OSPRI LAB: CSbyUs

OPEN SOURCE PEDAGOGY, RESEARCH + INNOVATION

Duke UNIVERSITY | BASS CONNECTIONS

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Bass Connections in Education & Human Development

CSbyUs

MISSION – To mobilize change-agents from under-resourced learning environments by fostering critical technology skills for thriving in the digital age.

At CSbyUS we conducted award-winning research on the state of computer science education, finding what Durham needs is community-tailored, student-centered CS education. We are thrilled that our Mobile Citizens curriculum has expanded to three additional Durham communities. However, the problem of access to relevant CS education extends past Durham; every community deserves CS education that complements its diversity and distinctiveness.

OUR TEAM

Curriculum R&D Team

The Curriculum Research & Development (CRD) team uses design-based research to create and test inclusive CS curricula. Currently, the curriculum development mini-team is designing a curriculum to self-empower students to take control of their data and act against algorithmic bias.

Teaching Team

The Teaching Team (TT) is a community of caring mentors for our middle school students at StudentU and Durham Salvation Army Boys & Girls Club. Most members on TT are also involved in TRD and CRD so they use their work within classrooms to build better technology and curriculum to improve the learning experiences of our students.

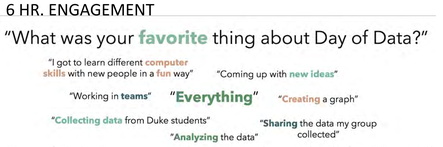
Technology R&D Team

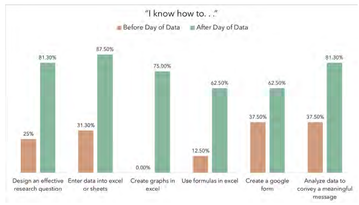
The Tech Research & Development team (TRD) works to scale the CSbyUs mission beyond our classrooms in Durham. CurriculaHub, alongside other resources on this site, is a one-stop shop for fellow educators to explore, adapt, discuss, and teach our CSbyUs curricula. TRD uses technology to make teaching digital era education easier for teachers.

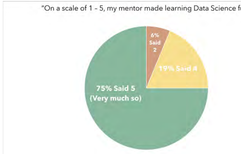
CSbyUs OUTREACH IN THE DURHAM COMMUNITY

DAY OF DATA:

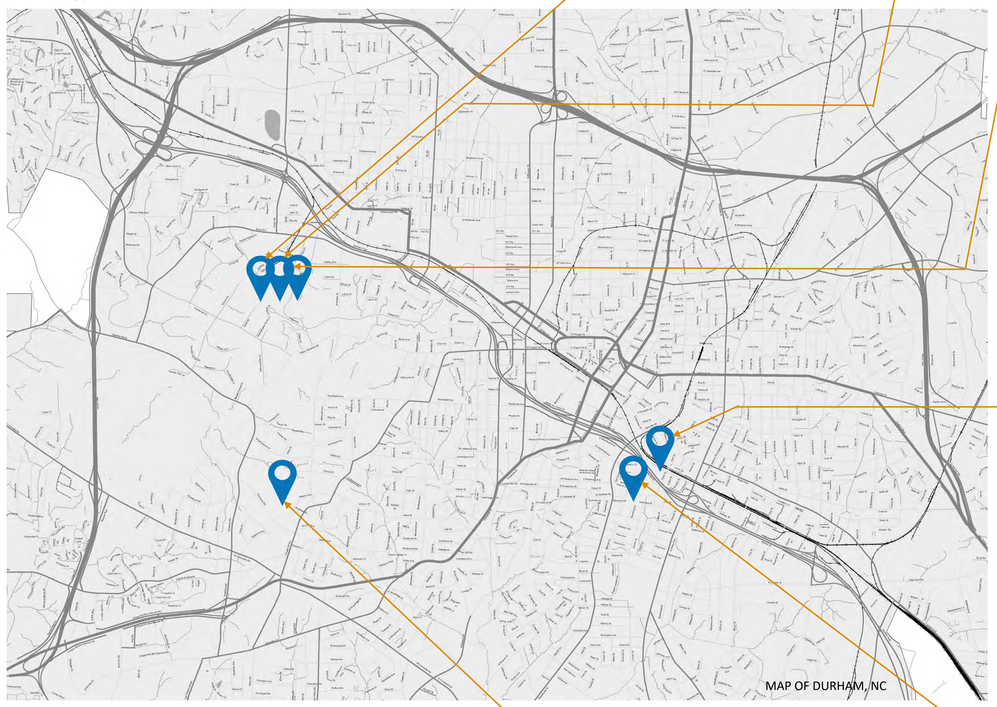
6 HR. ENGAGEMENT







Day of Data Summary: This curriculum is built for 20 middle school girls to join college undergraduates and junior and senior high school students for *A Day of Data* on the college university's campus. Middle schoolers will learn about the increasingly relevant field of data science by walking through the "data science process," from selection of a meaningful research question and survey design to data collection, analysis, and communication to key stakeholders. Students will leave with data analysis skills, an understanding of how data are useful and relevant to their lives, and a curiosity to continue learning about data science and technology.



LAKEWOOD Innovation Club (Lakewood Elementary)

1.25 HOUR ENGAGEMENT

Lakewood Innovation Club coordinator reached out to CSbyUS for a computer science focused engagement with the students from 3rd-5th grade. The CRD team used the 'Turtle' game curricula for this event and found it to be very successful with this age group. This event has resulted in the development of a new elementary curriculum that will be rolled out for Fall 2019 semester. This curriculum focuses on teaching computer science through game design.

STUDENT U

(TWO TIMES A WEEK) 45MIN AFTER SCHOOL PROGRAM

Student U is an after school program for students from 6th-12th grade. CSbyUs curriculum team designed an app building/ project based curricula for the middle school students at Student U. The curricula tries to achieve basic competency in computer science terminology and gives students confidence in creating an app and presenting it at the end (the Launch event) to their fellow classmates and to the wider Duke community.

THE LAUNCH:

2 HOUR ENGAGEMENT

The Launch is a CSbyUS end of the semester event that showcases student made apps to the Duke community. The event focuses on student presentation skills and confidence in executing a product that is shared with a wider audience beyond the classroom. We also take this opportunity to show the students some of the campus and the Co-Lab space where they see how 3D printers work.

SCHOOL DAYS

3 HOUR ENGAGEMNET (3) 45 MIN. SESSIONs

School Days is an event hosted on Duke campus for local middle school students. CSbyUS teams led three forty five minute work shops on algorithms. We used the Turtle game on AppLab as a tool to teach students what is an algorithm. Furthermore the physical turtle game at the start of the class allowed students to act out the part of a 'programmer' and the 'turtle'. This gamed further cemented the concept, for the students, of what is an algorithm in computer programing.

BOYS AND GIRLS CLUB (THE SALVATION ARMY BOYS AND GIRLS CLUB OF DURHAM)

1 HOUR A WEEK AFTER SCHOOL PROGRAM

Boys and Girls club partners with CSbyUs to bring an after school semester long curriculum into their educational program offerings. The teaching team (from CSbyUS) of four students uses the prepared curricula by the CRD team to teach computer science through community focused app design project. A group of local community members visited the class at the start of the semester and the students where able to compile a range of issues and possible solutions they can address through an app. The rest of the semester is spent on developing apps and learning concepts in computer science.

This project based engagement creates building blocks of knowledge in computer science that can further develop into opportunities for students to view computer science as a career opportunity.

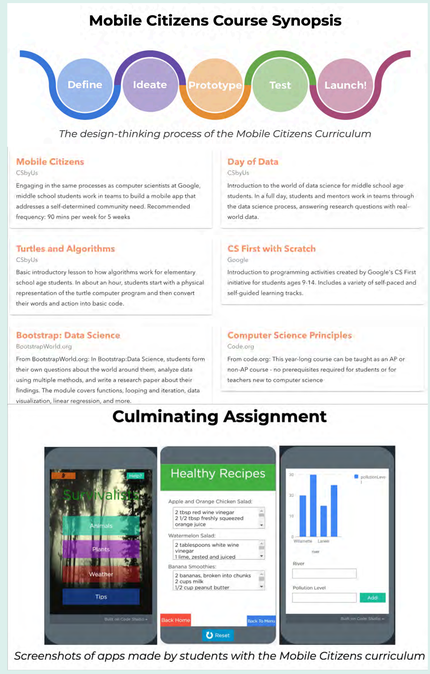
CSbyUs CurriculaHub

CurriculaHub is a one-stop platform for educators to explore, adapt, add, and discuss open-source curricula.

Incubate/Share/Support:

Incubate: We're design thinkers. We start with inspiration for a new curriculum or lesson, prototype a solution, test it in North Carolina, and iterate until it's what students need.

Share: CurriculaHub is your one-stop shop for proven and adaptable curricula. Once our programs are successful, we make them accessible to you..

Support: We're here for you. Teaching new curricula can be difficult without a community of support. We're building resources and a network to make that easier.

CurriculaHub Site Resources