BINARY BRACELETS

VIDEO URL	https://youtu.be/BfmJ5pksIj4
TIME	45-60 minutes

MATERIALS NEEDED

Assorted beads
String or thread
Binary Bracelet Worksheet

OBJECTIVES

- Encode letters into binary
- Relate the idea of storing name on a bracelet or key chain to the idea of storing information in a computer

LESSON

1. Pass out the Binary Bracelets worksheet.
2. Explain that each letter of the alphabet has a different code as seen on the worksheet. There are 8 different squares per letter and each square is either black or white.
3. Have youth choose 2 colors for their bracelet and assign one color to represent white and one to represent black.
4. Have each youth find the first letter in their name and complete the code on the worksheet. And then continue on for their entire name.
5. Pass out a thread/string and have the youth place beads on to the thread to match the binary code that makes up their name.
6. Ask students to compare their bracelets with others.

MODIFICATIONS

- Have students choose a word of their choice to create binary code
- Experiment with different shapes of beads

ADDITIONAL RESOURCES

https://code.org
https://extension.purdue.edu/4h/
Pages/volunteerResources.aspx

RELECTION

- What challenges did you face in creating code?
- How does your name stored on a bracelet or key chain relate to information stored on a computer?
- What else might you use to represent binary instead of boxes that are filled or not filled?
- What might happen if an error is made in the conversion of binary? How does one error change the spelling of your name?

WHO WE ARE

4-H began over 100 years ago, and has since grown into the largest youth development program in the nation. 4-H prepares young people to be leaders in their community and around the world through hands-on experiences alongside their peers and caring adults. 4-H delivers research-based programming around positive youth development. In Indiana, 4-H can be found in all 92 counties as delivered through Purdue Extension. Community clubs, afterschool programs, school enrichment, camps/workshops, and special programs are all ways youth across Indiana can be involved with the 4-H program. For more info, visit extension.purdue.edu/4h.

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

Choose one color to represent white and another to represent black. Record below.

☐ = _____   ■ = _____

Use the chart above to create your name using binary code.

First Letter ☐☐☐☐   ☐☐☐☐

Second Letter ☐☐☐☐   ☐☐☐☐

Third Letter ☐☐☐☐   ☐☐☐☐

Fourth Letter ☐☐☐☐   ☐☐☐☐

Fifth Letter ☐☐☐☐   ☐☐☐☐

Sixth Letter ☐☐☐☐   ☐☐☐☐

Use reverse side if you need additional space for additional letters. Create a bracelet or key chain using the colors you chose and the code you created.