

Information Packets for AUVs – A Classroom Simulation

Codes and secret messages seem like the tools of spies, but everything happening inside a computer consists of digital code in which groups of 8 bits make a “byte” of information. *Puma* and *Jaguar* communicate with 32-byte information packets.

The ship and the AUVs send the same information back and forth to each other again and again, so the structure of the information is always the same, like your mailing address. With an established structure, a lot of information can be relayed with 32 bytes.

How much can you communicate about yourself using 32 letters or numbers?

First, set up a list of specific information. Next, establish a key for all answers. Remember that for each byte, the computer can read one letter or number. Here is a list, but you can modify it. Many of the options could be expanded. Notice that computers start counting from 0.

Byte	Description	Key to Data Values
0	1 st Name (first letter)	– A - Z
1	(second letter)	- A - Z
2	(third letter)	- A - Z
3	2 nd Name (first letter)	- A - Z
4	(second letter)	- A - Z
5	(third letter)	- A - Z
6	My height (cm)	– digit (times 100 cm)
7		- digit (times 10 cm)
8		- digit (times 1 cm)
9	Hair color (key list)	- Black-1, Brown-2, Blond-3, Red-4, other-5)
10	How far I live from school (km) –	digit (times 10 km)
11		- digit (times 1 km)
12		- digit (times 0.1 km)
13	Color of my shirt or jacket	– red=R, orange=O, yellow=Y, green=G, cyan=C, blue=B, magenta=M
14	How I get to school	- walk=1, car=2, school bus=3, city bus=4
15	My lunch period	- number 1 - 9
16	Buying lunch or brought lunch–	buying=0, brought=1
17	What I brought for lunch	- sandwich: ham=H, chicken=B, cheese=C, other=O
18	(Buying – enter 0)	- chips=C, pretzels=Z, pickle=P
19		- coke=C, Pepsi=P, soda=S, milk=M, juice=J
20	My favorite class	– Engl=E, math=M, sci=S, hist=H, lang=L, other=O
21	Sport I participate in	- basebl=B, footbl=F, socc=C, lax=L, (List more)
22	Club I am in	- (Make a list)
23	What I am doing after school	- (Make a list)
24	Other – Set up the code for whatever you want to know. It is ok to have unused bytes.	
to		
31		

Name _____

Thirty Two Byte Information Packets

Fill in the information using the key list of code values. Each byte can contain one letter or one number.

Byte	Description	Code
0	First Name first letter	
1	second letter	
2	third letter	
3	Last Name first letter	
4	second letter	
5	third letter	
6	Height (cm) first digit	
7	second digit	
8	third digit	
9	Hair color	
10	How far I live from school first digit	
11	second digit	
12	third digit	
13	Color of my shirt or jacket	
14	How I get to school	
15	My lunch period	
16	Lunch - buy or brought	
17	What I brought for lunch sandwich	
18	chips, etc.	
19	drink	
20	My favorite class	
21	Sport I participate in	
22	Club I am in	
23	What I am doing after school today	
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Follow-up:

1. Cut off just the list of code values. See your personal profile in “code” form.
2. Cover up or omit your name. Shuffle and hand out papers. Guess whose paper you have.