

# The Binary Coder

Challenge Yourself! Rather than using the table in activity sheet 1, convert the letters of the alphabet yourself into binary code.

Let's see how!

Upper case letter	ASCII Dec Number	Lower case letter	ASCII Dec Number
A	65	a	97
B	66	b	98
C	67	c	99
D	68	d	100
E	69	e	101
F	70	f	102
G	71	g	103
H	72	h	104
I	73	i	105
J	74	j	106
K	75	k	107
L	76	l	108
M	77	m	109
N	78	n	110
O	79	o	111
P	80	p	112
Q	81	q	113
R	82	r	114
S	83	s	115
T	84	t	116
U	85	u	117
V	86	v	118
W	87	w	119
X	88	x	120
Y	89	y	121
Z	90	z	122

## Example:

### 1. Choose a word

Happy

### 2. Convert from ASCII dec numbers to Binary Code

Use the numbers in the top row of the table below. See which ones you can add to get the ASCII dec value. If you use one of those numbers, mark it as 1. If you do not use a number, mark it as 0.

$$H = 72 = 64 + 8$$

$$a = 97 = 64 + 32 + 1$$

$$p = 112 = 64 + 32 + 16$$

$$p = 112 = 64 + 32 + 16$$

$$y = 121 = 64 + 32 + 16 + 8 + 1$$

Letter	ASCII dec	128	64	32	16	8	4	2	1
H	72	0	1	0	0	1	0	0	0
a	97	0	1	1	0	0	0	0	1
p	112	0	1	1	1	0	0	0	0
p	112	0	1	1	1	0	0	0	0
y	121	0	1	1	1	1	0	0	1

### 3. Create your ornament!



### Take it to the next level!

Why not try and add the numbers in your head instead of using a calculator?