





 +  = 

 +  = 

 +  = 

Time Left: 420 s

Served: 2

Exit Game



COMMAND

ARGUMENT 1

ARGUMENT 2

Transfer

Worm

Olive

Prepare

Cherry

Worm

Bake

Olive

Cherry

Cast Spell

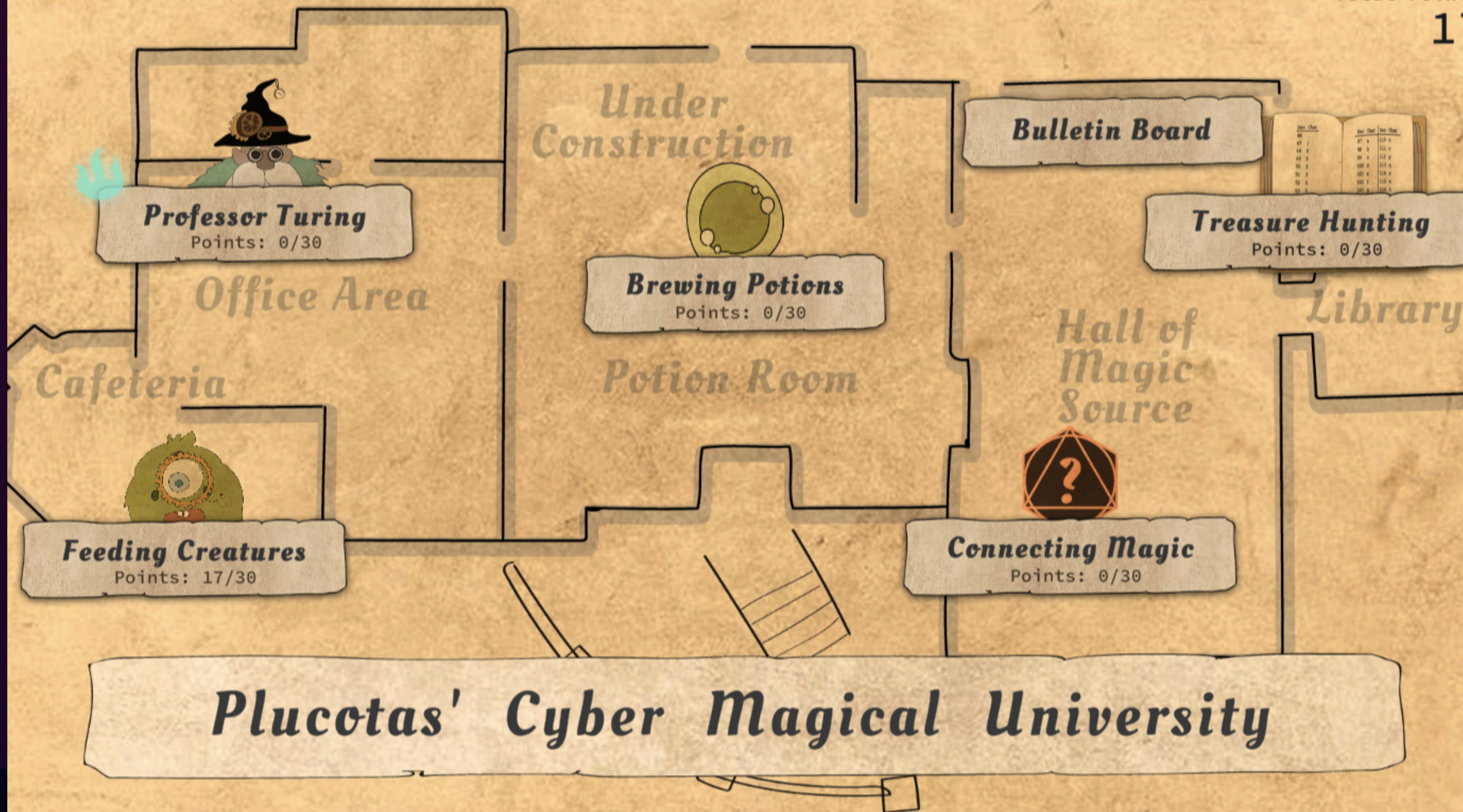
Q/A

W/S

E/D

Enter









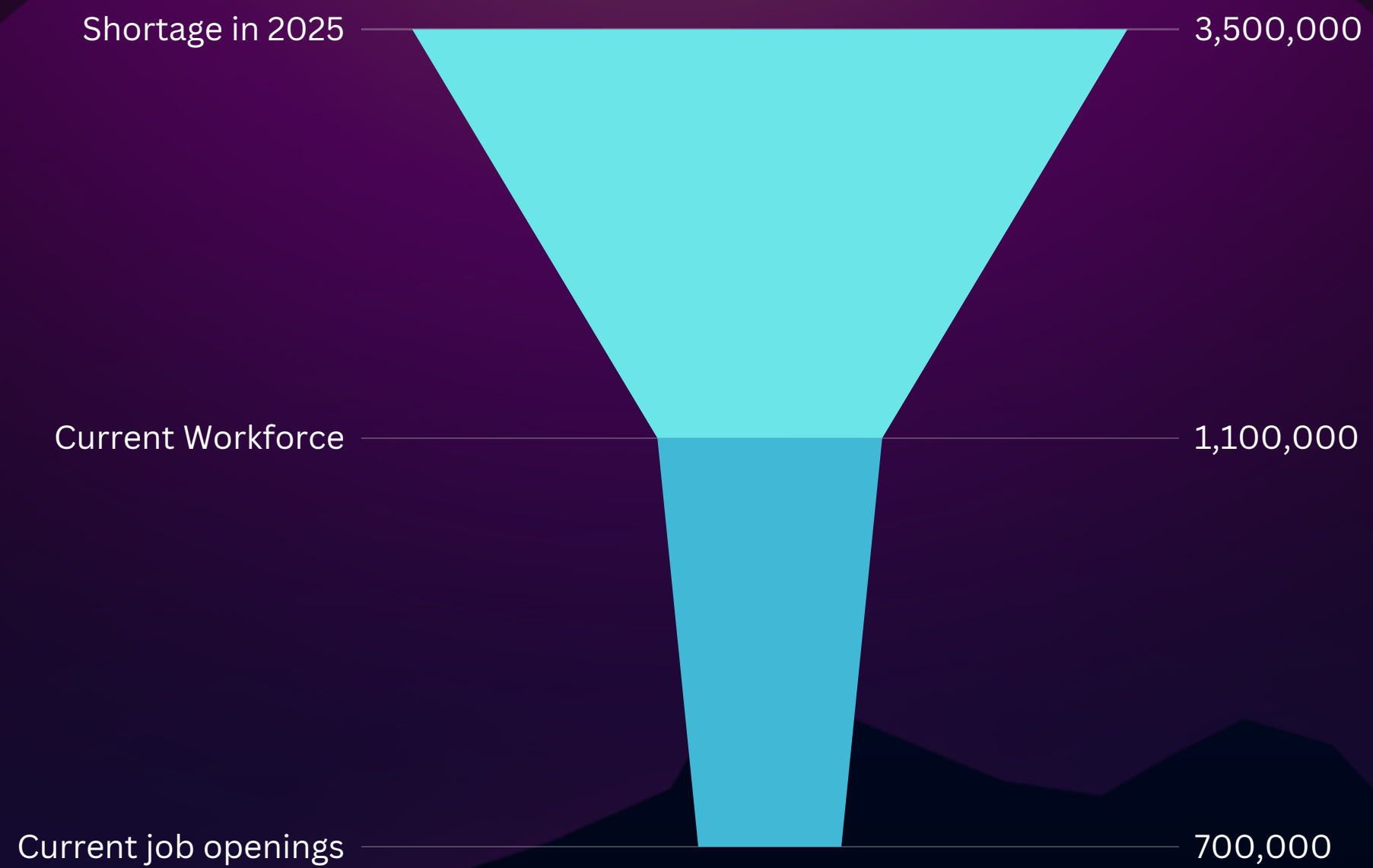
# TEACHING CYBERSECURITY

GAMIFYING THE EDUCATION SYSTEM

Weijia Yan, Carnegie Mellon University



# TALENT SHORTAGE





# HOW DO WE TEACH CYBER AND RETAIN TALENT?





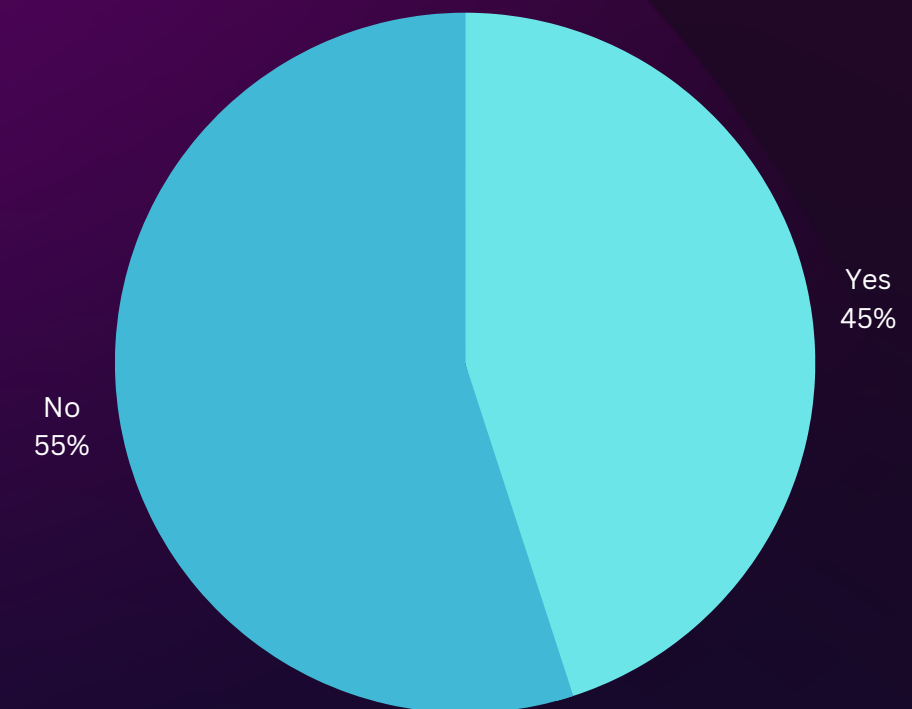


# STUDENT'S PERSPECTIVE



# LIMITED EXPOSURE

K-12 Students learning security

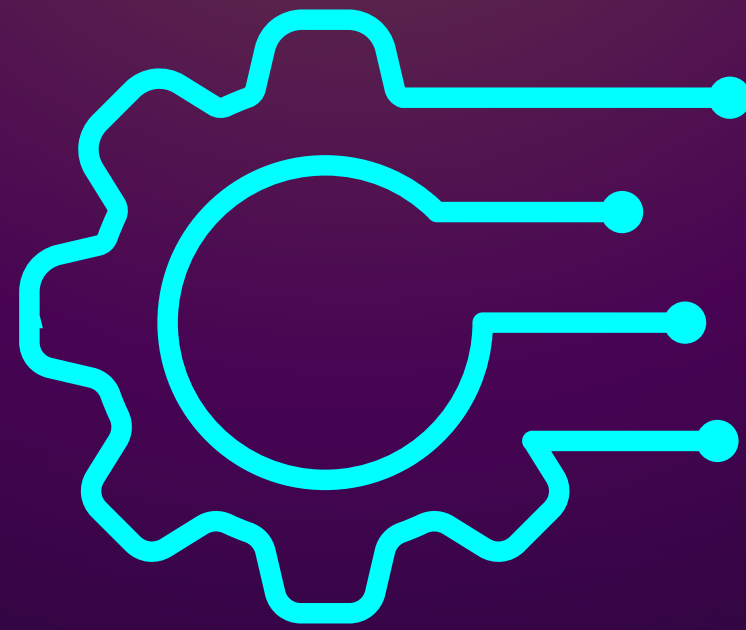






ACADEMIA



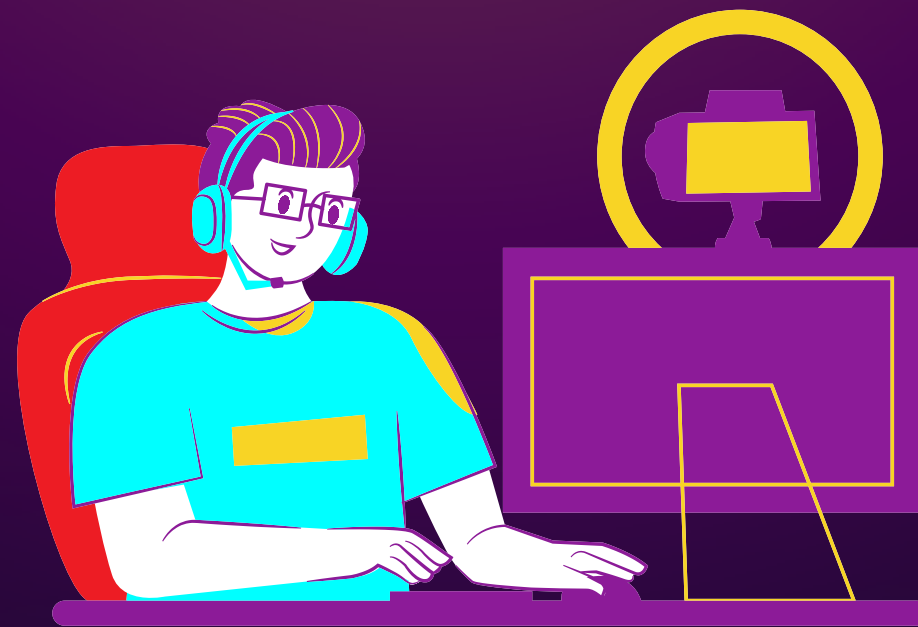


SPECIALIZATIONS

# OTHER STUDENTS







# CTF ON GAMIFYING SECURITY



# WHAT ARE CTFs?





Question

Mod 26



Tags:

picoCTF 2021

Cryptography

AUTHOR: PANDU

Description

Cryptography can be easy, do you know what ROT13 is?

`cvpbPGS{arkg_gvzr_V'yy_gel_2_ebhaqf_bs_ebg13_uJdSftmh}`

101,655 solves / 104,271 users attempted (97%)



picoCTF{FLAG}

Flag

Google

what is ROT13



All

Images

Videos

News

Shopping

More

Tools

About 148,000 results (0.41 seconds)

[https://en.wikipedia.org](https://en.wikipedia.org/wiki/ROT13) > wiki > ROT13

**ROT13 - Wikipedia** ✓

ROT13 is a simple letter substitution cipher that replaces a letter with the 13th letter after it in the alphabet. ROT13 is a special case of the Caesar ...

[Description](#) · [Usage](#) · [Letter games and net culture](#) · [Implementation](#)



VIEW

Ciphertext ▾

cvpbPGS{arkg\_gvzr\_V'yy\_gel\_2\_ebhaqf\_bs\_ebg13\_uJdSftmh}

ENCODE DECODE

ROT13 ▾

VARIANT

☐ ROT5 (0-9)

☒ ROT13 (A-Z, a-z)

☐ ROT18 (0-9, A-Z, a-z)

☐ ROT47 (!~)

→ Decoded 54 chars

VIEW

Plaintext ▾

picoCTF{next\_time\_I'll\_try\_2\_rounds\_of\_rot13\_hWqFsgzu}

↑  
Flag

# Jeopardy-Style CTF

Categories →

Difficulty ↓

| Categories | Cryptography                 | Basic Knowledge | Reverse engineering | Network security | Program Exploitation | Forensics |
|------------|------------------------------|-----------------|---------------------|------------------|----------------------|-----------|
|            | Caesar Cipher<br>10 pts      | ...             | ...                 | ...              | ...                  | ...       |
|            | Frequency analysis<br>20 pts | ...             | ...                 | ...              | ...                  | ...       |
|            | RSA Encryption<br>40 pts     | ...             | ...                 | ...              | ...                  | ...       |
|            | RSA Low Exponent<br>100 pts  | ...             | ...                 | ...              | ...                  | ...       |

Credit: David Brumley on How the Best Hackers Learn Their Craft





# CTF IMPLEMENTATION





# CTFS IN CLASSROOM



# CTFS IN COMPETITIONS

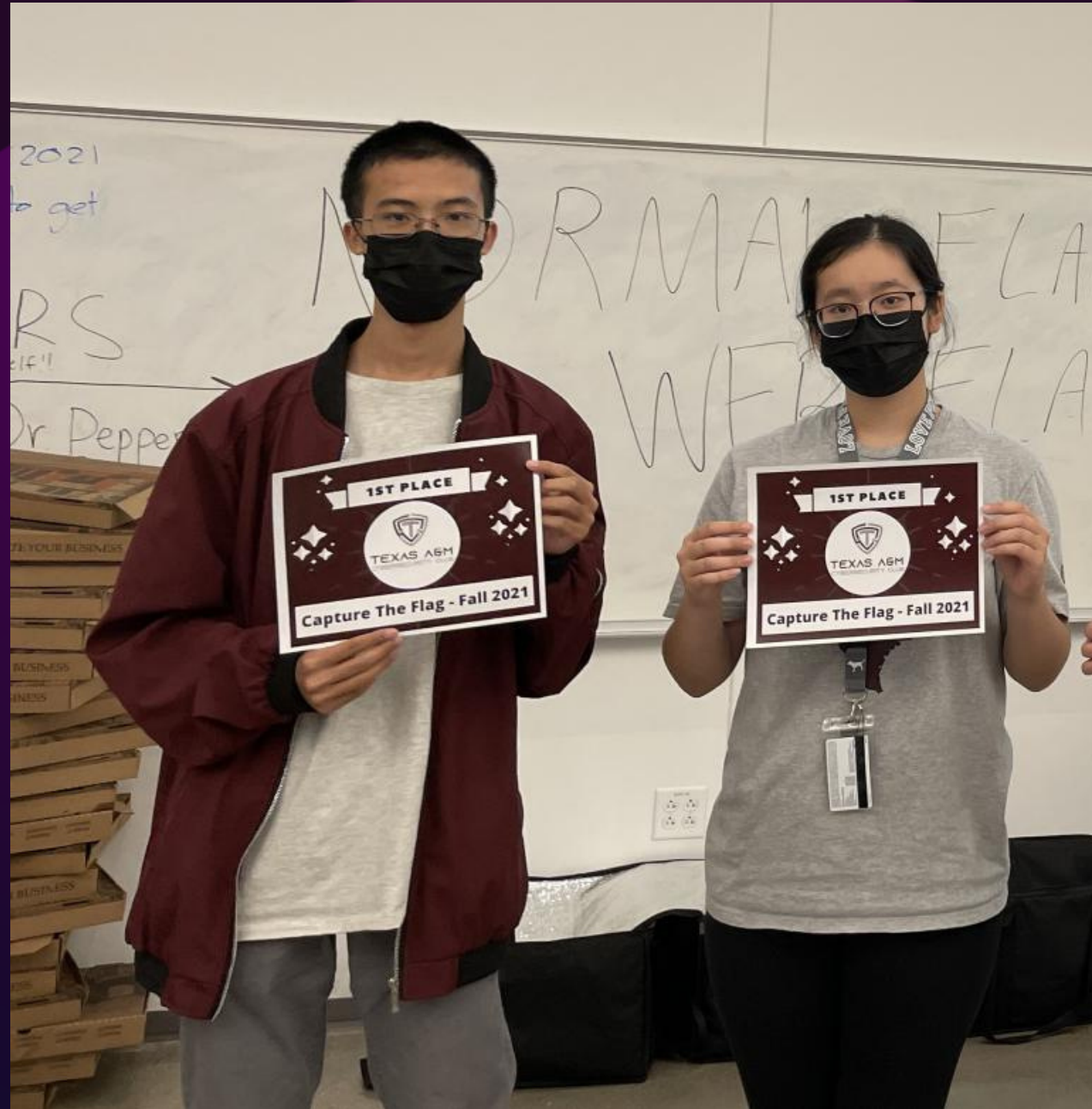




# CTF IN COMMUNITIES

Play with clubs, classmates, friends...







# USE CASES

Teachers

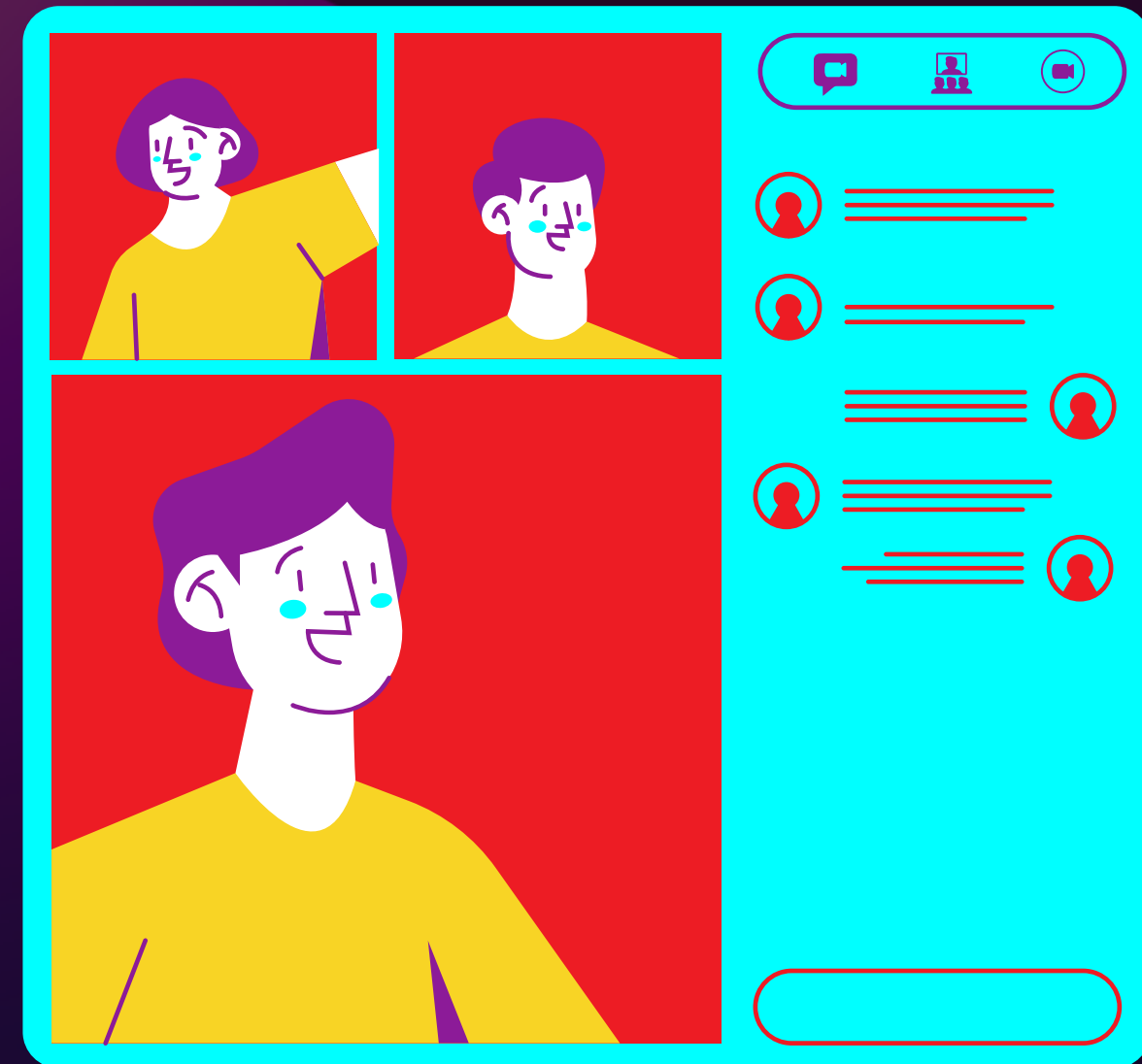
High School Students

Parents

Clubs

Career Pivot

Everyone who wants to get into cyber!





# YOUR EXPERIENCE WITH CTFS





PLAY PICO TOGETHER!





# pico Game



picoCTF.org



# LINKS:

picoCTF: <https://picoctf.org/>

pico Game: <https://game-cdn.picoctf.org/2022/latest/WebGL/WebGL/index.html>

External Resources: <https://picoctf.org/resources.html>







# SHARE YOUR RESOURCES





# NEXT STEPS





## COMMUNITY

332,500 Users

Africa, Japan, Canada, and the US

Largest in the World!

# picoCTF



THANK YOU