Purpose of the Coaches Manual for the National Cyber Cup by CYBER.ORG

This manual will provide competition information for coaches and help them to prepare their students to compete in the *National Cyber Cup by CYBER.ORG.* We've compiled advice and tips from teachers, coaches, and former competitors to help guide team sponsors. The *National Cyber Cup by CYBER.ORG* is more than a competition, it is an opportunity for students to learn more about cybersecurity!

The 2024 Competition

There are **two** competition divisions for the 2024 *National Cyber Cup by CYBER.ORG:*
- 4-8 grade, Intermediate division
- 9-12 grade, High school division

Students can only compete in their grade level division- they cannot compete up or down.

The competition is a two-day event scheduled for April 3-4, 2024. The competition begins on April 3, 2024, at 7:00 AM Eastern and will remain open until 10:00 PM Eastern on April 4, 2024. After the challenges close on April 4, the judges will review the final scores to confirm the top three winning schools. Winning schools will be notified by the competition organizer and announced on social media. A participation certificate template will be emailed to the coaches to distribute as desired for students who compete.

Winning Schools

The scoreboard will show the top teams. The schools that these teams are associated with will be recognized as winning schools. A school will only be recognized once as a winning school. For example, if Cyber High School Team 3 has the highest score on the scoreboard, Cyber High School Team 1 has the second highest score on the scoreboard, STEM High School Team 8 has the third highest score, and Innovation High School has the fourth highest score, then the top three winning schools recognized will be Cyber High, STEM High, and Innovation High.

Important Dates
- March 19 - Last day for Coaches and School/Teams to register.
- March 21 - Last day for parents to register their child/student for the competition.
- March 22 - Last day for coach to create and edit teams.
- April 3 - Competition begins at 7:00 AM Eastern.
- April 4 - Competition closes at 10:00 PM Eastern.

Building a Competition Team

In each division, teams can consist of **one** to **four** students. Keep the following in mind as teams are selected:
- Each team must be sponsored and registered by a coach/team sponsor. A coach must be an adult, such as a certified teacher or other school district employee, who oversees registration activities and receives and relays all communications regarding the *National Cyber Cup by CYBER.ORG.*
- A coach may be a teacher, club leader, or other adult leader (cannot be a student at the school).
- Participants and coaches must be citizens within the United States or territories.
- Teams are designated by the coach at registration.
- All students will be registered on a team. This includes students who are working individually (team of one).
- Students on a team should be able to problem solve together.
- Students on a team will need to communicate with each other throughout the competition.

IKeepSafe

The *National Cyber Cup by CYBER.ORG* has received iKeepSafe COPPA Safe Harbor Certification. This certification ensures that our practices surrounding collection, use, maintenance, and disclosure of personal information from children under the age of 13 are consistent with principles and requirements of the Children's Online Privacy Protection Act (COPPA). More information can be found here: https://ikeepsafe.org/products/

Registration
https://registration.nationalcybercup.org/

Registration process:
1. Registration guides for coaches and parents are provided at https://cyber.org/national-cyber-cup Please review these documents carefully.
2. Coaches must first register themselves and their school/organization.
3. After coach registration is complete, coaches will receive a coach code and access to their team dashboard.
4. This coach code should be given to parents along with the registration URL. Parents must complete registration for their child. **Coaches cannot register students, and students should not register themselves.**
5. After students have been registered, they will appear in your coach dashboard. Coaches can move them into teams.
6. Coaches can make adjustments to teams from the start of registration through March 22, 2024. Modifications to teams cannot be made after March 22, 2024. Any student who has not been placed on a team by the coach will be moved to a team of one.
7. The coach's dashboard will show usernames and passwords for students. These are randomly generated. Coaches are responsible for distributing this information to teams.
8. Continue to check https://cyber.org/national-cyber-cup. We will have a link to the competition site here when it is available.

Equipment/Supplies required to compete in the National Cyber Cup by CYBER.ORG

- A computer, laptop, or tablet with internet connection.
- For the High School division, the CYBER.ORG Range can be used to solve challenges, but is not required. Teachers can apply for a range account here: https://apps.cyber.org/apply
  - If you need help getting a CYBER.ORG Range account, please contact apps@cyber.org
- Additional resources may be needed for competition. A list will be released to coaches prior to competition.
  - This may include printouts or easy to source materials (can of Pringles).

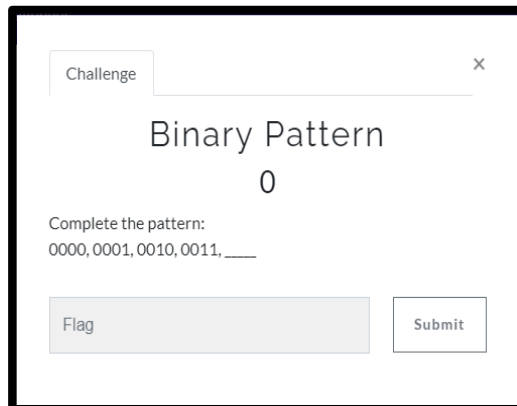## National Cyber Cup by CYBER.ORG Challenges and Earning Points

Our Cybersecurity Learning Standards can be used as a topical guide to prepare. More information on the standards can be found at: https://cyber.org/standards

Challenges are grouped by the following categories:

Computing Systems (CS)	Digital Citizenship (DC)	Security (SEC)
Communication and Networking	Online Safety	Information Security
Network Communication (COMM)	Cyberbullying (CYBL)	CIA Triad (CIA)
Network Components (COMP)	Digital Footprint (FOOT)	Access Control (ACC)
Cloud Computing (CC)	Public and Private Information (PPI)	Data Security (DATA)
Protocols (PROT)	Ethics	Threats and Vulnerabilities (INFO)
Data Loss (LOSS)	Threat Actors (THRT)	Cryptography (CRY)
Hardware	Ethical Integrity (ETH)	Network Security
Network Hardware Components (HARD)	Policy and Legal Issues	Authentication (AUTH)
Internet of Things (IOT)	Rules, Laws, and Regulations (LAW)	Securing Network Components (COMP)
Operating Systems (OS)	Intellectual Property (IP)	Threats and Vulnerabilities (NET)
Software	Usage and User Agreements (AUP)	Physical Security
Software Updates (SOFT)		Threats and Vulnerabilities (PHYS)
Programming and Scripting (PROG)		Security Controls (CTRL)
Applications (APPS)		

These are examples of challenges that participants may see in each division.

❖ **Intermediate**

Challenge ✕

Binary Pattern

0

Complete the pattern:
0000, 0001, 0010, 0011, ____

Flag   Submit

❖ **High School**

Challenge ✕

Exif Data

0

Find out where the picture was taken.

The flag should be submitted as: cyber{____}

Why would they do this???
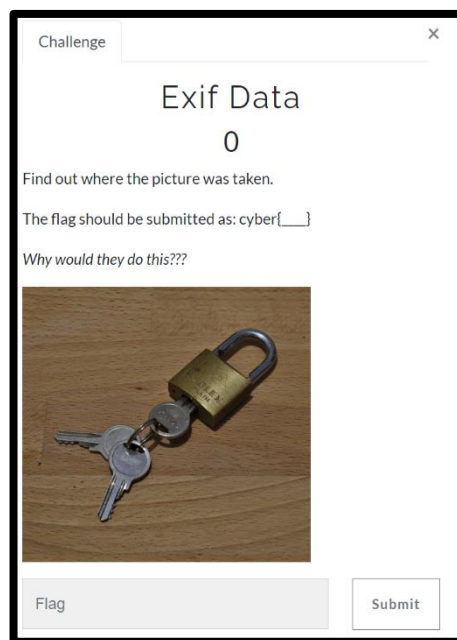
Flag   Submit

- The point value of each challenge is located directly under the challenge title.
- Flags, or solutions/answers, should be submitted in the following format: cyber{answer}
- High school level flags are case sensitive.
- Intermediate level challenges are *not* case sensitive.

Live Score Board
- During the competition, teams can view their score and ranking on the live scoreboard.
- If teams are tied by points, time is the automatic deciding factor for ranking according to the scoreboard. This means the team that submitted the correct flag earlier is ranked higher on the scoreboard. This does not determine final rankings.

Practice Site

The practice site can be accessed at https://practice.ctfcyber.org/. It is designed to be a resource that team sponsors should utilize to help students prepare for the competition. The practice site has examples of some of the types of challenges that students will encounter during the competition. There are different types of challenges for each division, and the site will remain open throughout the school year. Some challenges are accompanied with hints and/or suggestions to solve.

The practice site can be used in different ways:

- The practice site can familiarize students on how to submit flags(answers). Sometimes entered flags must be identical to the correct flag. This includes spacing, punctuation, and case. If a student feels that the entered flag is correct, they should try different variations of the same answer.
- Skills required for this competition can be taught during class time. Some challenges found on the practice site will have further information detailing how to solve them or how they work. The team sponsor can teach a short lesson to familiarize students. However, the team sponsor should not solve the practice challenges for students. Part of being successful during this competition is learning how to solve problems and troubleshoot.
- Students can go through the practice site and attempt to solve challenges while making a list of challenges that are more difficult for them. The list can be used as a guide for challenge types to research/practice.
- Tips for success on the practice site
    1. Students should read the challenges thoroughly and review possible answers before attempting to solve a challenge.
    2. Some challenges will have hints that are provided underneath the challenge itself.
    3. Check the resource page (Intermediate)

Intermediate Division Resource Page

The Intermediate division is designed with the intent for students NOT to use Internet search engines to find answers. To help protect students, a virtual resource page will be available to these divisions during the competition. The required information will often be linked on the resource page, but some challenges will require students to think outside of the box.

While the resource page will be designed to eliminate a student's need to search the internet for information, teachers, coaches, and sponsors must provide their own supervision while students are online with the competition. The competition environment has no way of preventing students from navigating elsewhere on the internet.

Competition Etiquette for the National Cyber Cup by CYBER.ORG
- Competition challenges should only be answered by students during all events.
- The role of the team sponsor is to guide students and encourage perseverance throughout the competition.
- All participants should have the opportunity to learn how to work through these challenges.

Competition Rules and Regulations for the National Cyber Cup by CYBER.ORG

- All competition challenges will be released at the start of NCC on April 4.
- Challenges may be hidden behind challenges. This means that a new challenge may not display until a prerequisite flag is submitted. These challenges will not be identified to participants.
- Flag submissions that contain threatening language will be reported to the participant's team sponsor and may result in immediate disqualification from this event.
- There is a place for participants to submit questions to the event organizers. Responses to questions that *can be answered* will be sent to the team's adult sponsor of that school. Event organizers will not communicate directly with students.
- Participants should not add identifying information such as school/organization or contact email to their user profile.
- Answers to challenges are not released after competition. Any conduct by participants and/or team sponsors that the judges determine to conflict with the overall mission of the competition will be further analyzed and could result in actions taken including disqualification.