



# The Phisher King Cipher Challenge

## Cybersecurity Awareness Month 2026

### What is a cipher?

Ciphers are puzzles that use an algorithm to encrypt and then decrypt text using a key. There are many different types of ciphers. They are common in capture-the-flag (CTF) games, which are cybersecurity competitions where players solve challenges to earn points. CTF games build real-world security skills in a safe environment.

### Premise

A shadowy figure known only as the Phisher King has spent the month probing the Commonwealth's defenses. Twenty-four intercepted messages, each stranger than the last, hold the story of his scheme. The only way to stop him is to decode each one.

### How to use

Challenge employees to complete the puzzles below. Solutions and step-by-step decode notes are in the answer key, starting on the page after the last puzzle. You may share the puzzles and accept submissions however works best for your agency. Some options include:

- Send out one puzzle a day via an internal communication mechanism. The first person to respond with the correct answer wins a prize or gains a point. People with the most points at the end of the month win a prize.
- Host a cipher-decoding event. Have teams work together to solve the ciphers. The first team to complete all the puzzles wins.
- Share all puzzles at once. The first five people to successfully solve all puzzles are crowned winners. Please note: Do not share this document with participants, as it includes the answer key at the bottom.

# The puzzles

## Puzzle 1: First Sighting [Very Easy]

Analysts on duty at the Commonwealth's central help desk field odd emails all traced back to a single shadowy figure calling himself the Phisher King. He's left his first calling card, shifted just enough to trip up the careless.

VSRWWHG

**Hint:** A classic shift cipher. Try sliding the alphabet a few letters.

## Puzzle 2: The Mirror Message [Very Easy]

A henchman drops a note that reads like gibberish. The Phisher King's favorite trick: swap every letter for its opposite end of the alphabet, A for Z, B for Y, and so on down the line.

NRILIVW

**Hint:** Atbash cipher: A becomes Z, B becomes Y, C becomes X, and so on. Mirror the alphabet, not the message.

## Puzzle 3: Numbers Don't Lie [Very Easy]

A string of numbers is scrawled on a sticky note stuck to the server room door.

4-5-3-15-4-5-4

**Hint:** A, B, C – easy as 1, 2, 3.

## Puzzle 4: Tapping in the Dark [Very Easy]

A rhythmic tapping echoes from the network closet: dots and dashes, over and over. Someone (or something) is calling for help the old-fashioned way.

... --- ... .... . -.-. -.-.

**Hint:** International Morse Code.

## Puzzle 5: Through the Looking Glass [Very Easy]

A mysterious note is taped to the inside of a glass door, so it reads correctly only from the other side.

KCABKOOL

**Hint:** The Phisher King wants you to look a different way.

## Puzzle 6: Zeros and Ones [Easy]

Intercepted network traffic from a spoofed domain resolves to nothing but a stream of binary. Somewhere in the noise is a warning.

01000010 01000101 01010111 01000001 01010010 01000101

**Hint:** Not all codes are encryptions. Ask the internet for help.

## Puzzle 7: Alpha Bravo Charlie [Easy]

A recovered radio transmission is nothing but a string of phonetic call words.

ALPHA LIMA ECHO ROMEO TANGO

**Hint:** This alphabet is used to avoid mishearing letters over radio, phone or other voice channels.

## Puzzle 8: Grid Reference [Easy]

A pair of numbers, over and over. Row, then column.

22 42 24 14 31 34 13 25

**Hint:** 5x5 Polybius square (Note: I/J share a cell)

## Puzzle 9: Shift Happens [Easy-Medium]

A captured henchman, sweating under questioning, blurts out: "He's always five steps ahead of where you're looking!" before smiling and refusing to say more.

XMNKYJI

**Hint:** This is a Caesar cipher, which moves letters a fixed number of steps.

## Puzzle 10: Keyword Required [Easy-Medium]

A recovered notebook page has one line circled twice in red ink: "The watchword is SHIELD." Whatever it unlocks, it's written just below.

LYIGVHV

**Hint:** This is a Vigenère cipher, which is a polyalphabetic substitution cipher that encrypts text by shifting each letter of the plaintext by a different amount, determined by a repeating keyword.

## Puzzle 11: Ride the Rails [Easy-Medium]

An old railway ticket stub found in the villain's coat pocket has letters scrawled in a zigzag down the margin: up, down, up, down.

OFRCFTAK

**Hint:** A rail fence cipher, two rails. Try writing the letters in a zigzag and reading the rows.

## Puzzle 12: Encoded Transmission [Easy-Medium]

A data dump surfaces on a forum known for trading stolen credentials. The text block looks like nonsense, unless you recognize the telltale padding at the end.

VU5QQUNLRUQ=

**Hint:** That trailing “=” is a giveaway. This is a Base64 cipher.

## Puzzle 13: Knock, Knock [Easy-Medium]

A slow, patient knocking comes through the server room wall. Pause, then more knocking. Someone trapped inside the Phisher King's scheme is signaling for help.

.. / .....    ... / ...    ... / .....    . / ...    .. / .....    ... / .....  
..... / .....    ..... / .....

**Hint:** This is not Morse code but tap code. Taps for the row, a pause, then taps for the column, in a 5x5 Polybius square (Note: I/J share a cell).

## Puzzle 14: Tape Recorder [Medium]

An ancient teletype machine in the sub-basement, long thought decommissioned, chatters to life and spits out a punched tape. A maintenance log nearby, dated decades ago, notes dryly: "had to ROT the backup feed 6 clicks after the last power surge."

01011010 01000111 01010110 01001011 01001010 01010101 01000001 01011010

**Hint:** Decode the tape (eight-bit binary) first. Then look again at that maintenance log — "ROT ... 6 clicks" is not idle chatter.

## Puzzle 15: Read Between the Lines [Medium]

Pinned to the corkboard, scrawled across a torn motivational poster reads: "Villains Always Underestimate Loyal Teams." Strange thing to post in a supply closet. Stranger still, right below it is a block of scrambled letters.

MEUOVGOMP

**Hint:** Sometimes keys are hidden in plain sight. Look for the indicators.

## Puzzle 16: Double Trouble [Medium]

A compromised laptop's memory dump contains a suspicious string sitting in plain hex. Decoding it once doesn't get you all the way there.

4c 49 42 54 53 57 49 48

**Hint:** Hex-decode first. What you get back still needs one more classic shift.

## Puzzle 17: Pairs and Squares [Medium-Hard]

A page torn from the villain's own notebook shows a 6x6 ... no, wait, a 5x5 grid of letters, with pairs of letters circled throughout. In the margin, "Always play fair" is underlined and one word is underlined twice: "SENTRY."

MCKTRAXL

**Hint:** Playfair cipher. Build the 5x5 grid starting with the keyword 'SENTRY' (Note: I/J share a cell), then decode two letters at a time.

## Puzzle 18: Rearranged [Medium-Hard]

A whiteboard in an abandoned office is covered in scrambled text, arranged in neat columns. Someone has written "ARMOR" next to "AMORR" at the top and circled it, like they were in the middle of explaining something when they had to run.

UADSBXCLXNMXREX

**Hint:** Columnar transposition. The keyword "ARMOR" determines the order columns were read in; alphabetizing the keyword's letters to find the original column order.

## Puzzle 19: Hidden in Plain Sight [Medium-Hard]

A perfectly ordinary office memo is pinned to the door. Nothing about the wording seems suspicious until you stop reading the words themselves and start reading just their first letters. The memo below is exactly as posted.

Inspectors need proof logged after inspections. Notify staff, include general helpers today.

**Hint:** Read just the first letter of every word, in order.

## Puzzle 20: Exclusive Or [Medium-Hard]

A fragment of malware recovered from a sandboxed machine is garbled beyond recognition, pure hex. A comment left in the code (clearly the Phisher King couldn't resist showing off) reads: "the key to life, x OR the universe."

6f7269667f79637c6f

**Hint:** The comment is a nod to a famous number (galaxy hitchhiking comes to mind). Convert that number to a single byte and XOR it against the hex.

## Puzzle 21: The Final Grid [Hard]

Blueprints for the Phisher King's lair are recovered taped to the back is a WWI-era field cipher grid labeled "BASTION" alongside a second word, "WATCH," written in a different hand.

AFDDXDGDDGAXXGGFXFD

**Hint:** ADFGX cipher: a 5x5 grid keyed with 'BASTION' (Note: I/J share a cell) labeled A/D/F/G/X on rows and columns, then a columnar transposition keyed with "WATCH". Undo the transposition first, then the grid.

## Puzzle 22: Key Within a Key [Hard]

The villain's final riddle left folded inside an empty safe: "I am the first thing you turn before anything opens. Four letters, and you already know me."

VSAMREGP

**Hint:** The riddle's answer is the seed for an autokey Vigenère cipher. After that, the plaintext itself becomes the key, one letter at a time.

## Puzzle 23: Needle in the Haystack [Hard]

Pages of a rambling, oddly worded "villain monologue" are left behind. Most security professionals would skim right past it.

You really never saw this empire coming, did everyone doubt me down in that little office of errors? Every firewall fell before my own design, and unless someone clever notices my deepest darkest secret, nothing stops me now.

**Hint:** A null cipher. Most of the text is decoy. Try reading only every third word.

## Puzzle 24: The Long Chain [Hard]

A single transmission "relay" went through three separate dead-drop servers before anyone caught it. Each hop scrambled it a little more. Whatever it says, the Phisher King really didn't want this one read.

--- .-- --- .-. --- .-. .-. --- -.- .- .- .... -....

**Hint:** Three layers worked backward: Morse first, then a mirror-alphabet cipher, then a keyword cipher. The keyword describes what this puzzle IS.

# Answer key

Solutions and steps for each puzzle

## Puzzle 1: First Sighting [Very Easy]

- This is a Caesar cipher (simple alphabet shift).
- Shift each letter back by three: VSRWWHG -> SPOTTED.

**Solution: Flag: SPOTTED**



- Taking the first letter of each word: ALPHA LIMA ECHO ROMEO TANGO -> ALERT.

**Solution: Flag: ALERT**

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### **Puzzle 8: Grid Reference [Easy]**

- Polybius square, 5x5, I/J combined, standard A-Z fill order.
- Each pair is (row, column): 22 42 24 14 31 34 13 25 -> GRIDLOCK.

**Solution: Flag: GRIDLOCK**

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### **Puzzle 9: Shift Happens [Easy-Medium]**

- Caesar cipher; the shift amount (five) is embedded in the henchman's quote (five steps).
- Shifting back by 5: XMNKYJI -> SHIFTED.

**Solution: Flag: SHIFTED**

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### **Puzzle 10: Keyword Required [Easy-Medium]**

- Vigenère cipher with keyword "SHIELD" (given directly in the story).
- Decoding letter-by-letter against the repeating keyword: LYIGVHV -> TRACKED.

**Solution: Flag: TRACKED**

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### **Puzzle 11: Ride the Rails [Easy-Medium]**

- Rail fence cipher, two rails.
- Reassembling the zigzag pattern: OFRCFTAK -> OFFTRACK.

**Solution: Flag: OFFTRACK**

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### **Puzzle 12: Encoded Transmission [Easy-Medium]**

- Standard Base64 encoding.
- Base64-decoding the string: VU5QQUNLRUQ= -> UNPACKED.

**Solution: Flag: UNPACKED**

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### Puzzle 13: Knock Knock [Easy-Medium]

- Tap code (row taps/column taps) over the standard 5x5 Polybius grid.
- Converting tap counts to grid coordinates: .. / ..... .. / ... .. / .... . / ... .. / ..... .. / ....  
.... / ..... .... / .... -> KNOCKOUT.

**Solution: Flag: KNOCKOUT**

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### Puzzle 14: Tape Recorder [Medium]

- Layer 1: Eight-bit binary -> ASCII text.
- Layer 1 result: ZGVKJUAZ
- Layer 2: the maintenance log's "ROT 6" is the embedded clue: a Caesar shift of six.
- Shifting back by six: ZGVKJUAZ -> TAPEDOUT.

**Solution: Flag: TAPEDOUT**

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### Puzzle 15: Read Between the Lines [Medium]

- The poster's first letters spell the hidden Vigenère keyword: Villains Always Underestimate Loyal Teams -> VAULT.
- Decoding with keyword 'VAULT': MEUOVGOMP -> READCLOSE.

**Solution: Flag: READCLOSE**

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### Puzzle 16: Double Trouble [Medium]

- Layer 1: hexadecimal -> ASCII text.
- Layer 1 result: LIBTSWIH
- Layer 2: Caesar shift of four was applied on top -- shift back.
- LIBTSWIH -> HEXPOSED.

**Solution: Flag: HEXPOSED**

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### Puzzle 17: Pairs and Squares [Medium-Hard]

- Playfair cipher, keyed grid built from "SENTRY".
- Decoding letter-pairs against the grid: MCKTRAXL -> PAIREDUP.

**Solution: Flag: PAIREDUP**

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### Puzzle 18: Rearranged [Medium-Hard]

- Columnar transposition, keyword "ARMOR" sets the column read order.
- Rebuilding the grid and reading row-by-row: UADSBXCLXNMXREX -> UNSCRAMBLED.

**Solution: Flag: UNSCRAMBLED**

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### Puzzle 19: Hidden in Plain Sight [Medium-Hard]

- This is an acrostic: the first letter of every word spells the message.
- Taking the first letter of each word in order: Inspectors need proof logged after inspections notify staff include general helpers today -> I-N-P-L-A-I-N-S-I-G-H-T.
- Spelling out: INPLAINSIGHT.

**Solution: Flag: INPLAINSIGHT**

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### Puzzle 20: Exclusive Or [Medium-Hard]

- XOR cipher, single-byte key. The riddle's answer is 42 (0x2A).
- XORing each byte of the hex against 0x2A: 6f7269667f79637c6f -> EXCLUSIVE.

**Solution: Flag: EXCLUSIVE**

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### Puzzle 21: The Final Grid [Hard]

- Step 1: undo the columnar transposition (keyword 'WATCH') to recover the A/D/F/G/X letter-pairs.
- Step 2: look up each pair in the grid keyed with "BASTION."
- Result: FIELDGRADE.

**Solution: Flag: FIELDGRADE**

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### Puzzle 22: Key Within a Key [Hard]

- The riddle's answer is "LOCK" (the seed).
- Autokey Vigenère: decode the first letters using the seed, then each decoded plaintext letter extends the keystream for the next.
- Result: KEYCHAIN.

**Solution: Flag: KEYCHAIN**

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### Puzzle 23: Needle in the Haystack [Hard]

- Null cipher: take the first letter of every third word (words 3, 6, 9, ...).
- Extracted letters: NEEDLEFOUND
- Spelling out: NEEDLEFOUND.

**Solution: Flag: NEEDLEFOUND**

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### Puzzle 24: The Long Chain [Hard]

- Layer 1: Morse code -> letters.
- Layer 1 result: GOORORROXIAHB
- Layer 2: Atbash (A<->Z, B<->Y...).
- Layer 2 result: TLLILIILCRZSY
- Layer 3: Vigenère, keyword "RELAY" (the puzzle's own theme is the hint).
- TLLILIILCRZSY -> CHAINREACTION.

**Solution: Flag: CHAINREACTION**

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