

Title: Hexadecimal (A80C) to Binary using Shortcut Method

Description: In this activity, students will learn how to convert a **Hexadecimal number (base-16)** directly into a **Binary number (base-2)** using a shortcut method. This practical uses a simple reference table to match each hexadecimal digit to its 4-bit binary equivalent.

Purpose: To help students:

- Understand the direct conversion of hexadecimal to binary.
- Use a reference table to convert each digit quickly.
- Reinforce the relationship between base-16 and base-2 number systems.
- Strengthen number system understanding with practical examples.

Part A: Reference Table

Number Systems in Tabular Format					
Numbers	Hexadecimal	Decimal	Octal	Binary	Binary(4bit)
0	0	0	0	0	0000
1	1	1	1	1	0001
2	2	2	2	-	0010
3	3	3	3	-	0011
4	4	4	4	-	0100
5	5	5	5	-	0101
6	6	6	6	-	0110
7	7	7	7	-	0111
8	8	8	-	-	1000
9	9	9	-	-	1001
10	A	-	-	-	1010
11	B	-	-	-	1011
12	C	-	-	-	1100
13	D	-	-	-	1101
14	E	-	-	-	1110
15	F	-	-	-	1111

Steps:

1. To convert the hexadecimal number **A80C** into binary, we look at each digit one by one and match it to its 4-bit binary equivalent from the reference table above:
 - Hex **A** is equal to Binary **1010**
 - Hex **8** is equal to Binary **1000**
 - Hex **0** is equal to Binary **0000**
 - Hex **C** is equal to Binary **1100**
2. Now, arrange them in the same order as the hex number:

Hex Digits:	A	8	0	C
	↓	↓	↓	↓
Binary:	1010	1000	0000	1100

✅ Final Answer: **A80C (Hex) = 1010100000001100 (Binary)**

Conclusion:

- ✓ This shortcut method helps in quick conversions.
- ✓ Each hexadecimal digit directly maps to a 4-bit binary value.
- ✓ There is no need for intermediate decimal conversion.