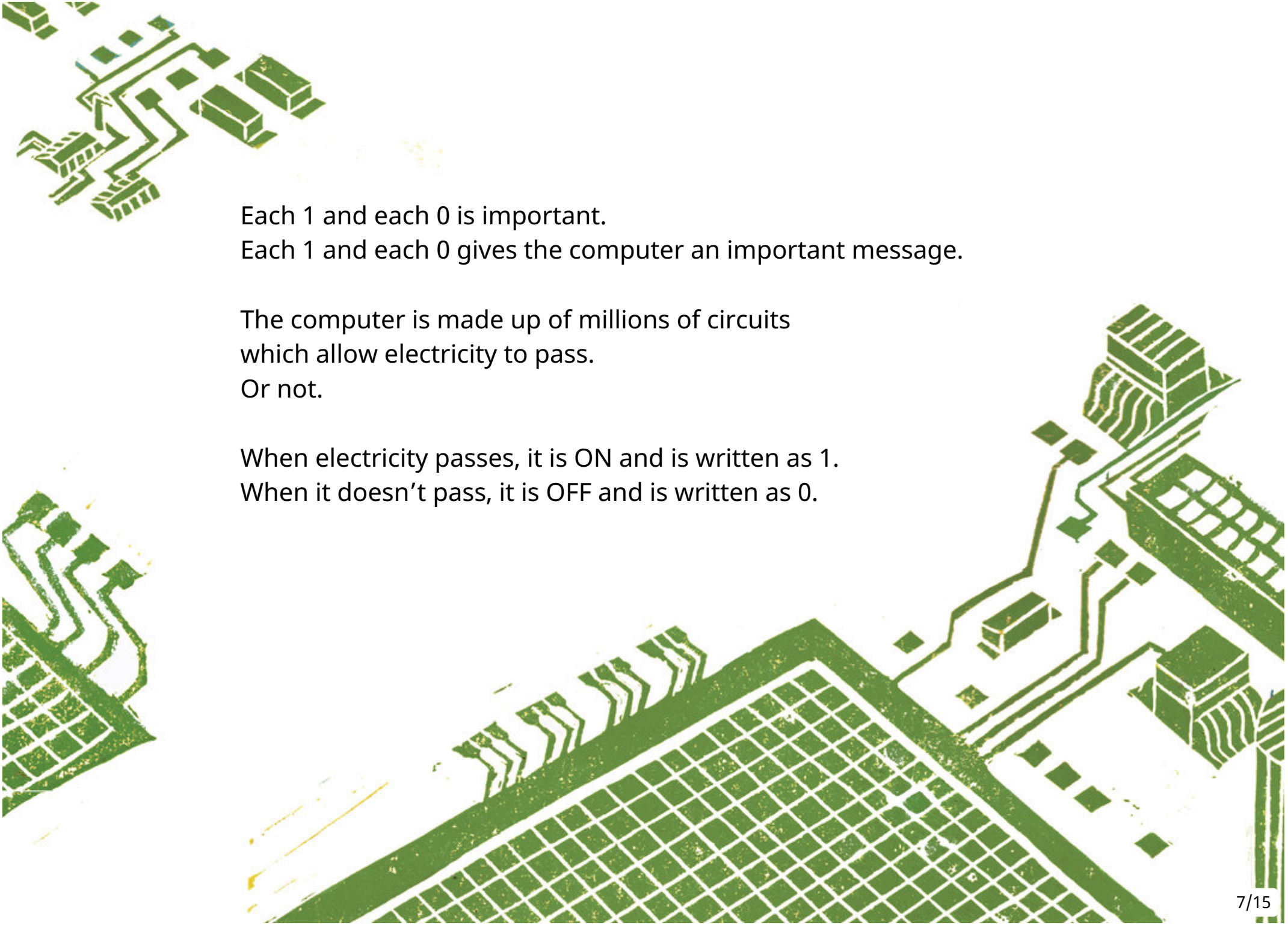
If you saw words or instructions in Binary, you would be confused.

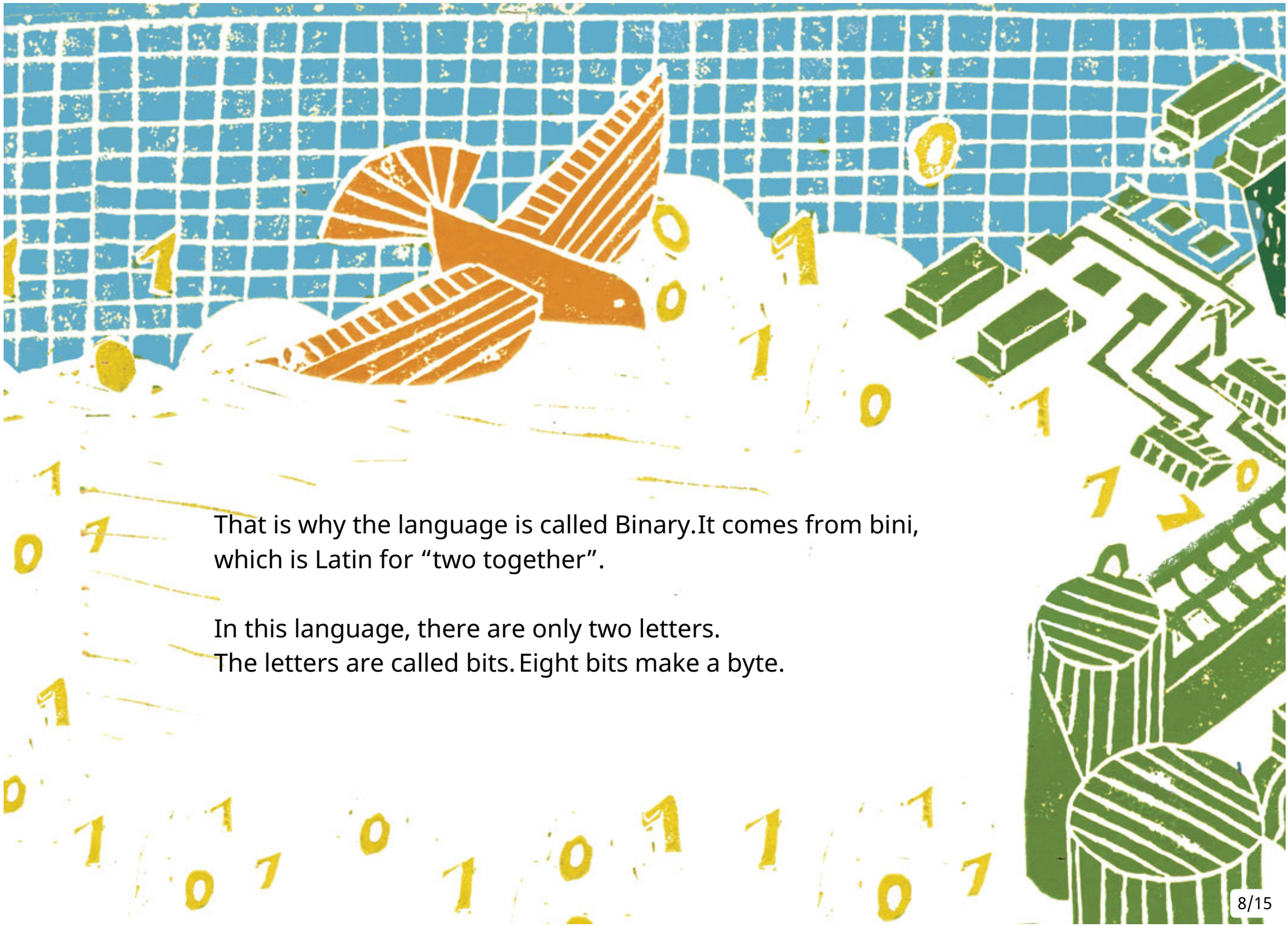
That is because Binary uses only a series of 1s and 0s.

Each 1 and each 0 is important.
Each 1 and each 0 gives the computer an important message.

The computer is made up of millions of circuits
which allow electricity to pass.
Or not.

When electricity passes, it is ON and is written as 1.
When it doesn’t pass, it is OFF and is written as 0.





That is why the language is called Binary.It comes from bini, which is Latin for “two together”.

In this language, there are only two letters.
The letters are called bits. Eight bits make a byte.

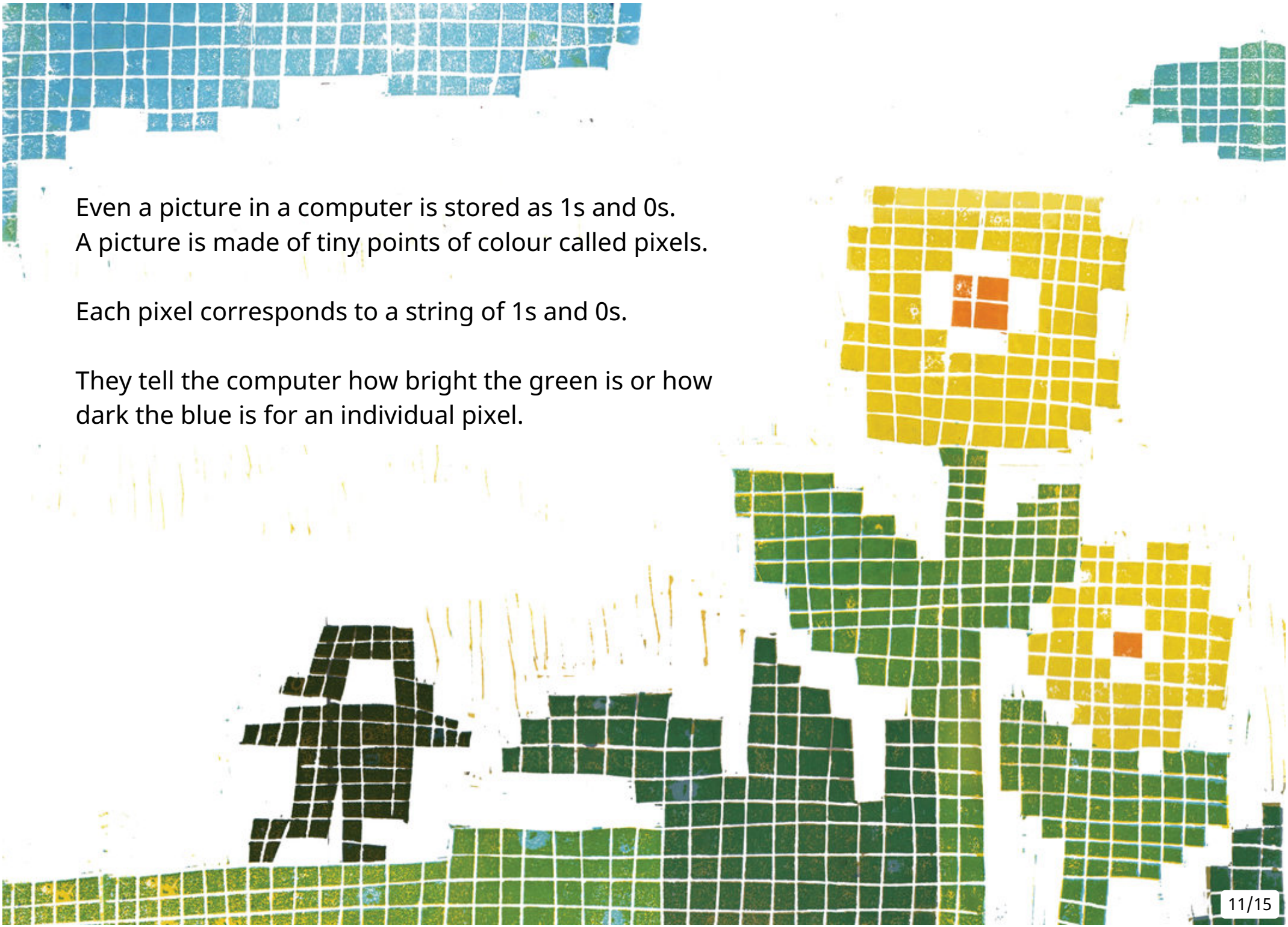
Using just 1 and 0, you can communicate many things to the computer.

The letter A is stored as the byte 01000001.
The letter B is stored as the byte 01000010.

The word ‘Hello’ is stored as
01001000 01100101 01101100 01101100 01101111.
‘Enter’, too, is stored as a string of 1s and 0s.

‘Enter’ is an instruction.

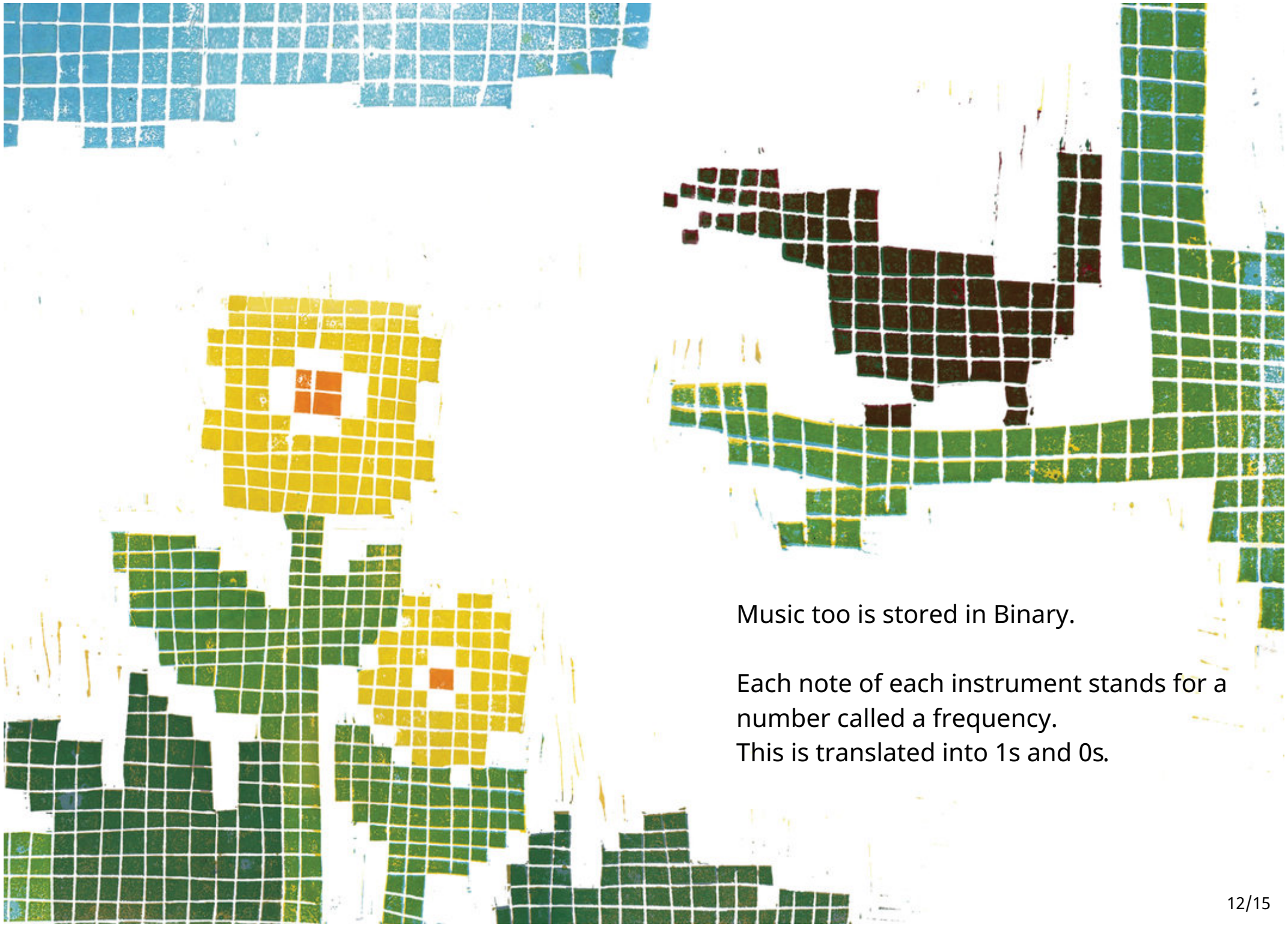
If this instruction is given to you, you may choose to enter or not to enter.
If this instruction is given to the computer, it will follow the instruction.



Even a picture in a computer is stored as 1s and 0s.
A picture is made of tiny points of colour called pixels.

Each pixel corresponds to a string of 1s and 0s.

They tell the computer how bright the green is or how dark the blue is for an individual pixel.



Music too is stored in Binary.

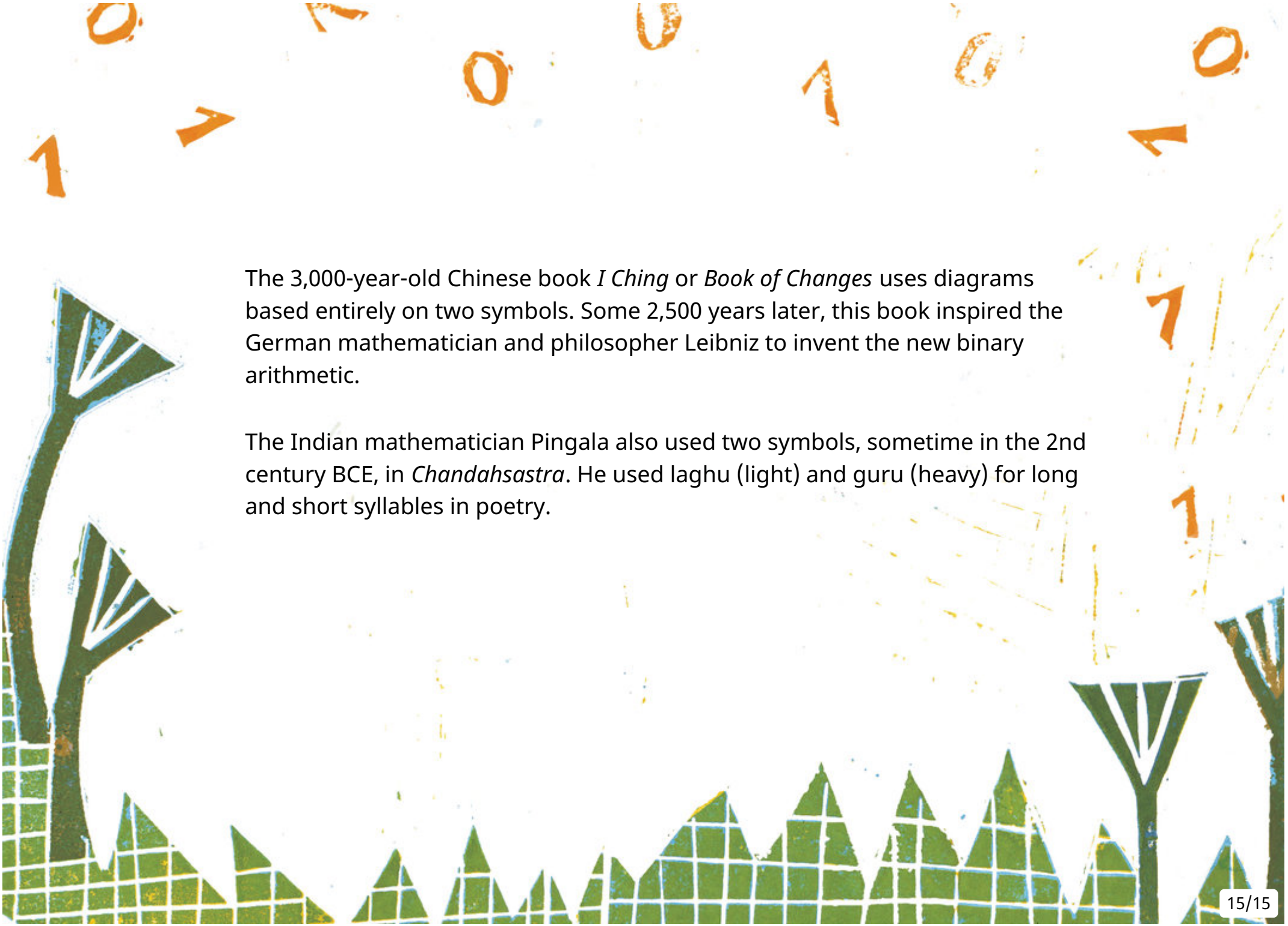
Each note of each instrument stands for a number called a frequency.
This is translated into 1s and 0s.

In Binary, if it is NOT 1, it IS 0.
If it is NOT 0, it IS 1.

Binary is for machines.
You are NOT a machine.

So if you are NOT a one at something, it doesn’t mean you are a zero.
If you are NOT good at something, it doesn’t mean you are bad at that thing.

As human beings, we are lucky. We can choose to be any value in between.



The 3,000-year-old Chinese book *I Ching* or *Book of Changes* uses diagrams based entirely on two symbols. Some 2,500 years later, this book inspired the German mathematician and philosopher Leibniz to invent the new binary arithmetic.

The Indian mathematician Pingala also used two symbols, sometime in the 2nd century BCE, in *Chandahsastra*. He used laghu (light) and guru (heavy) for long and short syllables in poetry.

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Talking in Twos
(English)

Computers use a special language called Binary. This has only two symbols—0 and 1. But it manages to pass on the most complex messages.

This is a Level 3 book for children who are ready to read on their own.

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