GCHQ Christmas puzzle likely to be worked out before festive season

Spoiler alert: series of brainteasers and codes put online by spy agency to 'exercise grey matter over holiday period' has nearly been solved after one day

Perhaps being one of the country's leading cryptologists isn't so difficult after all.

When a mysterious puzzle was [posted on the website](#) of the government spy agency [GCHQ](#) on Wednesday, its creators presumably hoped it would continue to fox recipients well into the festive season.

But just 24 hours after the intriguing grid, devised by [GCHQ](#) analysts, appeared on the secretive body's website – with a promise that solving it would only unlock a series of increasingly complex brainteasers – a community of online puzzlers believe they have almost cracked the challenge.

By sharing tips on [the online bulletin board Reddit](#) a number of users have worked their way to the fifth and apparently final stage of the puzzle, uncovering head-scratching number sequences, impenetrable word grids and fiendish cryptic teasers on the way.

In a statement posted on the eavesdropping centre's website, the director, Robert Hannigan, said he hoped the puzzle – which was also included in official Christmas cards sent out by the agency this week – would "exercise the grey matter over the holiday period".

Those who crack the puzzle's final stage are invited to submit their answers to the agency, with GCHQ reassuringly saying: ["We're not expecting you to answer everything!"](#)

A winner will be drawn from the top-scoring entrants in early 2016.

A GCHQ spokesman said on Thursday night that while it was possible to reach the conclusion of the puzzle without alerting the agency, no successful entries had yet been submitted to a special email address.

Such was the interest in the puzzle, he said, that it had briefly knocked the agency's website out of action. There would be a prize for the winner but Hannigan had yet to decide what it would be. It will be "something small, not a trip around the world," the spokesman said. "It's just for fun."

The agency is inviting those who enjoy the puzzle to make a donation to the NSPCC.

PUZZLE ONE – THE 'SHADING' GRID

All the initial page reveals is that the grid, which lists strings of numbers alongside, is a "shading puzzle", with each square on the grid either black or white. "Complete the grid carefully with a black pen and check your answer is complete and correct before proceeding," it advises.

GCHQ puzzle one Photograph: GCHQ website/GCHQ

But what happens next? Those hoping to chew over the puzzle alongside their turkey are advised to look away now to avoid potential spoilers.

According to players on the Reddit thread – who also credit commenters under the Guardian story about the puzzle for unlocking one key sequence – the correct solution to part one reveals a QR code, a type of barcode which, when scanned by a smartphone, will take puzzlers to the next stage.

PUZZLE TWO – SEQUENCING

Part two requires players to solve a number of questions about sequences, asking, for instance, for the odd one out among the following list: MATURE, LOVE, WILDE, BUCKET, BECKHAM and SHAKA. As one commenter notes on the Reddit thread: "I enjoyed part 2 so much I don't want to ruin it for anyone."

Director GCHQ's Christmas Puzzle - Part 2

Congratulations on solving Part 1 of the Director's puzzle.

Part 2 consists of six multiple choice questions. You must answer them all correctly before you can move on to Part 3.

Q1. Which of these is not the odd one out?

A. STARLET
B. SONNET
C. SAFFRON
D. SHALLOT
E. TORRENT
F. SUGGEST

Puzzle 2 Photograph: GCHQ website/GCHQ
Similarly baffling questions in the second stage ask challengers to correctly identify the next letter in the sequence D, D, P, V, C, C, D, and predict what three-letter hashtag follows this garbled semaphore message: ZGJJQ EZRXM. Solving there and other questions unlocks part three, a cryptic round accessed via a URL revealed via the correct answers.

PUZZLE THREE – CRYPTIC CLUES

In the third round the answer to each of the four questions is a single word, which collectively form a URL leading to the fourth set of challenges. A sample question: "Samuel says: if agony is the opposite of denial, and witty is the opposite of tepid, then what is the opposite of smart?"

Director GCHQ's Christmas Puzzle - Part 3

Congratulations on solving Part 2 of the Director's puzzle.

Part 3 consists of four questions. The answer to each puzzle is a single word, which can be used to create a URL.

A. Complete the sequence:
   Buck, Cod, Dahlia, Rook, Cuckoo, Rail, Haddock, ?

B. Sum:
   $pest + \sqrt{(unfixed - riots)} = ?$

C. Samuel says: if agony is the opposite of denial, and witty is the opposite of tepid, then what is the opposite of smart?

D. The answers to the following cryptic crossword clues are all words of the same length. We have provided the first four clues only. What is the seventh and last answer?

   1. Withdraw as sailors hold festive sing-song
   2. It receives a worker and returns a queen
   3. Try and sing medley of violin parts
   4. Fit for capture
   5.
   6.
   7. ?

Submit your answers

To obtain instructions to the next part of the puzzle, please enter your answers here:

Word A	A
Word B	B
Word C	C
Word D	D

Check answer

Puzzle 3 Photograph: GCHQ webiste/GCHQ
The Samuel in question is Samuel Morse. The opposite of each word is derived by writing each word in morse code and swapping the dots and dashes, ignoring spaces. In this case ...--.-.-.- transforms to ---..-.-.-., which translates to "often" – the answer to the question and one of four words in the url of section four.

PUZZLE FOUR – THE IP ADDRESS

In part four, players are asked to find the missing number in three sequences, the solutions of which can be used to generate an IP address. The challenge proved the hardest to crack online, with several users opting to use "brute force" trial and error to guess to correct answers.

Director GCHQ's Christmas Puzzle - Part 4

Congratulations on solving Part 3 of the Director's puzzle.

Part 4 consists of three questions, the answers to which can be combined to make an IP address.

Find the missing number in the following sequences:

A. 2, 4, 8, 1, 3, 6, 18, 26, **?**, 12, 24, 49, 89, 134, 378, 656, 117, 224, 548, 1456, 2912, 4934, 8868, 1771, 3543, ...

B. -101250000, -1728000, -4900, 360, 675, 200, **?**, ...

C. 321, 444, 675, 680, 370, 268, 949, 206, 851, **?**, ...

Part 5 can be accessed via IP address **A.B.C**. Please check your answers below first.

Submit your answers

To obtain instructions to the next part of the puzzle, please enter your answers here:

Answer A	A
Answer B	B
Answer C	C

[Check answer]

Puzzle 4 Photograph: GCHQ website/GCHQ

All three sequences contain a string of numbers seemingly completely unrelated. The third and final question in the puzzle read simply: "321, 444, 675, 680, 370, 268, 949, 206, 851, ?" The answer, revealed by breaking the numbers into their three digits and sequences separately, was revealed as 208.

PUZZLE FIVE – THE FINAL TEST

Part five, according to a screengrab of the GCHQ web page posted by one user, is the final stage, in which users are asked to consider a grid of 55 words, and work out where one additional word, CYBER, should sit within it.

Director GCHQ's Christmas Puzzle - Part 5

Congratulations on solving Part 4 of the Director's puzzle.

Part 5 is the final stage. All answers take the form of a single word or string of letters.

Where

This question consists of a list of 55 words, plus one lone word. You have to work out where the lone word slots into the list. Each of the 56 words can be associated with another word (or partial word) and this second set of 56 words are in alphabetical order. The second set of 56 words divide up into seven sets of eight words, with the seven sets representing seven methods of pairing.

Where does the word CYBER fit into the following list? The list reads from left to right, top to bottom.

CAN	BANDIT	TRACT	HOLE	TROUT
MIDDLE	TED	CLONE	SEA	SWOOP
SALLY	CONSTANT	DESERT	ADAMS	SLIT
WONDER	TOWN	RUSSIA	LINCOLN	ARCHIPELAGO
FRONTAL	DOVE	BAND	NIGHT	LEICESTER
DADA	STAND	OIL	ZONE	BOUGHT
AUTO	PRIM	BLAISE	SECRET	ICECAP
ON	CHIC	MONTY	HONOURABLE	FI
THE	DELIGHT	TREADING	MISSION	CAIMAN
PERFECT	SON	SHERINGHAM	PONY	DELICATE
ICE	STREET	HERO	FILCH	NIP

The answer needs to be entered as three words, in this order: the associated word of the listed word that precedes CYBER, CYBER s associated word, and the associated word of the listed word that follows CYBER. The three words should be entered as a single string of text with no spaces.

Puzzle 5 Photograph: GCHQ website/GCHQ

By early evening on Thursday, no successful answers had been posted on the Reddit thread. The race, however, is unquestionably on.