Do Now: Answer the following question:
           What system is the computer based on?

Topic: Binary
Main Idea: Working with Binary Numbers

What is a ***Binary Number***?

Recall your standard base10 number: 512

How do we *convert* a number in base 2 to base 10?   Example: Change 10 in base2 to base10

1._____

2._____

3._____

Practice: Change each base2 number to a base10 number:
1. 1101   2. 10111010   3. 00010101

How do we *convert* a number in base 10 to base 2?   Example: Change 254 in base10 to base2

1._____

2._____

3._____

Practice: Change each base2 number to a base10 number:
1. 126   2. 84   3. 350

Do Now: Change:
1. 10010 in base 2 to base 10

2. 89 in base 10 to a binary number

Topic: Binary
Main Idea: Adding/Subtracting Binary Numbers

How do we **add** two *binary numbers*?   Example: Add:
1._____   0 1 1 0 1
                                                                          + 1 0 1 1 1
2._____   _____

_____

3._____

     a)

     b)

Practice: Add the following numbers in base 2:

     1.   1010   2.   111   3.   101
        +1111   +111   +110

How do we **subtract** two *binary numbers*?   Example: Subtract
1._____   1 1 1 0 1
                                                                          + 1 0 1 1 1
2._____   _____

_____

Practice: Subtract the following numbers in base 2:

     1.   1010   2.   111   3.   101
       - 1111   - 111   - 110