



Last Day Fun

Mind Games, Strategies & Code-Breaking

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history
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history

1. Light as a feather, there is nothing in it; the strongest man cannot hold it for much more than a minute. What is it?
2. The more there is, the less you see
3. What kind of room has no windows or doors?
4. I look at you, you look at me. I raise my right, you raise your left. What is this object?
5. What can run but never walks, has a mouth but never talks, has a head but never weeps, has a bed but never sleeps?
6. I went into the woods and got it, I sat down to seek it, I brought it home with me because I couldn't find it.
7. No sooner spoken than broken. What is it?
8. Why don't lobsters share?
9. Take off my skin, I won't cry but you will. What am I?
10. You answer me, although I never ask you questions. What am I?

The Baconian Cipher

- ⊙ This was invented by Sir Francis Bacon
- ⊙ It is a substitution cipher in which each letter is replaced by a sequence of 5 characters
- ⊙ These characters are a sequence of A's and B's

The Baconian Cipher

a: AAAAAA	h: AABBBB	o: ABBBBA	v: BABAB
b: AAAAAB	i: ABAAA	p: ABBBBB	w: BABBA
c: AAABA	j: ABAAAB	q: BAAAA	x: BABBB
d: AAABB	k: ABABA	r: BAAAB	y: BBAAA
e: AABAA	l: ABABB	s: BAABA	z: BBAAB
f: AABAB	m: ABBAA	t: BAABB	
g: AABBA	n: ABBAB	u: BABAA	

The Baconian Cipher

© Let's have a go:

AAABA-AAAAA-ABBAB BBAAA-ABBBA-BABAA
ABABA-AABAA-AABAA-ABBBB AAAAA
BAABA-AABAA-AAABA-BAAAB-AABAA-BAABB?

The Baconian Ciph



© Let's have a go:

CAN YOU KEEP A SECRET?

AAABA-AAAAA-ABBAB BBAAA-ABBBA-BABAA

ABABA-AABAA-AABAA-ABBBB AAAAA

BAABA-AABAA-AAABA-BAAAB-AABAA-BAABB?

The Baconian Cipher

© Want to try another one?

BABBA-AABBB-BBAAA AAABB-ABAAA-AAABB
BAABB-AABBB-AABAA
ABBBB-ABAAA-AAABA-BAABB-BABAA-BAAAB-AABAA
AABBA-ABBBA BAABB-ABBBA
ABAAB-AAAAA-ABAAA-ABABB?

The Baconian Cipher

© Want to try another one?

WHY DID THE PICTURE GO TO JAIL?

BABBA-AABBB-BBAAA AAABB-ABAAA-AAABB

BAABB-AABBB-AABAA

ABBBB-ABAAA-AAABA-BAABB-BABAA-BAAAB-AABAA

AABBA-ABBBA BAABB-ABBBA

ABAAB-AAAAA-ABAAA-ABABB?

The Baconian Cipher

© Solve this to find the answer:

AAAAB-ABAAA-AAABA-AAAAA-BABAA-BAABA-ABAAA
ABAAA-BAABB BABBA-AAAAA-BAABA
AABAB-BAAAB-AAAAA-ABBAA-ABAAA-AAABB!

The Baconian Cipher

© Solve this to find the answer:

BECAUSE IT WAS FRAMED!

AAAAB-AABAA-AAABA-AAAAA-BABAA-BAABA-AABAA
ABAAA-BAABB BABBA-AAAAA-BAABA
AABAB-BAAAB-AAAAA-ABBAA-AABAA-AAABB!



The Polybius Cipher

- ⦿ This is essentially identical to the substitution cipher except that each plaintext character is encrypted as 2 ciphertext characters
- ⦿ It can usually be detected if there are only 5 or 6 different characters in the ciphertext
- ⦿ A Polybius Square is required to decrypt this cipher

The Polybius Cipher

© Here is an example of a Polybius Square

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>A</i>	p	h	q	g	m
<i>B</i>	e	a	y	l	n
<i>C</i>	o	f	d	x	k
<i>D</i>	r	c	v	s	z
<i>E</i>	w	b	u	t	i

The Polybius Cipher

© Ready to give this one a go?

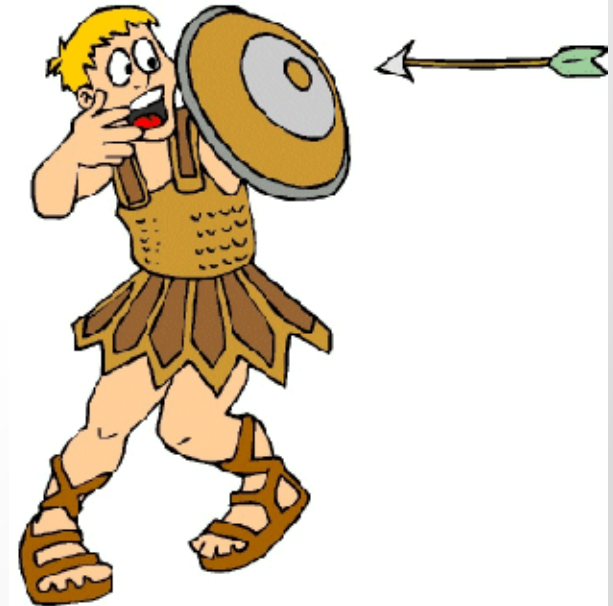
CC-BA-CB-BA-BE-CC ED-AB-BA BA-BB-DD-ED EA-BB-BD-BD CA-CB ED-AB-BA
DB-BB-DD-ED-BD-BA

The Polybius Cipher

© Ready to give this one a go?

DEFEND THE EAST WALL OF THE CASTLE

CCBACBBABECC EDABBA BABBDDED EABBBDBD CACB
EDABBA DBBBDDDEDDBA



The Polybius Cipher

© Time for another one:

EA-AB-BC BB-DA-BA CB-DA-CA-AD-DD DD-CA AB-BB-AA-AA-BC?

The Polybius Cipher

© Time for another one:

WHY ARE FROGS SO HAPPY?

EAABBC BBDABA CBDACAADDD DDCA ABBBAAAABC?

The Polybius Cipher

© If you want the answer you know what to do:

ED-AB-BA-BC BA-BB-ED EA-AB-BB-ED-BA-DC-BA-DA EB-EC-AD-DD
ED-AB-BA-AE!

The Polybius Cipher



© If you want the answer you know what to do

THEY EAT WHATEVER BUGS THEM!

EDABBABC BABBED EAABBBEDBADCBADA EBECADDD
EDABBAAE!

The Playfair Cipher

- ⦿ This is a manual symmetric encryption technique and was the first literal diagram substitution cipher
- ⦿ It was invented in 1854 by Charles Wheatstone but bears the name of Lord Playfair for promoting its use
- ⦿ The technique encrypts pairs of letters
- ⦿ It is also known as the Wheatstone-Playfair Cipher
- ⦿ We will use a Playfair Square to help us encrypt and decrypt messages

The Playfair Cipher

P	L	A	Y	F
I	R	E	X	M
B	C	D	G	H
K	N	O	Q	S
T	U	V	W	Z

The Playfair Cipher

- ⊙ Rules for decrypting are as follows:
 - ⊙ Pair letters together
 - ⊙ If the two letters are in the same row → shift each letter once to the left
 - ⊙ If the two letters are in the same column → shift each letter up one
 - ⊙ If the two letters are in different columns & rows → create a rectangle using these two letters as two corner points, the other two corner points are your encrypted letters

The Playfair Cipher

© Try decrypting this message:

MP AQL NLO'Z KYF KQIXZBRKQ CRBD, OQO'Z KYF OQZBRKD YV
PAA

The Playfair Cipher

© Try decrypting this message:

MP AQL NLO'Z KYF KQIXZBRKQ CRBD, OQO'Z KYF OQZBRKD YV
PAA

IF YOU CAN'T SAY SOMETHING NICE, DON'T SAY NOTHING AT ALL

