Cybersecurity Competitions

Cybersecurity competitions are interactive, scenario based events or exercises, either in person or virtual, where individuals or teams engage in cybersecurity activities. These activities include methods, practices, strategy, policy and ethics. Competitions encourage players to practice, hone cybersecurity skills, and build confdence in a controlled, real-world environment. They are available for all ages and levels, from as young as elementary school to those considered experts in the feld. Achievements may be measured and evaluated against a large field of competitors. While they are not the only method for educating, developing skills, and measuring performance, cybersecurity competitions play an integral role in stimulating interest at all levels in the field and developing a pipeline of resources to fill cybersecurity roles.

Local, state, regional, national, and international competitions can be found today in a variety of formats ranging from face-to-face, virtual, or a combination of both. Numerous major competitions, including the National Collegiate Cyber Defense Competition, CyberPatriot, National Cyber League, and US Cyber Challenge, hold virtual qualifier rounds, while some even organize the final competitions in person. These events may vary in duration, spanning from a single day to a sequence of events throughout the year.

Cybersecurity Competitions may have different areas of focus including:

- Secure Coding
- Cybersecurity Policy
- Cryptography
- Forensics
- Malware Detection
- Social Engineering
- System Hardening
- System Administration
- Web Application Exploitation
- Reverse Engineering
- Incident Response
- Network Traffic Analysis
- And More...!

Description: Athlete at the International Cybersecurity Competition
Photo Credit: US Cyber Games

Cybersecurity Competitions have proven to[1,2,3]:

- Encourage ethical practice and skill development in a controlled, legal environment
- Present authentic circumstances where students can apply theory and protocol skills learned in formal educational environments
- Provide access to mentoring, resources, and potential employers
- Provide access to scholarships, internships, and job opportunities
- Offer an opportunity to identify talent
- Contribute to the knowledge-base of practitioners to resolve current issues, develop new tools, technologies, and methodologies
- Provide anytime-anywhere learning opportunities for individuals (from middle school to college and on to professionals and career changers)
- Contribute to curriculum and educator capacity to meet employer and national security needs
- Increase on-going knowledge of the work of cybersecurity professionals

Visit nist.gov/nice to learn more about the Cybersecurity Skills Competition Community of Interest.

[1] *https://www.usenix.org/system/files/ onference/3gse14/3gse14-vigna.pdf*
[2] *https://www.usenix.org/system/files/ onference/3gse14/3gse14-mirkovic.pdf*
[3] *https://www.usenix.org/system/files/ onference/3gse14/3gse14-davis.pdf*