NICE

NATIONAL INITIATIVE FOR CYBERSECURITY EDUCATION

NIST CYBER

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NICE/NIST, US Department of Commerce

Working Groups

Communities of Interest				
K12	Competitions	Apprenticeships	Framework Users	Research

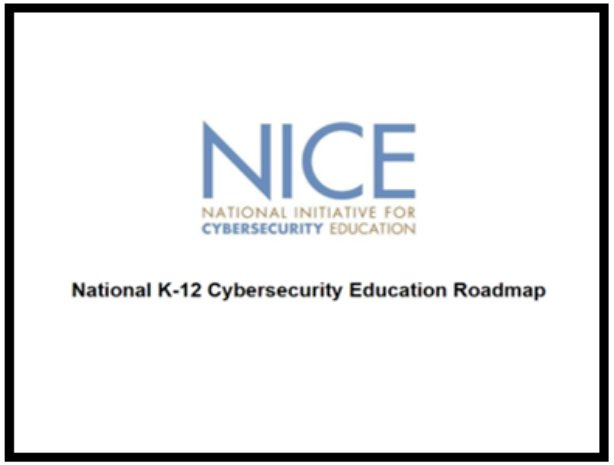

Some of the efforts the K12 group has and continues to work on
A
B
DESIGN
EARCH

materials that can be used to inspire cybersecurity career awareness with students in elementary school, stimulate cybersecurity career exploration in middle school, and enable cybersecurity career preparedness in high school. View the full project charter here.

- **K12 Cybersecurity Educational Instructional Professional Development (PD) Series** - Determining the professional development needs of K-12 educators in delivering K-12 cybersecurity content and outlining best practices for delivering cybersecurity instruction in the K-12 setting that have proven effective in similar disciplines. View the full project charter here.

Accomplishments:

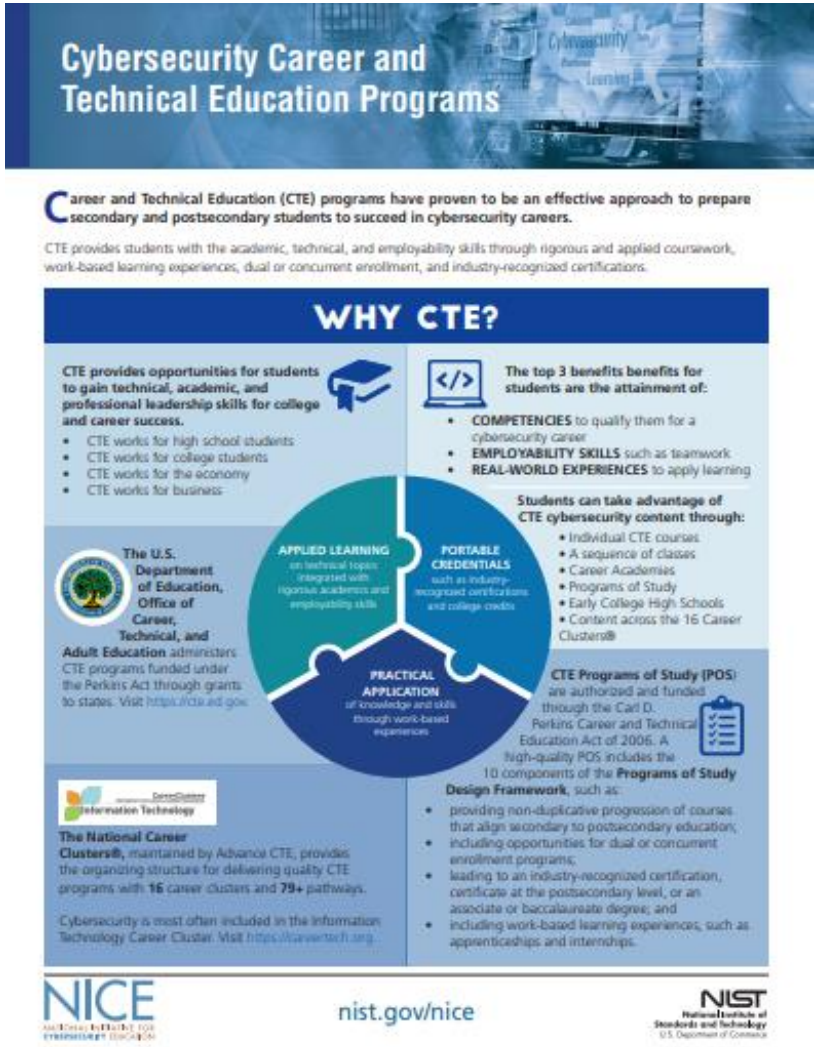
- Development of the K12 Cybersecurity Career Awareness for School Counselors and Administrators one pager
- Development of the Cybersecurity Career Awareness Key Talking Points flier
- Development of the Why Consider a Career in Cybersecurity Key Talking Points flier
- NICE Strategic Plan review
- Development of the K12 Implementation Plan (2016-2020)
- Development of Synergy between Cybersecurity and Computer Science one pager
- Review and recommendations on cybersecurity concepts in the Computing Science Framework
- Review and recommendations on cybersecurity concepts in the Computer Science Teacher's Association (CSTA) Standards refresh
- Development of K12 Cybersecurity Competitions one pager
- Review and input to the Joint Task Force on Cybersecurity Education Cybersecurity Curricula 2017 (CSEC v.5)
- Curation of known K12 educational resources for at-home use
- Development of Career and Technical Education Report outline
- Development of the K12 Cybersecurity Education Roadmap



https://www.nist.gov/itl/applied-cybersecurity/nice/community/community-coordinating-council/k12-cybersecurity-education

Active Programs:

- National Cybersecurity Career Awareness Week for K12 audience
- K12 Cybersecurity Education Conference planning



One Pagers: **https://www.nist.gov/itl/applied-cybersecurity/nice/resources/one-pagers**

FINAL

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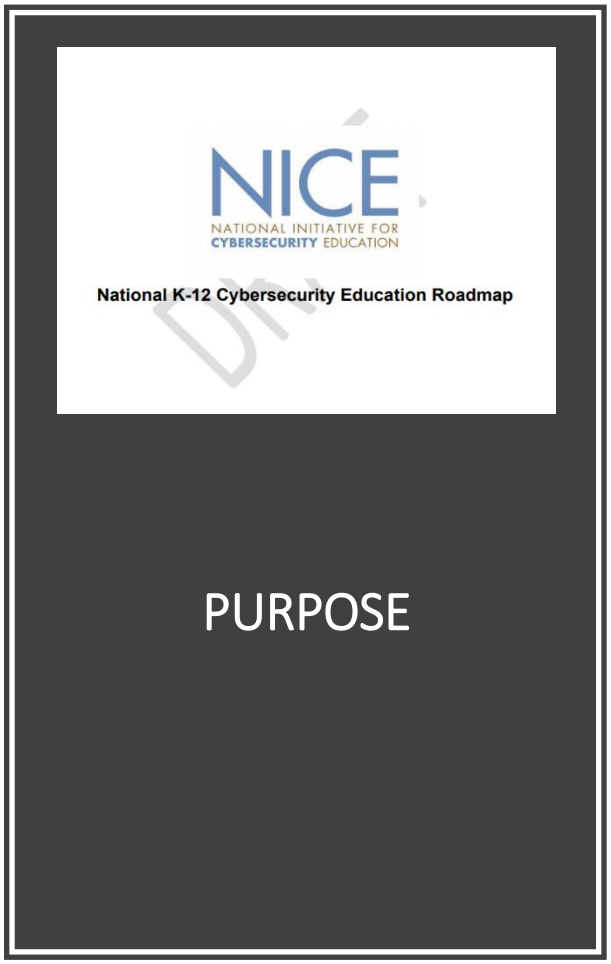
National K-12 Cybersecurity Education Roadmap

nist.gov/nice

*The **K12 Cybersecurity Education Roadmap** establishes a coordinated, coherent portfolio of National K-12 Cybersecurity Education activities so that efforts and assets are deployed effectively and efficiently for greatest potential impact. The intent is to encourage a more deliberate focus among new and existing efforts and create synergies among programs and agencies.*



PURPOSE

WHAT?	Document establishing a coordinated, coherent portfolio of National K-12 Cybersecurity Education activities.
WHY?	Allows efforts and assets to be deployed effectively and efficiently for greatest potential impact.
HOW?	Encourages a more deliberate focus among new and existing efforts and create synergies among programs and agencies.

Five Elements of the ROADMAP

1. **Increase Cybersecurity Career Awareness:** *Grow and sustain youth and public engagement in promoting cybersecurity career awareness and exploration*

2. ***Engage Students Where Disciplines Converge:*** *Identify, design, and share cybersecurity resources for the future STEM and cybersecurity workforce*

3. **Stimulate Innovative Educational Approaches:** *Enrich K-12 cybersecurity education instruction*

4. **Promote Cybersecurity Career Pathways:** *Cultivate youth pursuing cybersecurity or cybersecurity related credentials (e.g., diplomas, degrees, certificates, certifications, badges)*

5. **Prioritize Research:** *Enhance efficiency and effectiveness of K12 cybersecurity programs and instructional practices*

K12 Cybersecurity Education ROADMAP

How are your cybersecurity K12 efforts encompassed in the Roadmap?

NICE Goals & Objectives	K-12 ROADMAP Strategy		Action or Tactics	Measure/s & Metric/s or Success Indicators
Increase Cybersecurity Career Awareness: *Grow and sustain youth and public engagement in promoting cybersecurity career awareness and exploration*				
Collaboration, coordination, and communication are part of the NICE SP Mission and Values	1.1	Communicate the value and purpose of a national K12 cybersecurity education strategy (i.e., the K12 Cybersecurity Education Roadmap) and the need for engagement	Review and analyze previous K12 Implementation Plan. Convene multiple stakeholders to provide input on development of new K12 Cybersecurity Education Roadmap Engage leadership and other stakeholders on the value of cybersecurity education and programs as critical enablers of the nation's K12 ecosystem missions, requirements, and technology superiority and support stakeholders through strategic communications resources.	**INDICATOR:** Completion of environmental scan of activities and resources aligned to previous K12 Implementation Plan. **INDICATOR:** Completion of report highlighting environmental scan of activities and resources aligned to previous K12 Implementation Plan. **INDICATOR:** Completion of K12 Roadmap.

1.1, 1.2, 1.4	1.3	Support effective co-curricular experiences (e.g., ***competitions, camps, clubs, boy/girl scouts***, etc.) for youth that excites them about careers in cybersecurity and introduces them to the corresponding career pathways	Promote increased partnerships between academia, industry and government for STEM and Cybersecurity initiatives and activities. Identify and track current programs and best practices that attract, retain, and network the cybersecurity professionals and share them across the K12 ecosystem.	**INDICATOR:** Increased number of, and enrollment in, different types of cybersecurity or cybersecurity related programs. **INDICATOR:** Increased levels of cooperation and collaboration among the universities, community and private colleges, schools, competitions, museums, clubs, businesses and other groups.
1.1, 1.2, 1.4, 1.5	1.4	Improve the ***appeal*** and understanding of the cybersecurity work roles and promote participation of ***underserved groups in*** cybersecurity activities and education programs to support diversity, equity, and inclusion	Build on the marketing plans of existent initiatives and efforts to promote cybersecurity and other STEM professions, including teaching as valued and important. Improve upon the inventories that have begun through existent initiatives to make accessible and frequently updated records of programs and resources	**INDICATOR:** Improved student achievement (participation in STEM/cybersecurity competitions, camps, clubs, challenges, majors, course selection, course completions,) notably a particular gain made by students of underrepresented minorities **INDICATOR:** More proportional
1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 4.4, 5.4	4.2	Support and promote cybersecurity career preparedness for students through a variety of learning pathways (e.g., Career Technical Education-CTE, Programs of Study-POS, youth apprenticeship, pre-apprenticeship, PTECH, early college programs, and other "alternative" opportunities)	Increase number of rigorous programs for CTE POS Network security Measure success for Prep programs: research best practices, develop rubric, track programs, curate programs in cyberroots project directory or other tracking mechanism Partner with CTSO and individual programs to – help them know more about cybersecurity and cybersecurity work roles (NICE Framework) FBLA, TSA, BPA, SkillsUSA etc, create resources for students and educators Create mentorship and speaker's bureau to help CTSO students and programs Increase national level uniformity – development and dissemination of rubric or "checklist" for best practices Create and disseminate resources highlighting multiple program options Allowed CIP codes flex because no one CIP Research and disseminate list of CIP and SOC codes What do people really want from their program? Creation of instance reports	**INDICATOR:** Increase in the number of students enrolling and completing or graduating in cybersecurity or cybersecurity related programs, apprenticeships, or majors at community colleges and universities, certifications, and other boot camps or stackable credentials, notably including an increase in participation of students from underrepresented groups. **INDICATOR:** Development of asset map tracking CTE programs, numbers, students enrolled, etc. **INDICATOR:** Increased supply of highly qualified cybersecurity ready workforce.

Join us


SAVE THE DATE
NICE K12
CYBERSECURITY EDUCATION
CONFERENCE
DECEMBER 6-7, 2021

Categories

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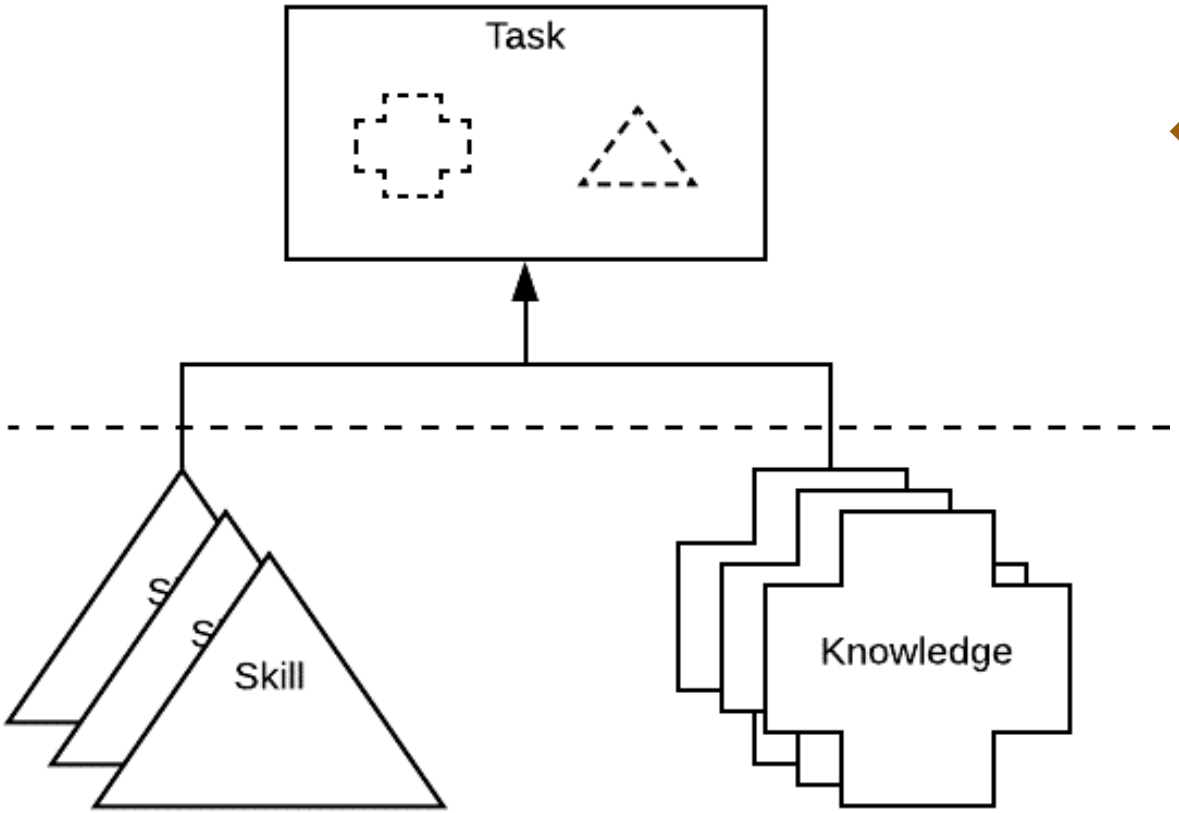
Building Blocks: Tasks, Knowledge, and Skills (TKS)



Describes the Work

Describes the Learner

Table 6 - NICE Framework Skills Descriptions

Skill ID	Description
S0001	Skill in conducting vulnerability scans and recognizing vulnerabilities in security systems.
S0002	Skill in allocating storage capacity in the design of data management systems.
S0003	Skill of identifying, capturing, containing, and reporting malware.
S0004	Skill in analyzing network traffic capacity and performance characteristics.
S0005	Skill in applying and incorporating information technologies into proposed solutions.
S0006	Skill in applying confidentiality, integrity, and availability principles.
S0007	Skill in applying host/network access controls (e.g., access control list).
S0008	Skill in applying organization-specific systems analysis principles and techniques.
S0009	Skill in assessing the robustness of security systems and designs.
S0010	Skill in conducting capabilities and requirements analysis.
S0011	Skill in conducting information searches.
S0012	Skill in conducting knowledge mapping (e.g., map of knowledge repositories).
S0013	Skill in conducting queries and developing algorithms to analyze data structures.
S0014	Skill in conducting software debugging.
S0015	Skill in conducting test events.
S0016	Skill in configuring and optimizing software.
S0017	Skill in creating and utilizing mathematical or statistical models.
S0018	Skill in creating policies that reflect system security objectives.
S0019	Skill in creating programs that validate and process multiple inputs including command line arguments, environmental variables, and input streams.
S0020	Skill in developing and deploying signatures.
	Skill in designing a data analysis structure (i.e., the types of data a test must generate and

Operate and Maintain

Analyze

Collect and Operate

Securely Provision

Protect and Defend

Investigate

Oversee and Govern

Cybersecurity Career Awareness Week

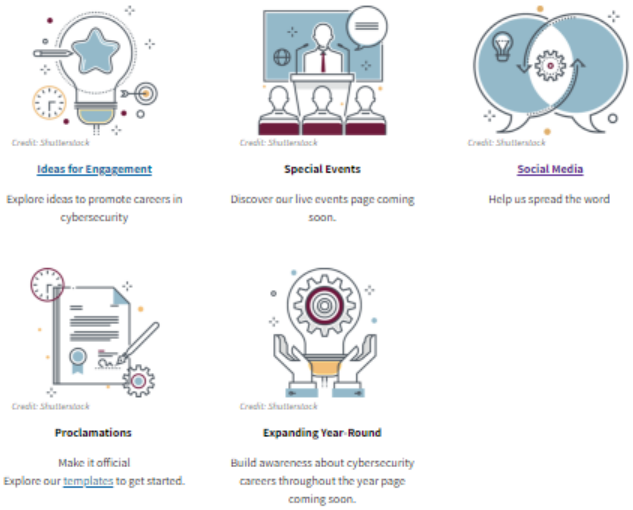
CALL FOR COMMITMENTS

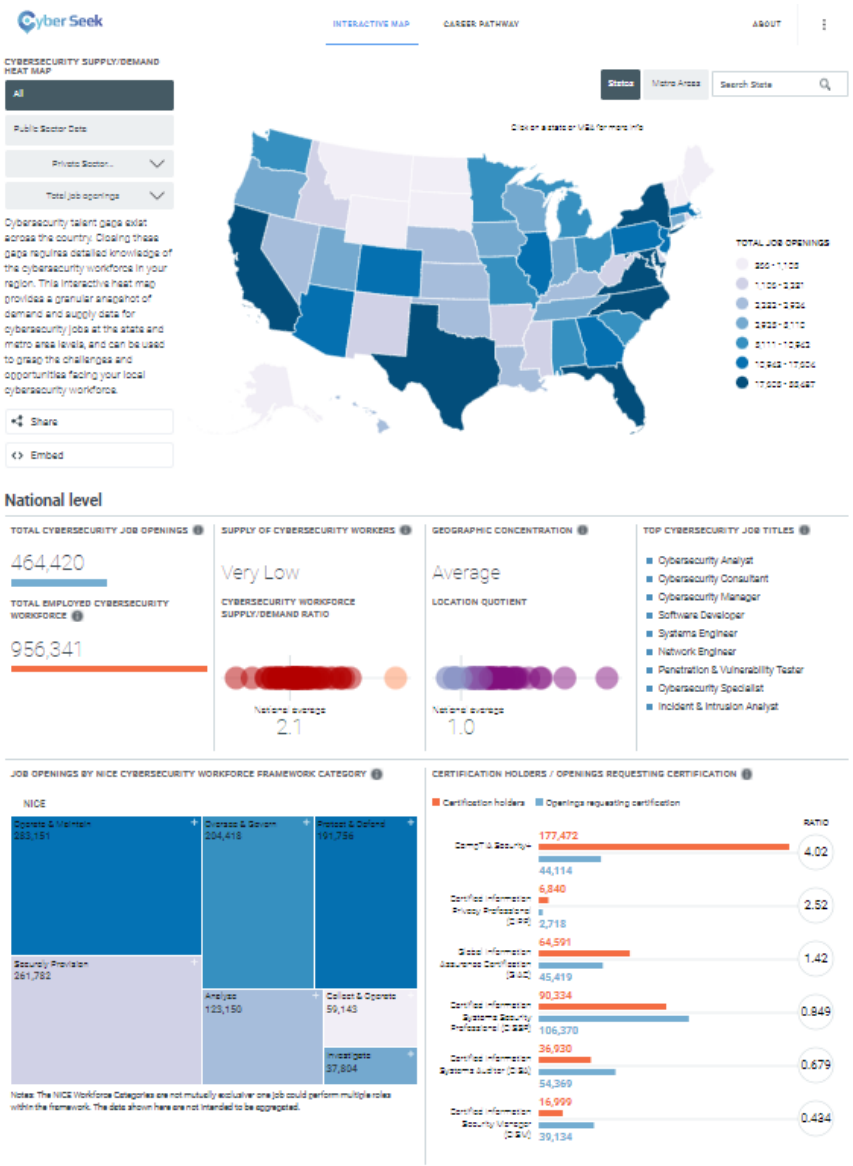
Third Week in October

We invite you to join us in observing Cybersecurity Career Awareness Week , a celebration to focus local, regional, and national interest to inspire, educate and engage children through adults to pursue careers in cybersecurity. Commitments are actions taken by the community to promote awareness & exploration of cybersecurity careers. Commitments come in all sizes and don't always require financial investment. You can host an event, distribute career awareness materials, or engage through social media. Be creative!

Learn more and register how you will participate at nist.gov/nice/ccaw

nist.gov/nice/ccaw





Cyberseek.org

K12 CYBERSECURITY RESOURCES FOR AT HOME

HOME

Developed by like-minded individuals interested in sharing resources for students, parents, and educators to promote cybersecurity content

Resources curated by the NICE K12 Community of Interest. Disclaimer: This is not an official resource of the U.S. government. We do not endorse the organizations sponsoring linked websites, and we do not endorse the views expressed or the products or services they offer.

CYBERAWARENESS RESOURCES

RESOURCES FOR ELEMENTARY

RESOURCES FOR MIDDLE SCHOOL

RESOURCES FOR HIGH SCHOOL

CYBERSECURITY E-BOOKS

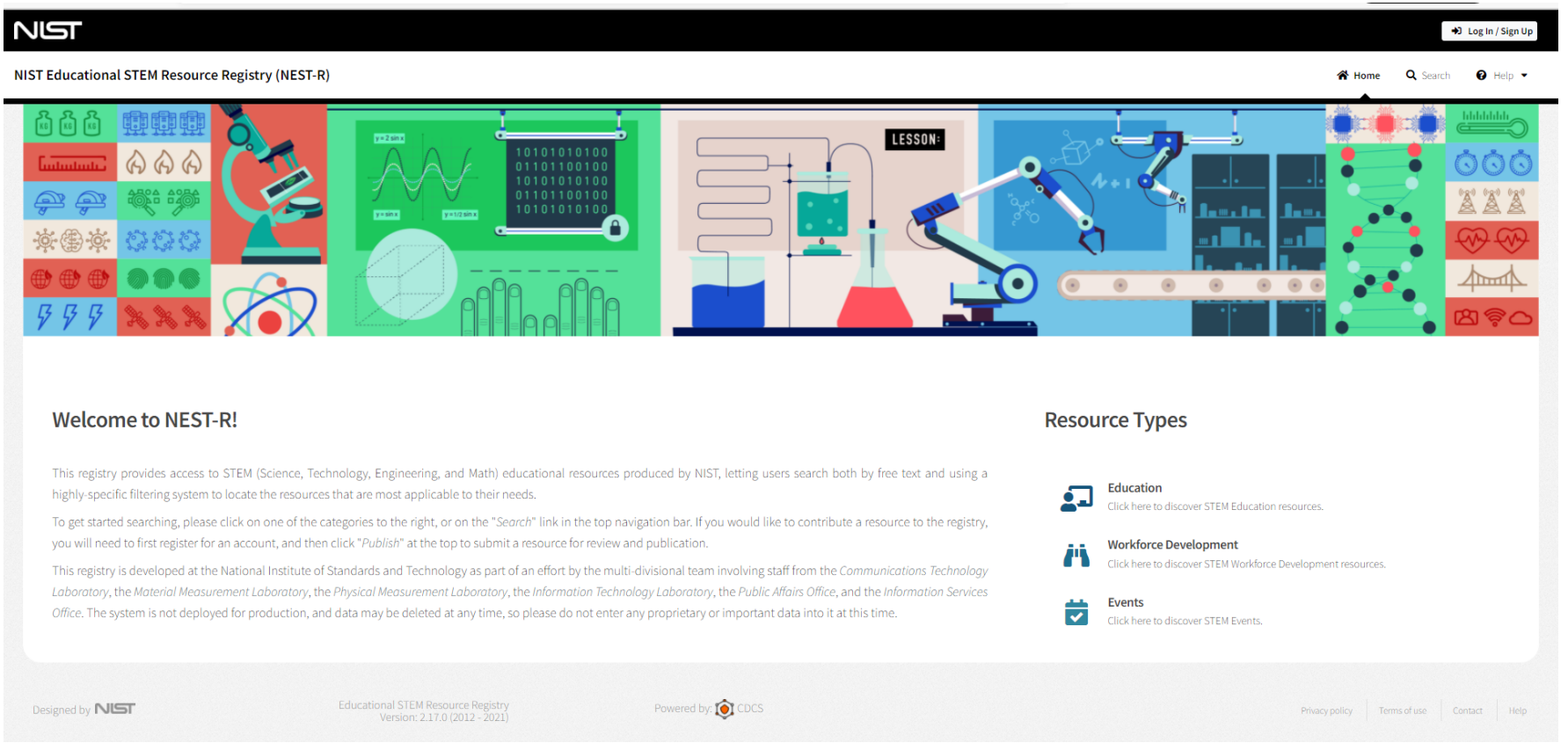
GAMES FOR KIDS AND FAMILIES

INTERNSHIPS/SCHOLARSHIPS

COMPETITIONS

nicek12athome.weebly.com

NIST Educational STEM Resource Registry
NEST-R



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Thank you!

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