

Binary Lesson 1

Nybbles



Base Ten

- Normal Numbers
- Each place has one of these values:
 - 0 1 2 3 4 5 6 7 8 9
- $147 = 1*100 + 4*10 + 7$
- Or $1*10^2 + 4*10^1 + 7*10^0$

Base Ten

1 4 7

Hundreds place
Number of hundreds
 10^2

Ones place
Number of ones
 10^0

Tens place
Number of tens
 10^1

Base Two

- Binary Numbers
- Each place has one of these values:
 - 0 1
- $11 = 1 * 2 + 1 = 3$
- Or $1 * 2^1 + 2^0$

Base Two

1 0 1

Fours place
Number of fours
 2^2

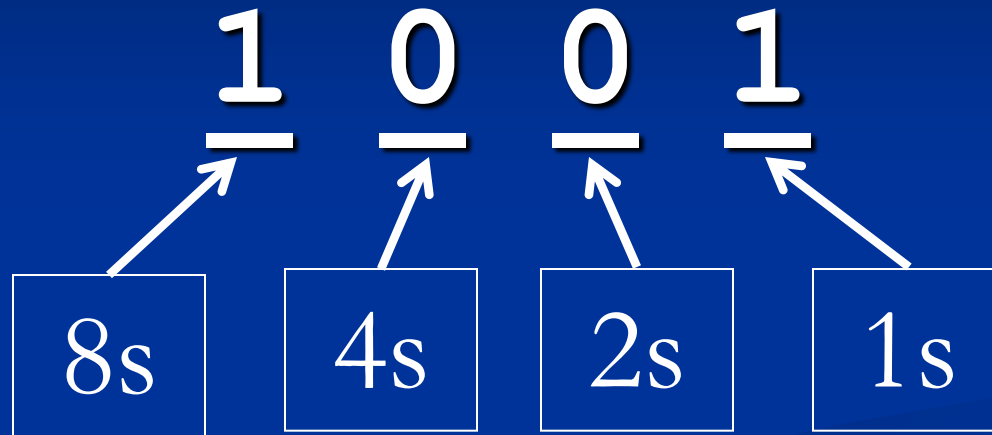
Ones place
Number of ones
 2^0

Twos place
Number of twos
 2^1

Counting to 7

■ Base Two	Base Ten
■ 0	0
■ 1	1
■ 10	2
■ 11	3
■ 100	4
■ 101	5
■ 110	6
■ 111	7

Four Bits Make a Nybble



Counting to 15

■ Base Two	Base Ten	Base Two	Base Ten
■ 0	0	1000	8
■ 1	1	1001	9
■ 10	2	1010	10
■ 11	3	1011	11
■ 100	4	1100	12
■ 101	5	1101	13
■ 110	6	1110	14
■ 111	7	1111	15