Rail Fence Cipher

The Rail Fence Cipher (also called a Zig-Zag Cipher) is a transposition cipher in which the letters of the original message (plaintext) are written over 2 or more lines in a zig-zag pattern. The letters are then rewritten from left to right in a now rearranged, coded (ciphertext) pattern.

In the example below, the message "Blunt pencils are pointless" is written using a zig-zag pattern on a 3-rail grid. (An optional "X" is written in the last box as a placeholder.)

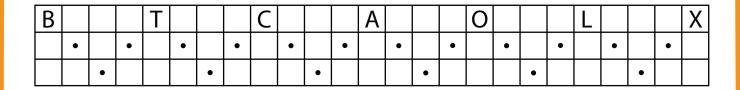| B			T			C			A			O			L			X
	L		N		P		N		I		S		R		P		I		T		E		S	
		U				E				L				E				N				S	

To encode - that is, to convert the plaintext message into ciphertext - rewrite your message now going from left to right starting from the top line. The new encoded message is now:

<div align="center">

BTCAOLX LNPNISRPITES UELENS

</div>

To decode using a grid, begin by counting how many letters in the encoded message. Our example has 25 letters. Lightly put a mark on 25 boxes that follow the zig-zag pattern for a 3-rail cipher (or however many rails your coded message uses).

•			•			•			•			•			•			•
	•		•		•		•		•		•		•		•		•		•		•		•	
		•				•				•				•				•				•	

Rail Fence Cipher

Beginning with the top left dot, replace each dot with letters from the encoded message, this time moving from left to right.

B			T			C			A			O			L			X
	•		•		•		•		•		•		•		•		•	
		•			•			•			•			•			•	

Continue filling in the letters on the second and third rows of the grid.

B			T			C			A			O			L			X
	L		N	P	N	I	S	R	P	I	T	E	S
		U			E			L			E			N			S	

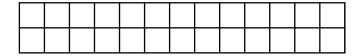Either read your message following a zig-zap pattern or rewrite it in a single line.

A rail fence cipher can have as little as 2 lines or as many as makes practical sense. When sending your secret messages, make sure the person reciving the message knows how many lines to decode. You can do this by either writing a number to let them know how many rails, or by keeping the coded message grouped in the same number of rails.

When encoded, our previous message was in three groups:
BTCAOLX   LNPNISRPITES   UELENS

Rail Fence Cipher

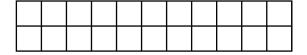Your turn! Decode the following messages using a rail fence cipher.

What did the dog say when asked what's two minus two? (2 rail fence cipher)

HSINTIG   EADOHN

What do you call someone with no body and no nose? (2 rail fence cipher)

NBDKOS   OOYNW

Why can't a nose be 12 inches long? (2 rail fence cipher)

IWUDEFO   TOLBAOT

Rail Fence Cipher
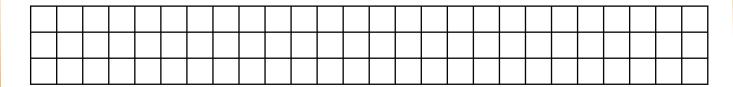
Why don't eggs tell jokes? (3 rail fence cipher)
TDCCHP   HYCAKAHTEU   EREOR

Why did the scarecrow win an award? (3 rail fence cipher)
HSSDISL   EAOTTNIGNIFED   WUANHI

Did you hear about the guy who invented the knock-knock joke?
(3 rail fence cipher)
HNNLI   EOTEOELRZ   WHBPE