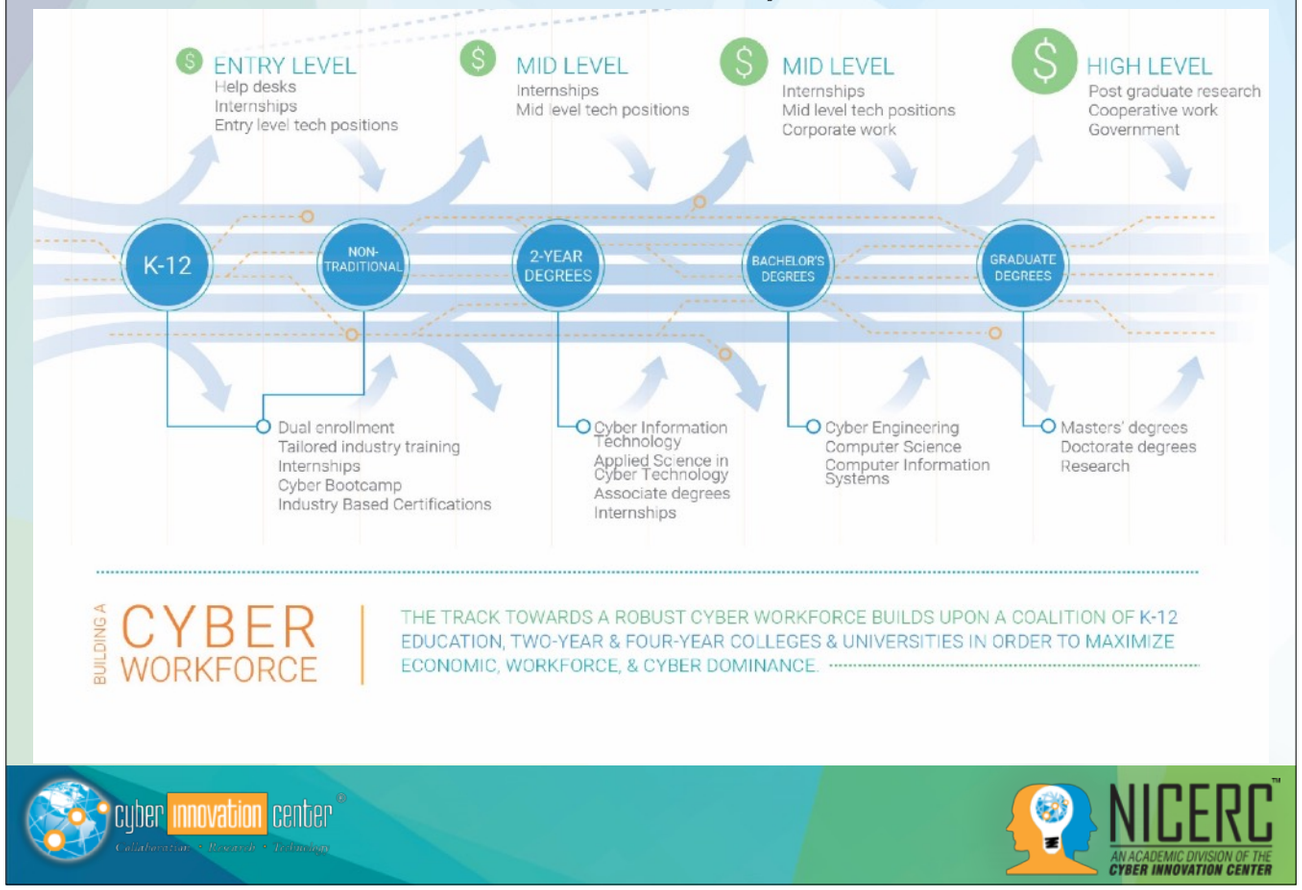
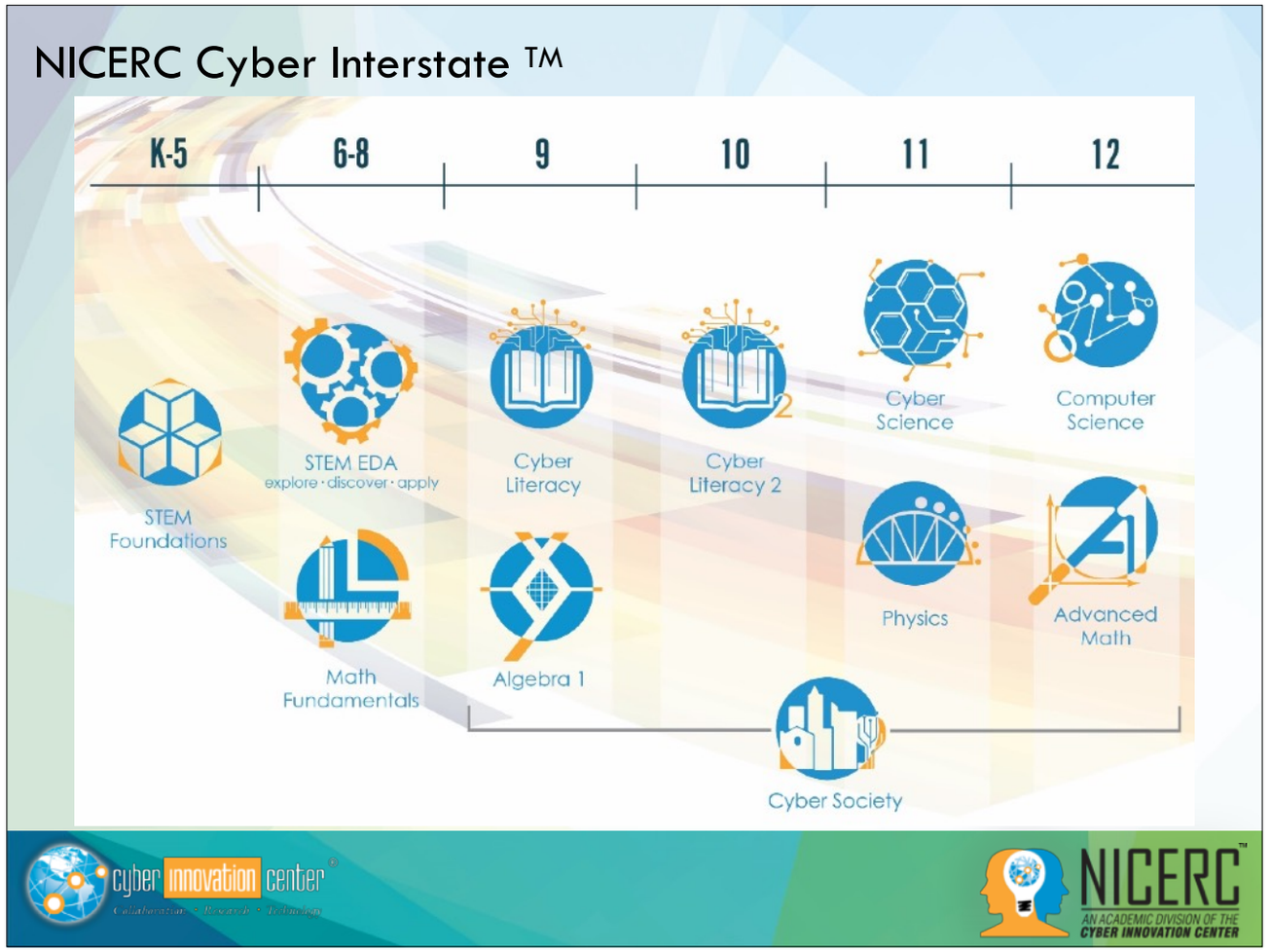
Thanks to Commissioner Ray Hopkins, DBVI and Dr. Joe Ashley, DARS for their vision in creating a robotics camp opportunity for Virginia students.

Twenty-seven to go
This shows NICERC outreach to US based on funding and support from Department of Homeland Security (DHS)
Next shows vertical influence of NICERC among K-20 pathway

Collaboration to Build the Nation's Cyber Workforce

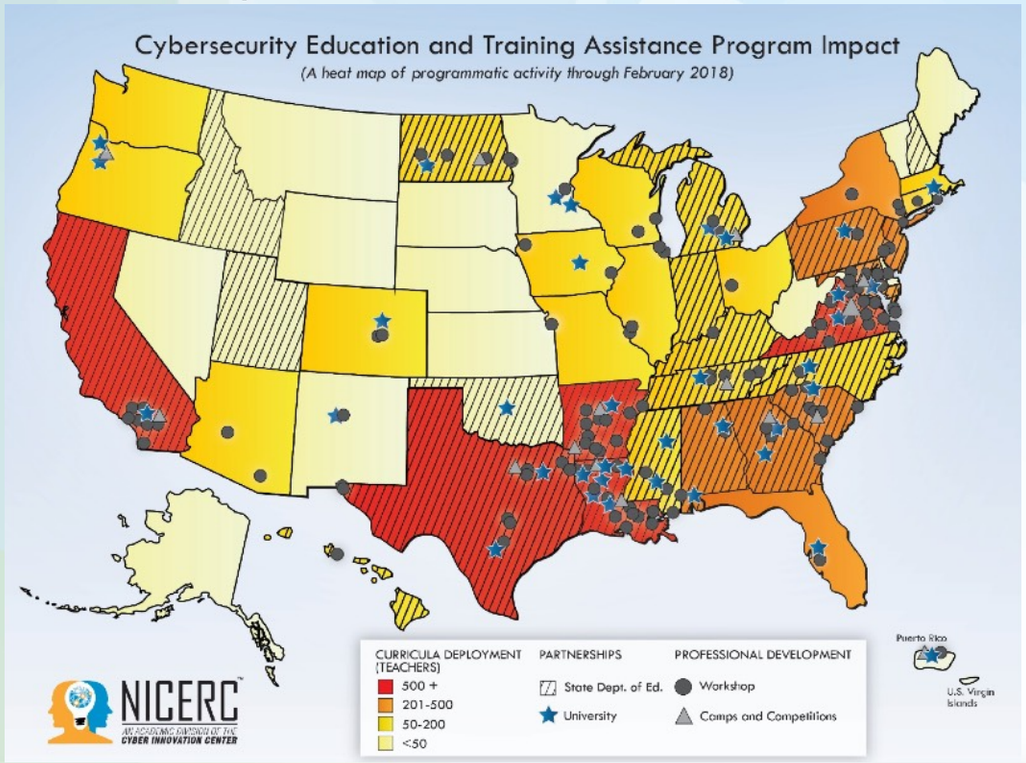


Twenty-six to go
NICERC creates collaborative partnerships with K-12, 2-year, 4-year, post-grad, and community partners/ employers to provide a fully versatile team and best-aligned opportunities for all students.
Next shows cyber interstate



Twenty-five to go
NICERC's library of curricula is referred to as the Cyber Interstate. K-12 solutions for STEM, STEAM, cyber engineering, and computer science. Also includes many discussions and lessons to incorporate humanities and ethics into the classroom.
Next shows heat map

NICERC Heat Map



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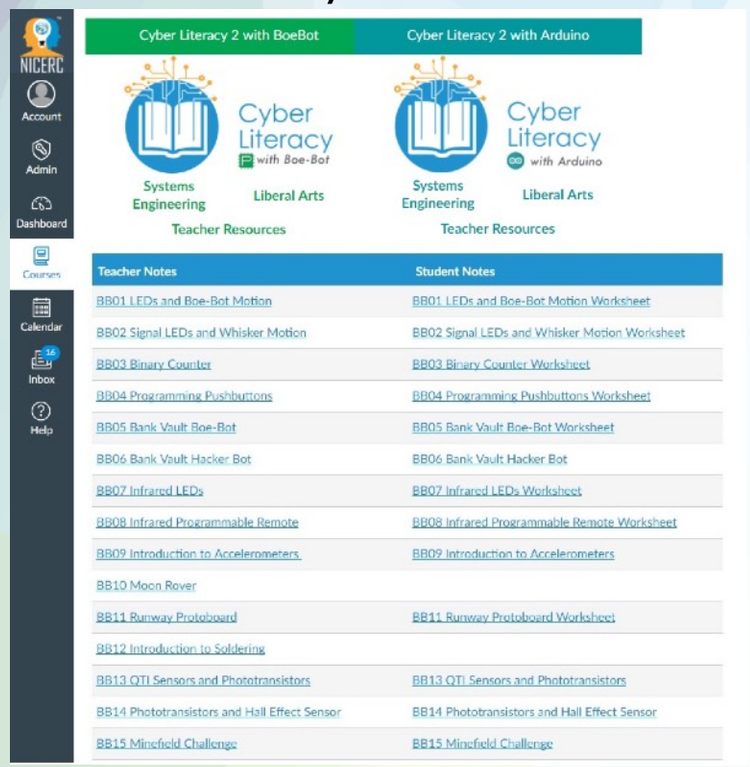
Twenty-four to go
Through DHS support, NICERC's impact is in all 50 states, 2 US territories, and more than 20 state department's of education.
Next shows Canvas access

Means of Delivery



Over 250 files per course that includes:

- Student Workbooks
- Master Notes
- Lesson Plans
- PowerPoints
- Standards Mapping
- And other Supplemental Resources

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Twenty-three to go
NICERC content is free for all teachers in the country. PDFs, PPTs, teacher and students notes are all available digitally. Working on ensuring all documents are accessible.
Next describes NICERC since 2012 (DHS) and 2017 (DBVI)

Cyber, Coding, and Robotics Camps

- Since 2012, the National Integrated Cyber Education Research Center (NICERC) has been creating K-12 content and distributing it to teachers across the country for free through a grant from the Department of Homeland Security (DHS).
- Since 2017, NICERC has been working with the Virginia Department for the Blind and Vision Impaired (DBVI) and Department for Aging and Rehabilitative Services (DARS) as well as the Louisiana Association of the Blind (L.A.B.) to bring their STEM, cyber, and computer science content to a variety of students with disabilities in the form of multi-day residential and day camps.

Twenty-two to go

Next describes the three camp opportunities

Cyber, Coding, and Robotics Camps

- NICERC Supported DBVI, DARS, and L.A.B. Programs
  - Participating students have built their own bots, wired their own circuits, and written their own code as they learn about the function of a variety of sensors and components that help to make these bots autonomous
  - Students have engaged in conversations about the ethics, opportunities, and challenges of working in cyberspace
  - Students have researched careers in cyber and have analyzed real-world scenarios to get a feel for a career in cyber

Twenty-one to go
Three bullets: outcome of robotics camp, coding camp, and cyber camp.
Next is breakdown of 2017 Cohort

Cyber, Coding, and Robotics Camps - 2017 Robotics Cohort

- College Enrollments
  - Biomedical engineering
  - Computer security
  - IT compliance officer
  - Electrical engineering
  - Software engineer
  - Computer network support
  - Network engineering
  - Culinary arts program
  - Teaching
- Community College Enrollments
  - IT training
  - E-sports
  - Health care (two students)
- CTE Training
  - IT training (two students)
  - CNC engineer (two students)
- Others
  - Employed (non-IT)
  - Supported employment (non-IT)
  - Electrical engineering and advanced programming (high school senior)
  - Undecided (high school sophomore)

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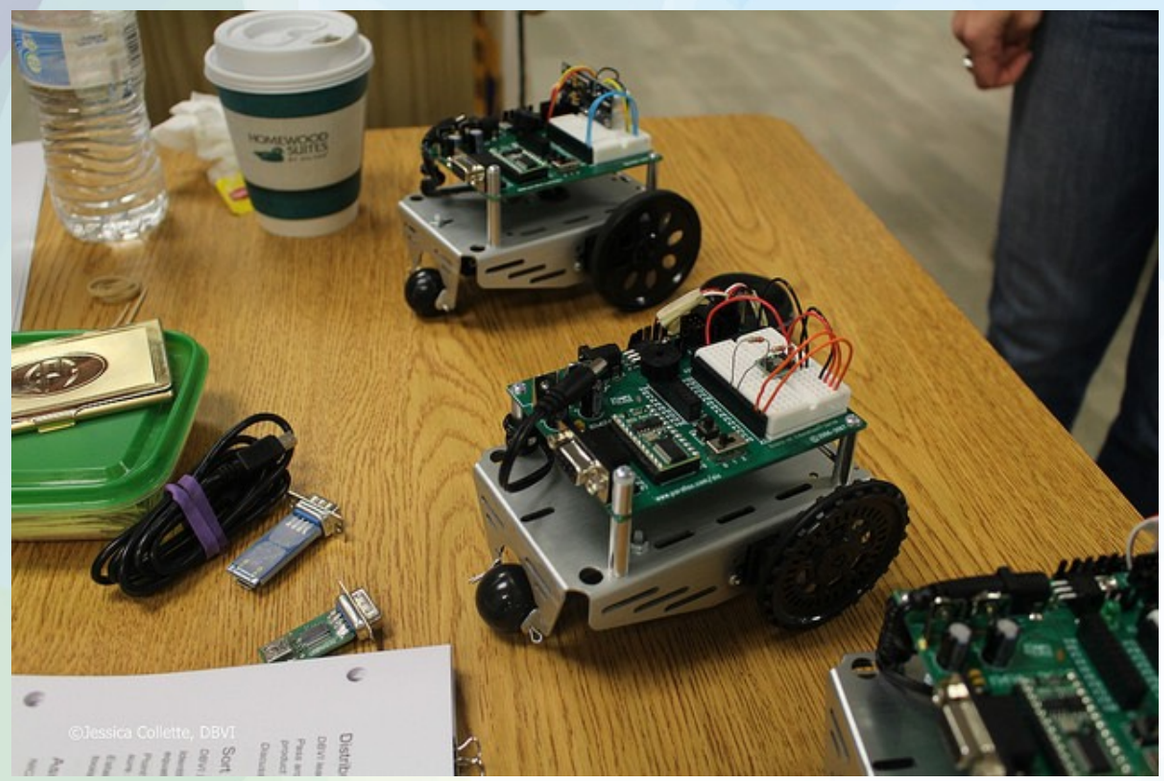
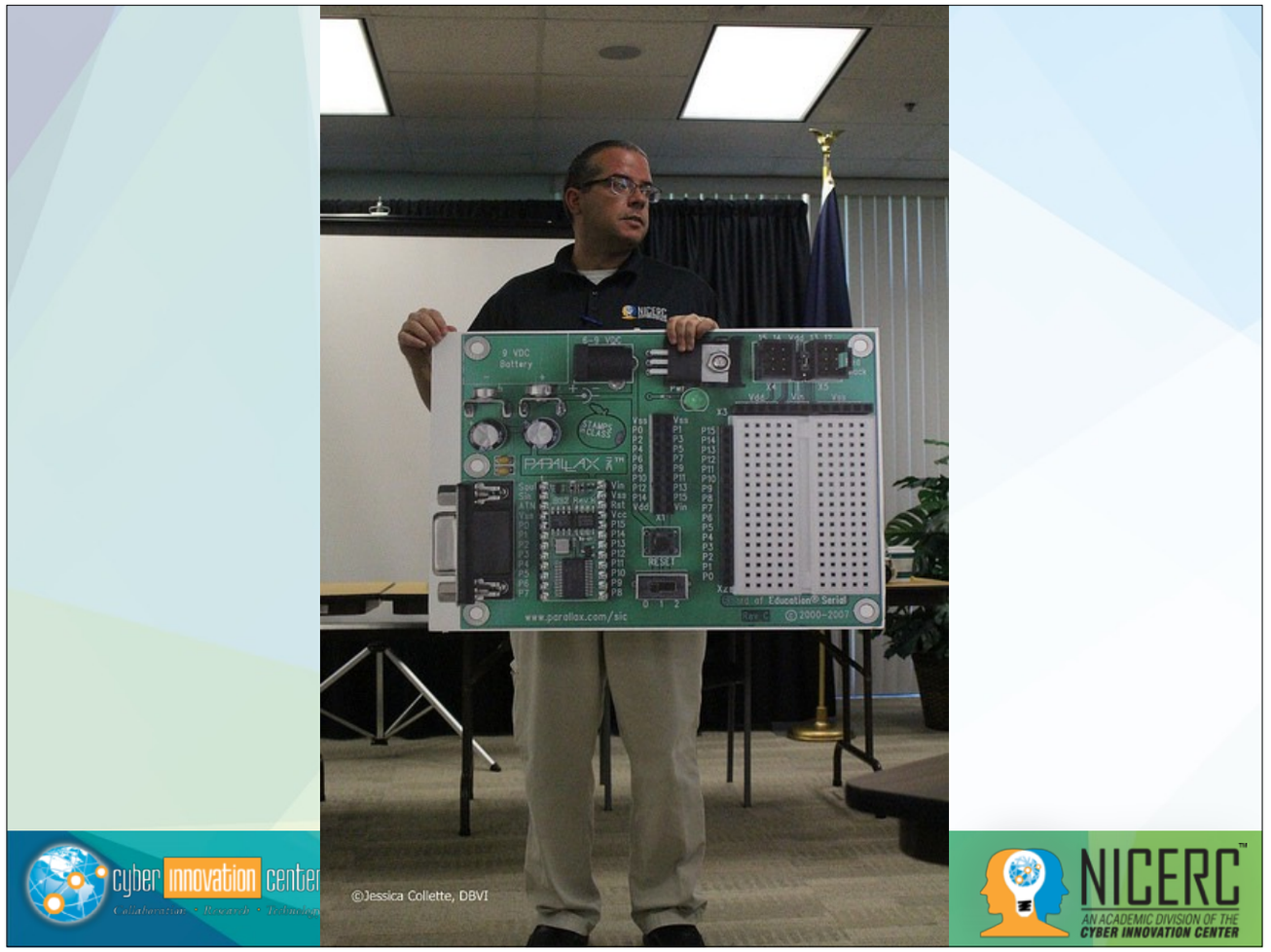
Twenty to go
Where is the 2017 DBVI cohort now?
19 of 24 students (79%) from the 2017 Virginia Robotics Academy cohort have plans to attend or are attending college or credential training to access a career pathway, or are accessing a career pathway by going directly into employment.
Next is the 2017 Cohort on the day they arrived in Richmond as a group, one day before the camp officially started.

Nineteen to go
24 students (one not pictured) made up the 2017 cohort of robotics camp participants.
Next is an image of the two builds that were completed by all students

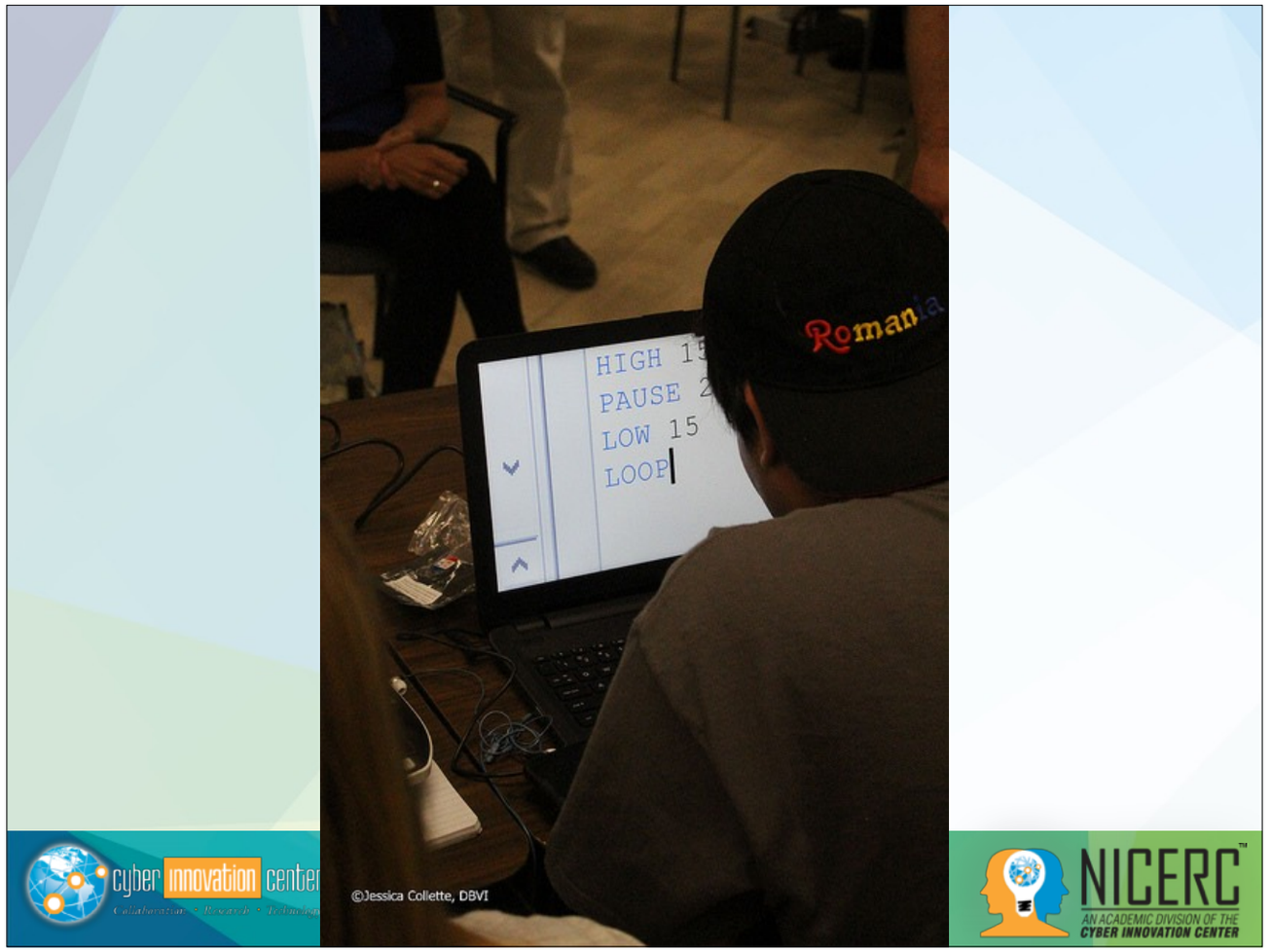


Eighteen to go
Students programmed in BASIC and built circuits on the BoeBot from Parallax. Each student built their own bot and designed their own code.
Next is an example of an enlarged graphic used for low vision students



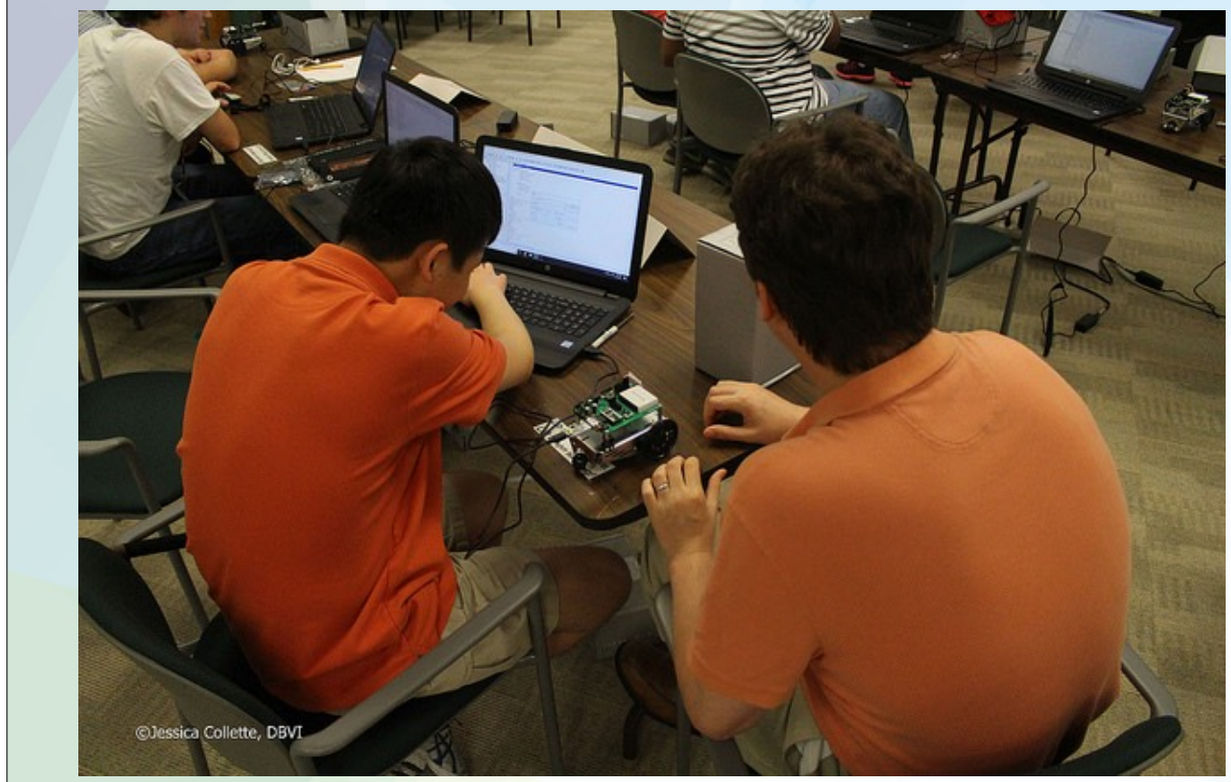
Seventeen to go
The content is compatible with a variety of assistive technology. Some creativity was needed to make it all accessible!
Next is a student using a digital magnifier to assemble the bot

Sixteen to go
Students were encouraged to try all forms of AT, even some that they may not currently be using. Explore the options!
Next is a student using screen magnification to enlarge code



Fifteen to go
Screen magnification and screen reading was a requirement. The BoeBot was selected because it works well with both.
Next is a student using organizational tools (muffin tray) to help sort small assembly pieces

Fourteen to go
Tactile tools were also helpful. In this case, muffin tins were used to sort small parts and keep them from rolling away. We used a coordinate system to identify the cups.
Next is Mike Fish (DBVI) and David assembling the bot and testing the first program



Thirteen to go
We experimented with using toothpicks so that blind students could safely count sockets in the breadboard without the risk of connecting a wire to a live circuit.
Next is Mike Fish (DBVI) and David assembling the PING Sensor

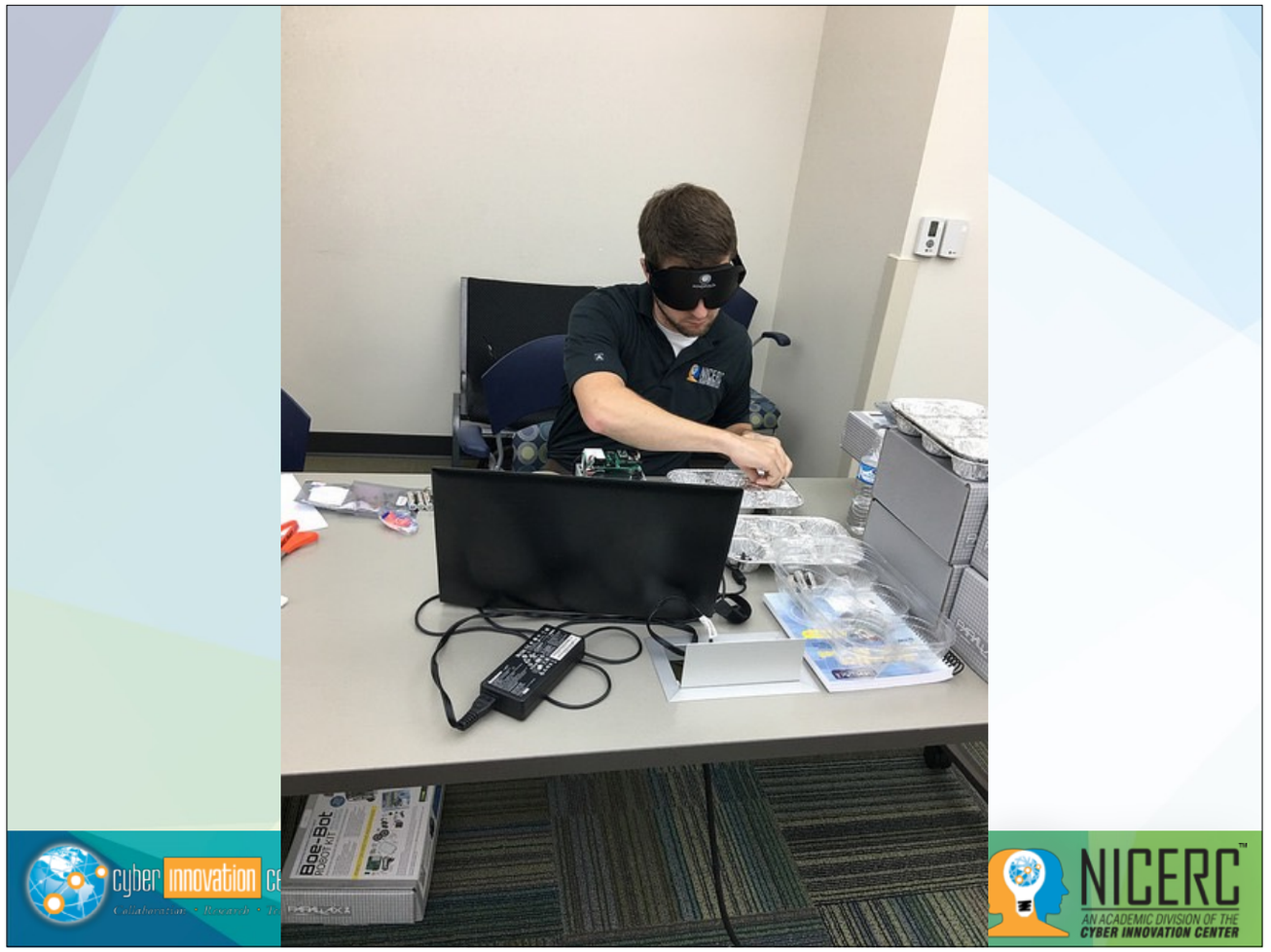
Twelve to go
Everyone built their own circuits and designed their own code!
Next is Commissioner Ray Hopkins (DBVI) and Tish Harris talking with two students from first year experience

Eleven to go
Students were encouraged to talk about their projects with one another and with camp leadership to get used to presenting challenging or tough topics to all audiences.
Next is students at lunch with guest speaker from Capital One

Ten to go (ADDED ONE)
Students were afforded the opportunity to meet and talk with local industry representatives about their experiences in cyber and computer science. In this example, a rep from Capitol One describes his journey into IT.
Next is blind professional for student engagement

Ten to go
In this example, a rep from General Dynamics shares his experiences with being blind in the industry of programming and IT.
Next is DBVI and DARS volunteers for first year experience

Nine to go
“It takes a village.” This slide shows the volunteers and members of the team at DBVI who hosted and supported the week-long residential camp in Richmond, VA.
Next is Josh with blinders

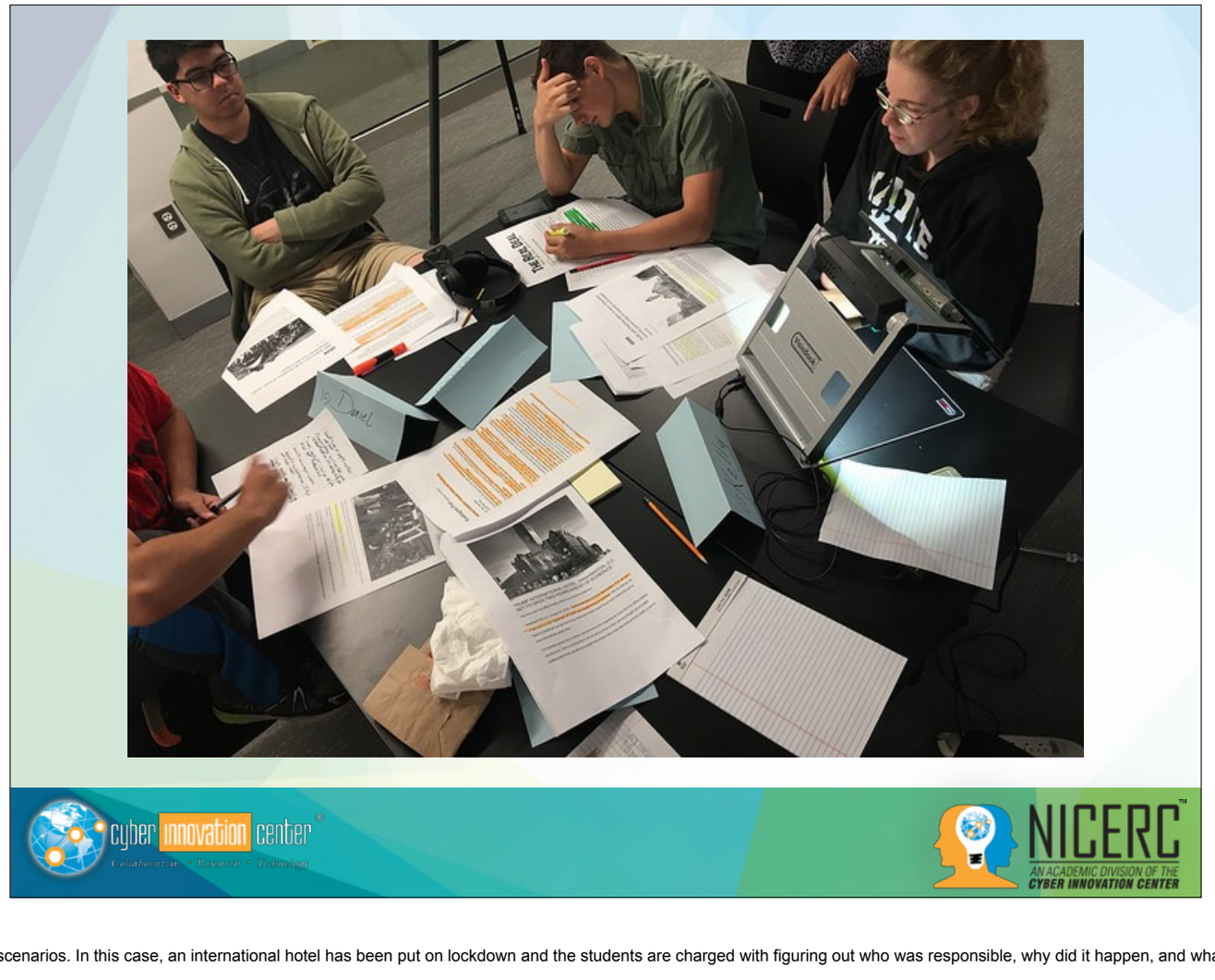


Eight to go
NICERC team dove head-first into the content as well. In this case, a NICERC subject matter expert is building a bot using a pair of blinders to help validate the content narrative.
Next is Tish Harris with 2018 Cohort

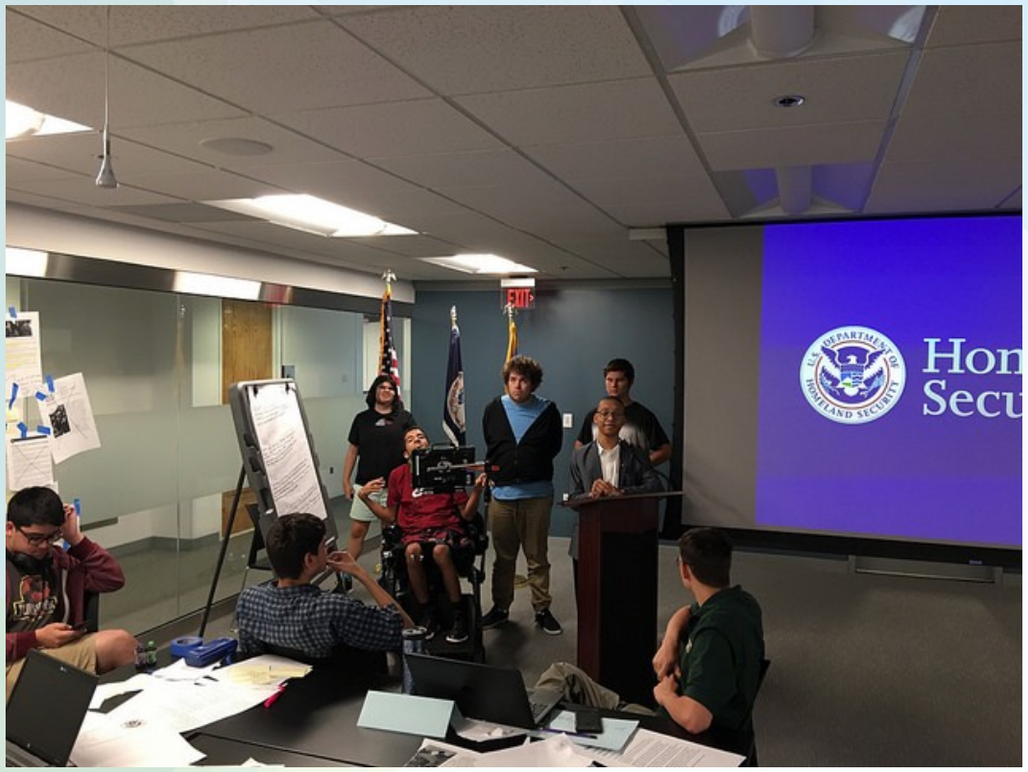
Seven to go
Tish and Chuck share a selfie with the 2018 cohort of DBVI's robotics camp.
Next is LAB first year team

Six to go
Chuck shares a selfie with the 2018 cohort of the Louisiana Association of the Blind camp.
Next is Fadel with his micro:bit

Five to go
Chuck shares a selfie with a student at the 2018 DARS coding camp as he demonstrates his micro:bit that has been programmed into a compass. It currently displays “N” for north. As the student maneuvered his wheelchair in a 360 degree circle, the micro:bit showed N-E-S-W.
Next is teams working on AICS



Four to go
In the Cyber Camp, students work to solve real-world cybersecurity-style scenarios. In this case, an international hotel has been put on lockdown and the students are charged with figuring out who was responsible, why did it happen, and what (if any) should the US response be.
Next is DHS presentation



Three to go
In the Cyber Camp scenarios, each team is also challenged with presenting their findings to the group, promoting soft-skill development and public speaking abilities.
Q&A is next

Question and Answers

Two to go

Contact info is next

Last Slide

Links to articles is next

2017 Virginia Department for the Blind and Vision Impaired Cyber Summer Camp:

- https://nicerc.org/2017/07/cic-project-aids-students-with-disabilities/
- http://ideastations.org/radio/news/new-robotics-academy-preps-youth-disabilities-jobs-technology
- http://www.richmond.com/business/local/virginia-robotics-and-cyber-academy-helps-teens-with-disabilities-gain/article_2c9c9070-5e68-5251-b6d3-e344c9c792c6.html

2018 Louisiana Association of the Blind Cyber Summer Camp:

- http://www.redriverradio.org/post/visually-impaired-students-learn-robotics-la-association-blind
- https://www.ktbs.com/news/arklatex-indepth/visually-impaired-students-prove-sight-is-not-challenge-for-their/article_59ce1052-95f0-11e8-b533-07de5e459e2f.html?utm_medium=social&utm_source=email&utm_campaign=user-share

This slide lists a few of the media reports that have been written about the variety of camps that have been hosted by the Virginia and Louisiana groups.