REDUCING COMPLEXITY PRINCIPLES

ABSTRACTION

UNDERSTANDING WHY WE USE ABSTRACTIONS

The binary is the language that computers read in. We don't have to worry about binary because high-level languages use abstractions. The languages do it for us behind the scenes.

Students will choose a word then use the ASCII table to find what the word would be in binary.

ASCII table

decimal	char	decimal	char	decimal	char
32	[space]	64	@	96	`
33	!	65	A	97	a
34	"	66	B	98	b
35	#	67	C	99	c
36	$	68	D	100	d
37	%	69	E	101	e
38	&	70	F	102	f
39	'	71	G	103	g
40	(	72	H	104	h
41	)	73	I	105	i
42	*	74	J	106	j
43	+	75	K	107	k
44	,	76	L	108	l
45	-	77	M	109	m
46	.	78	N	110	n
47	/	79	O	111	o
48	0	80	P	112	p
49	1	81	Q	113	q
50	2	82	R	114	r
51	3	83	S	115	s
52	4	84	T	116	t
53	5	85	U	117	u
54	6	86	V	118	v
55	7	87	W	119	w
56	8	88	X	120	x
57	9	89	Y	121	y
58	:	90	Z	122	z
59	;	91	[		
60	<	92	\		
61	=	93	]		
62	>	94	^		
63	?	95	_		

STEP 1

Pick a word. Preferably 5 – 8 characters long.

STEP 2

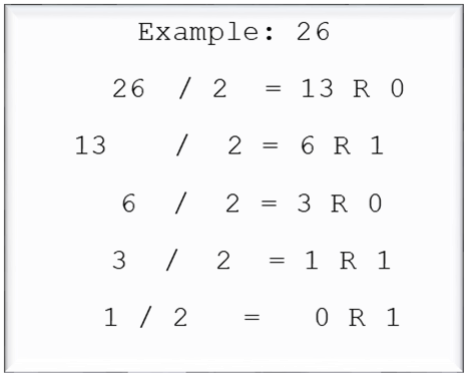
Find the decimal equivalent of each character according to the ASCII table.

STEP 3

Now convert each decimal into binary!

- To convert to binary:
  - Find the number you want to convert
  - Divide this number by 2
  - The remainder of the answer is what you will write down (it will be a 0 or 1)

- Take the answer of the first division and divide this number by 2
- Again, write down the remainder
- Repeat until you're at 0
- The number in binary will be read from bottom to top
    - For this example, 26 in binary is 11010



WHAT TO SUBMIT

Show the math for each letter on a piece of paper. At the end, write the word and what the word is in binary. Submit this piece of paper.