NICERC Overview

Summer 2017
Building the Nation’s Cyber Interstate

• Foster integrated curricular experiences across multiple disciplines in primary, secondary, and post-secondary environments.

• Promote a culture of educational innovation across a network of college and K-12 faculty around the nation.

• Develop the nation’s cyber workforce through the creation and enhancement of STEM and cyber educational opportunities for teachers and students.

• Create and nationally disseminate innovative practices in education.

• Serve as a catalyst for future research in cyber education.

• Offer teacher professional development to ensure teachers are empowered to create a 21st century learning environment.
Cybersecurity Education and Training Assistance Program Impact

(A heat map of programmatic activity through December 31, 2016)
Virginia CyberCAMP 2016

An Introduction To Careers In Cybersecurity for Students and Teachers

Virginia Department of Education
Office of Career, Technical, and Adult Education

NICERC
AN ACADEMIC DIVISION OF THE CYBER INNOVATION CENTER
Icebreaker Activity
PigPen Cypher

M  N

Y  Z
Introduction to NICERC content

• Hands-on curriculum
• Builds a strong cyber foundation
• Introduces cyber by blending robotics, programming, electricity, and elements of liberal arts
• Students learn about the opportunities, threats, responsibilities, and legal constraints associated with operating in cyberspace
• Liberal Arts illustrates real world applications and implications of computers and the internet in our society today. Students are challenged to intensely deliberate the historical and societal context of cyber.
Introduction to NICERC content

• Project-driven curriculum
• Expands cyber knowledge
• Challenges students to go deeper into their appreciation of cyberspace

• Liberal Arts takes a deep dive into many critical aspects of our students’ futures, such as:
  • The 4th Amendment connections to privacy, security, and technology
  • Debates on national security, search warrants, and digital media

• Additionally, Cyber Literacy II gives teachers the opportunity to collaborate with their school partners as they introduce relevant content that will significantly support ELA instruction.
Introduction to NICERC content

• Non-technical cyber content
• Research and project-based content
• Includes many “ripped from the headlines” cyber discussion topics such as: Law, Politics, Terrorism, Ethics, Communities, Business, Artificial Intelligence
• Cyber Society modules are designed to enable teachers to use liberal arts concepts and ideas as an approach to increase cyber awareness among high school students
Introduction to NICERC content

• The Regional Autonomous Robotics Circuit (RARC) is a series of three robotics competitions for students in grades 3-12. The competitions build upon one another and allow students to showcase their STEM (science, technology, engineering, and math) and cyber skills by competing against other students in their division (elementary, middle and high school) in a series of integrated challenges.

• NICERC partners with community partners to bring RARC competitions to multiple regions across the country. School districts or organizations interested in hosting a competition, consider becoming a community partner!
NICERC Curricula Overview

- **Modular** format provides maximum flexibility for teachers
- Student engagement and learning improved through NICERC’s **project driven lessons**
- Infusion of **cyber context** promotes **STEM, Cyber and Computer Science awareness** into daily instruction
- Builds **STEM, Cyber and Computer Science foundation** essential for future **cyber professionals**
- “**Soft Skill**” development integrated into lessons
- Maps to **national standards**
- Links to **industry certifications**
- Increases preparedness and participation in **cybersecurity education** and **cyber degree** programs
**Programming Design Process**

1. Identify the Goal
2. Design a Solution
3. Implement the Solution
4. Run & Evaluate the Program
5. Customize the Program
Request Free Access Today!

www.NICERC.org
Request Free Access Today!

Transform education in your classroom through project-driven STEM and cyber curricula.

NICERC curricula is available to K-12 teachers at no cost. Teachers wishing to view, implement, and utilize NICERC’s library of curricula may request curricula access by clicking the button below. After completing NICERC’s request for access form, a Curriculum Success Specialist will send the content access codes to the email address provided along with further instructions on creating a canvas profile and downloading the curriculum content.

Professional development workshops are also available for teachers interested in gaining hands-on experience with the curricula and best practices for implementation in to their classroom.

CLICK HERE TO REQUEST ACCESS TO THE CURRICULA.

CLICK HERE TO LOG IN AS AN EXISTING USER.
Using NICERC Content to Engage Students in Cyber

Summer 2017
Which teacher inspired you?
Specificity Game

Pairs of 2 - Sit Back to Back

One partner plays the role of the programmer.

- Programmer describes how to draw a picture.

One partner plays the role of the computer.

- Computer draws the picture.
- Computer can only say “repeat the last instruction,” “wait,” and “ready for the next instruction.”
Cyber Society

Artificial Intelligence: AI in the Home
## Business & AI

### Business

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### Artificial Intelligence

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Artificial Intelligence: AI in the Home

• Al technology in the home is no longer an imagined vision of the future; it is a thriving and increasingly popular reality in the United States. Digital personal assistant technology, like Siri and Amazon Echo, as well as other “smart” devices for the home, are a common presence in millions of peoples’ daily lives. Companies who market such technology emphasize the convenience of AI devices, but rarely discuss risks to personal privacy. In this lesson, students will analyze the place of AI technology in daily life, through devices including smart phones, as well as new technology aimed at bringing AI technology into the home.
Artificial Intelligence: AI in the Home

• The goal of this lesson is to introduce students to the current technological trends involving AI in the home, as well as the possible risks this technology might pose. This lesson will ask the students to analyze their own use of AI technology and what the future of domestic artificial intelligence might hold. Students should consider the way companies market such technology and assess whether consumers are fully aware of potential risks. After reviewing the lesson materials, students should work in groups to discuss the affect of AI on their own lives, weighing the pros and cons of bringing more “smart” technology into the home. As a group, students will write a collective analysis on the importance of convenience and personal privacy, and debate these arguments among their peers in the rest of the class.
Artificial Intelligence: AI in the Home

Discussion Questions

• As in-home AI becomes more common, companies boast the benefit of convenience, but does that convenience come at the cost of personal privacy? How have companies addressed the issue of protecting users’ privacy, and do you find their safeguards to be sufficient?

• What kind of cyber security risks does bringing more AI technology into the home present?

• If technology like Siri and Google Now has evolved into products like Amazon Echo and Google Home, what do you imagine will be the next development in artificial intelligence for the home?
Artificial Intelligence: AI in the Home

Discussion Questions

• How does voice recognition technology change the way people interact with AI devices? Does the mass production and use of this technology pose any risks to the consumer?

• Risen’s article quotes Mike Gualtieri, an analyst at Forrester Research, who states, “AI research is ultimately the study of ourselves.” What do you think he means by this?

• What social, ethical, and personal risks does the increased incorporation of artificial intelligence into daily life present, and do you believe people are capable of protecting themselves against such threats?
Artificial Intelligence: AI in the Home

• Freddie Dawon, “The House That Learns: Bringing Artificial Intelligence into the Home.”
  • Forbes, May 24, 2016.

• Mona Lalwani, “Personal Assistants are Ushering in the Age of AI at Home.”
  • Engadget, Oct. 5, 2016.

• Tom Risen, “Artificial Intelligence: Do the Benefits Outweigh the Risks?”