

# Binary Bracelets!



Post a picture of yourself with your binary bracelets on Facebook and tag Worlds UNBound to be entered into a draw for a FREE week of camp. Let us know how your experiment turned out!

## Materials:

- White beads
- Black beads
- Coloured beads
- String
- Scissors
- Pencil
- Paper
- Binary Bracelets printout (attached at the back)

Have you ever heard of binary? What does that word make you think of? Binary code is a way of representing information using only two options. Binary code uses only zeros and ones in a sequence of eight spots. We often refer to these binary, or base-2, digits as "bits." Most computers work in a binary system. Information is transmitted as "on or off", "0 or 1", and so on. When information is transmitted between computers, or the computer and the internet, and so on, it is sent as a series of binary bits (0 or 1). One way to check a string of bits for errors is to check for parity. If the string of 8 bits has an un-even number of zeros or ones, then an error could have occurred! Today, we are going to be using the binary alphabet to embed your own name or nickname as a secret code on a bracelet!

Check out this cool video for more information about binary code:  
<https://www.youtube.com/watch?v=M41M9ATm49M>





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## Steps (if you have beads and string):

1. Spell out your name on paper.
2. Use the key (on back) to write out each letter of your name or nickname in binary code.
3. Transform each letter to a coloured bead. Choose one colour bead to represent the white squares (signifying "1") and another colour to represent the black squares (signifying "0").
4. Between each letter you can add an extra bead in a colour of your choice as a divider.
5. Cut a length of string, sized to your wrist, with a few extra centimeters added on to each end.
6. Make a triple knot to start the bracelet.
7. Then string each of your bits and extra beads on the string towards the knotted end.
8. Check to make sure that the bracelet fits around your wrist.
9. Knot the open end of string and then tie the two ends together, leaving enough of that extra string to slip it over your hand.
10. Cut off any remaining string, far enough away from the knots so they don't loosen.
11. Wear it and show it off!

## Steps (if you don't have beads and string):

1. Print off the last page of this worksheet with the binary alphabet.
2. Find the first letter of your first name on the page.
3. Fill in the squares of the bracelet on the sheet to match the pattern of the squares next to the letter that you found.



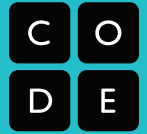
Unplugged

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Binary Bracelets

## Binary Decoder Key



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    ■ □ ■ □    □ ■ □ ■

Find the first letter of your first name.

Fill in the squares of the bracelet below to match the pattern of the squares next to the letter that you found.

Cut the bracelet out and tape it around your wrist to wear it!

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