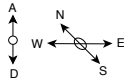


Hints

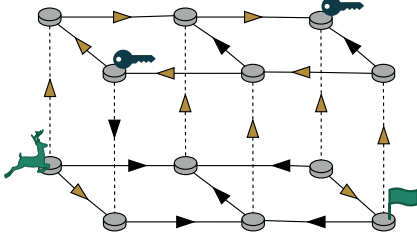
The GCHQ Christmas Challenge



Cyber Security



Rudolph needs to escape from this cyberspace maze by reaching the flag. He starts where indicated and can move North/East/South/West to points along the same layer, or he can Ascend/Descend between layers (as shown by the dashed lines).



He can only go in the direction of the arrows. If he touches a key, then ALL the gold arrows will swap direction. What is his shortest route to get to the flag – and can you describe it using one 7-letter word?



HINT: Rudolph has 3 possible directions to begin with. Following two of the routes takes you to the same place – and you will find you are stuck, so they must be wrong. Following the third route can also take you to the same place, so be careful.



Languages

If a French ailurophile fancies a chat, what does a Polish cynophile fancy?



HINT: If you don't know what an ailurophile or a cynophile are then look them up. Do you know what 'chat' means in French?



Coding

F	O	R
M	A	T
I	O	N

1. Replace all the blue cells with a letter from PART
2. Replace all the green cells with a letter from EYES
3. Replace all the gold cells with a letter from UNCURL

After each step you should have three 3-letter words in the rows of the grid, and you need to finish with a 9-letter word in the same formation as FORMATION.



HINT: After each step you must have 3-letter words in every row. Only one of FPR, FAR, FRR and FTR is a word, and similarly only one of PON, AON, RON and TON is a word. There's more than one possibility for the second row, so you should make a note of all the options and then see what happens when you do step 2.



Analysis

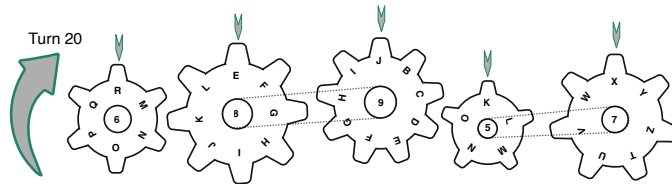
The Director has written his usual Christmas message, but now uncover the odd one out amongst the words forming these two sentences. It's odd because it's **not odd!**



HINT: Look closely at all the words in the question. Consider what might be 'odd' about them. Then find the one which isn't 'odd'.



Engineering



HINT: As the first gear turns, different letters come to the top position, under the arrow. Count carefully and note which one is at the top after 20 turns. As the first gear is turning clockwise, which way does the second gear turn? The third gear is attached to the second gear by a chain, so which way will that turn? In each case, count carefully and note which letter is at the top after 20 turns.



Codebreaking

xibu4xpset beesftt jt pvucpbse.hsje.sfkpjot



HINT: What do you think the first codegroup might represent? You might be able to find it on the card. See if you can work out how the encoding has been done.



Mathematics

If 2=GROWTH and 6=EXIST, then 9= what seven letter word which describes what you'll be doing with your presents on Christmas Day?



HINT: Look carefully and think why TWO is associated with GROWTH, and SIX with EXIST.

If you have all the answers but aren't sure what to do next, why not look at the front of the card whilst you're thinking?

#GCHQChristmasChallenge

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