



## Binary Bracelets

*A Bracelet that Spells out a Word in Binary*

A	■ ■ ■ ■ ■ ■ ■ ■	J	■ ■ ■ ■ ■ ■ ■ ■	S	■ ■ ■ ■ ■ ■ ■ ■
B	■ ■ ■ ■ ■ ■ ■ ■	K	■ ■ ■ ■ ■ ■ ■ ■	T	■ ■ ■ ■ ■ ■ ■ ■
C	■ ■ ■ ■ ■ ■ ■ ■	L	■ ■ ■ ■ ■ ■ ■ ■	U	■ ■ ■ ■ ■ ■ ■ ■
D	■ ■ ■ ■ ■ ■ ■ ■	M	■ ■ ■ ■ ■ ■ ■ ■	V	■ ■ ■ ■ ■ ■ ■ ■
E	■ ■ ■ ■ ■ ■ ■ ■	N	■ ■ ■ ■ ■ ■ ■ ■	W	■ ■ ■ ■ ■ ■ ■ ■
F	■ ■ ■ ■ ■ ■ ■ ■	O	■ ■ ■ ■ ■ ■ ■ ■	X	■ ■ ■ ■ ■ ■ ■ ■
G	■ ■ ■ ■ ■ ■ ■ ■	P	■ ■ ■ ■ ■ ■ ■ ■	Y	■ ■ ■ ■ ■ ■ ■ ■
H	■ ■ ■ ■ ■ ■ ■ ■	Q	■ ■ ■ ■ ■ ■ ■ ■	Z	■ ■ ■ ■ ■ ■ ■ ■
I	■ ■ ■ ■ ■ ■ ■ ■	R	■ ■ ■ ■ ■ ■ ■ ■		

1. Write out the letters of a word you want to put on your bracelet.
2. Tie a knot in one end of the elastic string to keep the beads from sliding off when you add them.
3. Slide beads onto the elastic in the order of the letters, according to the table above.
4. Make sure the order is right.
5. Tie a knot on the second end of the elastic to keep the beads from sliding off.
6. Tie a knot connecting the two ends of the elastic, cut off excess elastic, and your bracelet is ready to put on your wrist!
7. Count how many bytes are in your bracelet! (Hint: It equals the number of letters in the bracelet!)

### What is Binary?

- Humans use a "base 10" numbering system because we count things using our 10 fingers. Each finger represents a digit from 0 to 9. Each number in our base 10 number system is made of a string of digits from 0 to 9.
- Computers, however, use a binary system. They count in "base 2" because their switches have only two options: off and on. In binary code, there are only two digits: 0 and 1. Zero represents "off" and 1 represents "on." In binary each number is represented by a string of 0s and 1s. Every 0 or 1 in the string is called a "bit," and a string of 8 bits is called a "byte." Back in 1963 each letter of the alphabet (along with all of the other symbols on a keyboard) were assigned a standard byte, as shown in the table above. Black represents 0 and orange represents 1.



*Sample bracelet that reads "liger"*

