Serial Encapsulation

Indicies:	0	1	2	3
Data to be sent:	0x03	0x7E	0x5F	0x48

Encapsulating the Array:

Start with the Start Flag: 0x7E

Then iterate through the byte array to send, and add the bytes as you go:

Index 0: 0x7E 0x03

Index 1: 0x7E 0x03 0x7E *'--> Here we see the **0x7E** in the data, but to avoid the software from thinking this is the stop flag, we will escape it:* **0x7E --> 0b01111110**

Index 1 (escaped): 0x7E 0x03 0x7D 0x5E *'--> The escape character is inserted infront so we know the following value has been escaped* **0x20 --> 0b00100000**

Index 2: 0x7E 0x03 0x7D 0x5E 0x5F **0x7E XOR 0x20 --> 0b01011110**

Index 3: 0x7E 0x03 0x7D 0x5E 0x5F 0x48 **= 0x5E**

Finally add the Stop Flag: 0x7E 0x03 0x7D 0x5E 0x5F 0x48 0x7E

Serial Unencapsulation

Indicies:	0	1	2	3	4	5	6
Data to be received:	0x7E	0x03	0x7D	0x5E	0x5F	0x48	0x7E

Encapsulating the Array:

Start by removing the Start Flag

0x03	0x7D	0x5E	0x5F	0x48	0x7E

Then iterate through the byte array until you see the Stop Flag:

Index 1

0x03	0x7D	0x5E	0x5F	0x48	0x7E

Index 2

0x03	0x7D	0x5E	0x5F	0x48	0x7E

'--> Here is an escape character, so we need to remove it, and escape the following byte:

0x5E --> 0b01011110

Index 2 (escaped)

0x03	0x7E	0x5F	0x48	0x7E

0x20 --> 0b00100000

Index 4

0x03	0x7E	0x5F	0x48	0x7E

0x5E XOR 0x20 --> 0b01011110

Index 5

0x03	0x7E	0x5F	0x48	0x7E

= 0x7E

Hit the Stop Flag and remove it

0x03	0x7E	0x5F	0x48