



# unit 1

## More About the Naming Game & Ciphers

- fact: Since the computer doesn't understand our regular numbers, we must "name" these for the computer in binary, i.e., we even have to play the Naming Game for regular numbers!

# unit 1

Item	Computer Name (using one bit)
	0
	1

Item	Computer Name (using five bits)
5	0 0 1 0 1
2	0 0 0 1 0

- Def: A *decimal number* is the technical name given to our regular numbers.

# glossary

- Def: A *binary number* is the technical name given to numbers built from a collection of bits.

# unit 1

## Binary Number Examples

0 0 1 0 1

1 1

Made from  
only 1 or 0

## Decimal Number Examples

1 0 3 2

9 0 8 4

Made from  
any digit 0  
through 9

- fact: Now that we know about two different kinds of numbers—binary and decimal—things will might become very confusing!

# Activity - Reflection

- Prompt: is 11 a binary or decimal number? How do you know? How might we clear up this confusion when we write numbers?
- My responses:



- fact: When we speak, it's easy to tell what kinds of numbers we are talking about; when we write them, it can be very confusing.

11

If this is a binary  
number we say  
“one one”

If this is a  
decimal  
number, we  
say “eleven”

- fact: When we write we use *subscripts* to help us figure out what kind of number we are looking at.

11

If this is a binary  
number we write

$11_2$

If this is a  
decimal  
number, we  
write  $11_{10}$

- fact: The *subscript* reminds us that in binary numbers you have a choice of only **2** digits and in decimal numbers you have a choice of only **10** digits.