

ANNUAL REPORT

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Stephanie Carter and Tanner Dennis[®] of Grayson County HS contemplate rhetorical moves in AP English Language and Composition.

Executive Summary

2021-22 data suggests that the effects of COVID-19 are still present in our schools, but overall student performance has recovered to or exceeded pre-pandemic levels.

Students in Access to Algebra have seen a rebound of performance on the PSAT 8/9. Average growth from 7th to 8th grade in SY21-22 exceeds pre-pandemic rates but access to advanced math courses in 8th grade is still behind. Prior to participation in the College Readiness Program, classrooms experienced a decline in Advanced Placement enrollments; however, in SY21-22 exam participation has dramatically increased and growth in qualifying scores has recovered to outperform state and national rates. Computer Science Initiatives continues to expand access and opportunity for teachers and students. More teachers have more resources and opportunities to not only offer computer science in their schools but to also increase enrollment and participation.

Program	Goal	Data / Outcomes
	<p>Ensure students have access to quality accelerated math courses in middle school</p>	<ul style="list-style-type: none"> Recent data suggests 72% of ALL 8th grade students can succeed in Algebra 1 59% of 48 schools met growth goal in SY21-22 average student growth in SY21-22 was 35 points, putting students on track to meet math college readiness benchmarks
	<p>Increase access and success in AP[®] math, science, English, and Capstone classrooms</p>	<ul style="list-style-type: none"> First year Cohort 14 classrooms saw a 67% increase in AP MSE exams taken First year Cohort 14 teachers saw a 56% increase in qualifying scores over pre-COVID performance. 52% of AP math and science enrollments are female
	<p>Increase access to quality computer science coursework for all K-12 students</p>	<ul style="list-style-type: none"> 61% of the statewide increase in AP CS A and AP CS Principles comes from teachers trained by CSI Since 2018, 120 Ky teachers have earned approval to teach CS through CSI programs A new CTE pathway was developed around the additive manufacturing course supported by CSI.

Introduction

AdvanceKentucky first began work in 2008 with the goal of promoting equitable and successful access to Advanced Placement coursework for all students across the Commonwealth. Since then, we have expanded our efforts to support middle school math and K-12 computer science.

The last few years have been difficult for educators and students. COVID-19 has had and will continue to have an unquestionable impact on education for the foreseeable future. The impact of school closings and shifts to virtual instruction on our students is apparent everywhere we look, from social maturation and emotional development to classroom engagement and academic indicators. Students affected by COVID-19 are arguably the most vulnerable group of students we have ever had in our classrooms.

Additionally, it is becoming increasingly obvious to us that virtual instruction doesn't work for all students and the past few years have only strengthened our belief that the teacher remains the most important factor in a child's education and development. That is not to say that technology can't play a role in education, it certainly does; but at this time, there is simply no replacement for a highly skilled, well-trained, motivated teacher leading our classrooms.

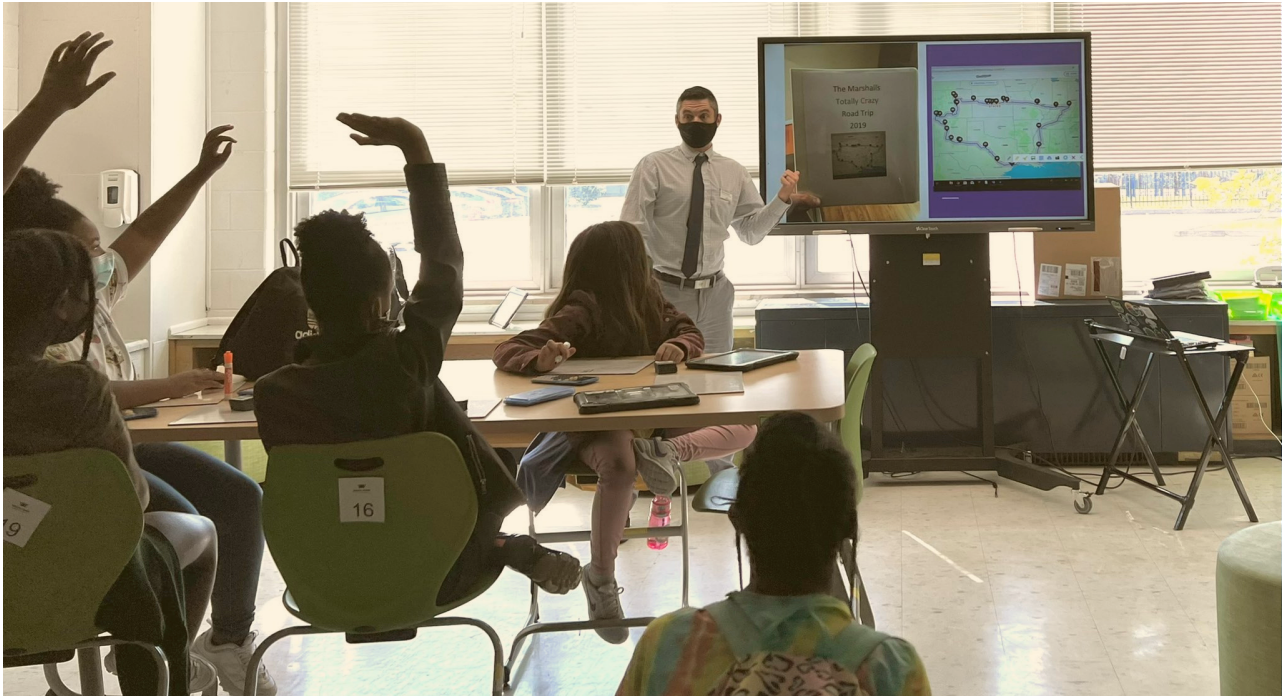
Student success ebbs and flows on the effectiveness of our teachers. Across all of our programs, we know and see the new challenges they face and the effort they put forth on a daily basis. We know teachers understand that the only answer to helping our children recover what has been lost is to support teachers and help them maintain high expectations and find ways to meet the needs as they arise. Currently, our students are at a crossroad and need our guidance to continue to expect more of themselves. Just because the odds are greater and the gap wider doesn't mean we should accept lower outcomes or reduce our expectations for success.

Expect More



Anthony Mires
Executive Director

Mission and Vision



Michael Marshall teaches an Algebra lesson at Grace James Academy in Louisville, KY.

Many more students are interested in pursuing STEM-related courses if given adequate support and opportunity.

With support from valuable partners like Kentucky Department of Education, National Math and Science Initiative, Code.org and many others, AdvanceKentucky works with districts across Kentucky to provide professional development, mentoring and student recruitment to increase enrollment and success in STEM classrooms. We focus our efforts on critical areas that provide opportunities for students as they transition through their academic career.

Every student deserves the opportunity to learn at the highest level possible and our education ecosystem should reflect that.

Our programs work to achieve their goals by helping schools focus efforts in three critical areas.



Our Team

AdvanceKentucky's programs and initiatives are supported by nationally recognized staff with experience in both classroom instruction and school leadership. Annually, they in turn work with over 100 Kentucky teachers to provide resources, training, and mentoring to support advanced coursework across the state.



Aaron Timmons
Program Director, CRP



Annette Williams
Program Director, A2A



Jessica Sanford
Sr Ex Asst, Data Spec



Lew Acampora
Sr Content Dir, Science



Liz LaVigne
Senior Exec Asst



Michael Marshall
Content Manager, Math



Monique Rice
Program Director, CSI



Sheri McGuffin
STEM Coordinator



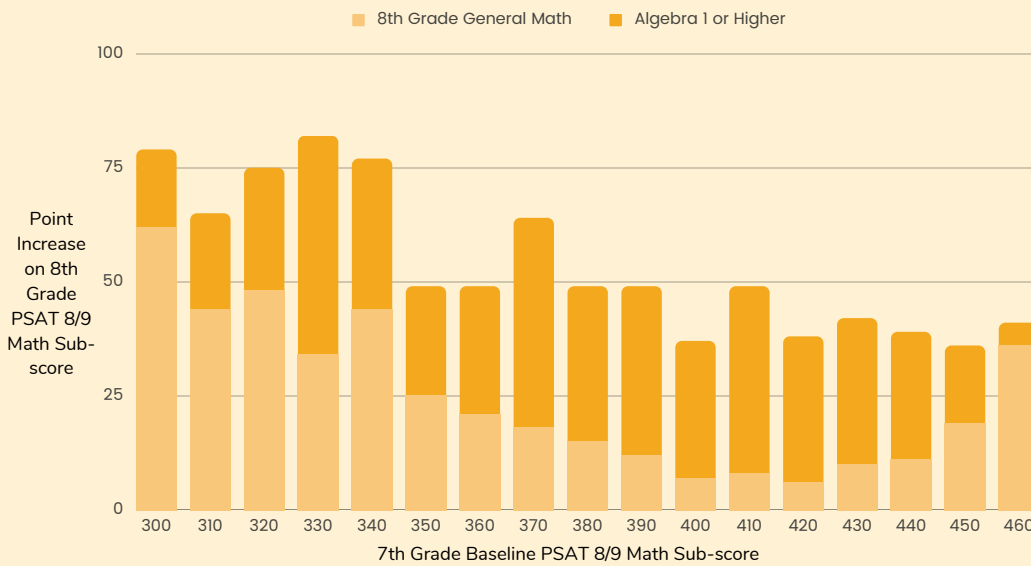
Stephanie Carter
Director, ELA/Capstone

We would also like to recognize the 100+ teachers each year who serve as mentors, trainers, and consultants for our programs. Without their work we could not do what we do.

Access to Algebra’s (A2A) mission is to increase the number of students prepared for advanced STEM coursework in high school by increasing participation and success in 8th grade Algebra and other accelerated math courses, especially for students traditionally underrepresented in advanced courses.

The Importance of Rigor

Students in middle school can succeed at high levels if given the opportunity to do so.



72%

Data suggests that 72% of all students in middle school see significantly higher math scores in 8th grade when they enroll in Algebra 1 or higher.

33%

Program-wide, one third more students would have had a higher likelihood of meeting grade level benchmark had they been enrolled in Algebra 1 or higher.

Overall, students in A2A achieved an average increase of 35 points from 7th to 8th grade on the PSAT 8/9 math sub-score. If this pace can be maintained these students will surpass the national college readiness benchmark of 530 by the time they graduate.

367 → **402**
7th → 8th

If districts maintain the same student growth as experienced while in the A2A program in 2022, their students will be college ready by the time they graduate.

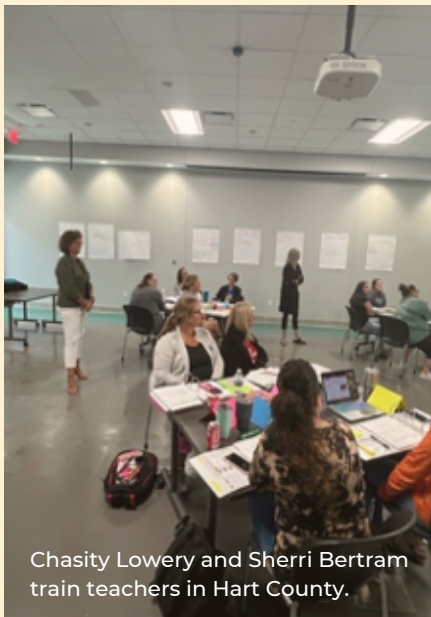
2022 By the Numbers

- 35** Overall, from 7th to 8th grade, students in A2A see a 32 point increase in PSAT 8/9 math subsection. This had declined to 17 points in SY 20-21 but rebounded to 35 points in SY21-22.
- 43** From 7th to 8th grade, students eligible for free and reduced-price lunch (FRL) see a 43-point gain in the PSAT 8/9 math subscore if enrolled in 8th grade Algebra 1 or higher.
- 47** From 7th to 8th grade, underrepresented minority (URM) students see a 47-point gain in the PSAT 8/9 math subscore if enrolled in 8th grade Algebra 1 or higher

Foundations for Success

Teacher content training and leadership empowerment have been valued concepts by AdvanceKentucky since the organization began in 2008. Middle school math teachers participating in Access to Algebra receive seventy-two hours of Laying the Foundation (LTF) training, attending a four day institute each summer for three years. Through training, teachers have access to hundreds of print and digital lessons to use in the classroom. LTF training is delivered by Kentucky teachers, who have been endorsed by the National Math and Science Initiative and are mostly past participants in AdvanceKentucky programs.

AdvanceKentucky believes in empowering teachers through not only content training but also leadership growth opportunities. A prime example of this is training teachers who have gone through LTF training to be trainers themselves for other teachers across the state. Three Access to Algebra teachers have become nationally endorsed LTF Trainers after completing training and apprenticeships. Sherry Bertram of Paducah Independent, became a trainer and values how much she has learned from other teachers. Sheila Cunningham of Chandlers Elementary in Logan County believes, “Having the opportunity to help put well-developed lessons and assessments in the hands of trained teachers is pure joy.” Another new trainer, Chasity Lowery of Glasgow Independent, says “being a teacher trainer for Laying the Foundation has given me the opportunity to share with colleagues and step outside my comfort zone. As a trainer, I get to share my passion for helping ALL students achieve high levels of success in math.”



Chasity Lowery and Sherri Bertram train teachers in Hart County.

48 19,286

schools to date have participated in Access to Algebra

middle school students served to date

“My experience with AdvanceKentucky has had a huge impact on my teaching, has changed the way we teach at Glasgow Middle, and changed how our students view their potential to be successful in math class.” -

Chasity Lowery, Glasgow Middle School

The goals of the College Readiness Program (CRP) are to increase the number of students enrolling in AP[®] mathematics, science, English, Capstone, and computer science courses and to strengthen the teaching of those courses. This is evidenced by the number of students taking and earning qualifying scores (QS) on exams in those courses.

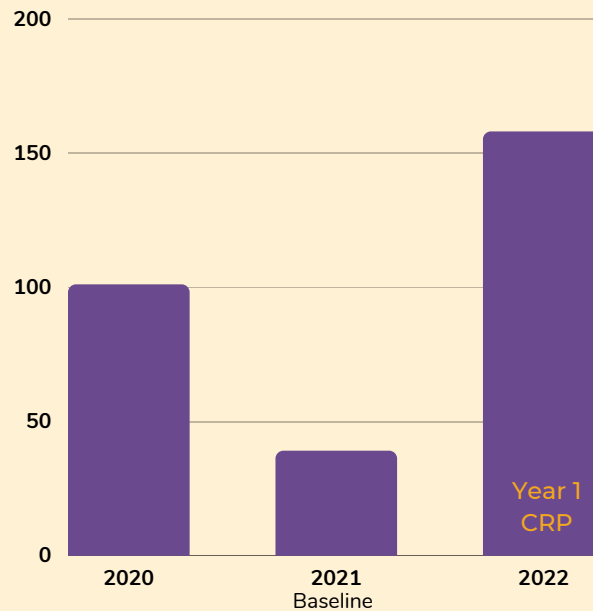
Cohort 14 First Year Growth AP MSE QS

Prior to Participation

While COVID definitely had an impact in 2020, the greatest impact was felt in the following year as schools navigated their return to in-person instruction. Prior to CRP support, by Cohort 14 saw a 61% decrease in QS prior to participation.

-61%

decrease in QS from 2020 to 2021



Year 1 Results

These same classrooms saw a significant first year increase in QS. As a cohort they not only recovered from the decline in 2021 but saw a 56% growth in qualifying scores over pre-pandemic performance.

+305%

increase in QS from 2021 to 2022

67%

Cohort 14 saw a 67% increase in the number of students taking an AP exam.

2022 By the Numbers

82% of 2022 CRP enrollments sat for the exam; this was up dramatically from 59% in 2021.

52% of 2022 CRP math and science enrollments were female with most enrolled in biology, chemistry, statistics, and computer science.

29% of 2022 CRP enrollments were economically disadvantaged; on average schools participating three years in the program see a 231% increase in FRL qualifying scores.

11% of 2022 CRP enrollments were underrepresented minority; on average schools participating three years in the program see a 248% increase in URM qualifying scores.

Beyond Credit: Advanced Placement[®] Courses Allow More Possibilities

Stephen Parsons may just be a superhero. He may not be able to fly or have x-ray vision, but he certainly has been able to manipulate time to its maximum benefit. Stephen was able to complete in four years what many students would need twice as long to do. Graduating from the University of Kentucky in 2016, Parsons left with degrees in Computer Science and International Studies and multiple minors in Spanish, physics, and math.

Stephen gives much credit to how he spent his time in high school. Taking AP math, science, and English classes in high school helped make it possible to complete a degree program in three years or less. With the time saved, he was able to complete two degree programs with multiple minors, get involved in a wide variety of organizations, and generally felt that he could explore whatever he found interesting. This sort of freedom at a large institution like UK allowed him to find many interesting people and find ways of building his own experience.

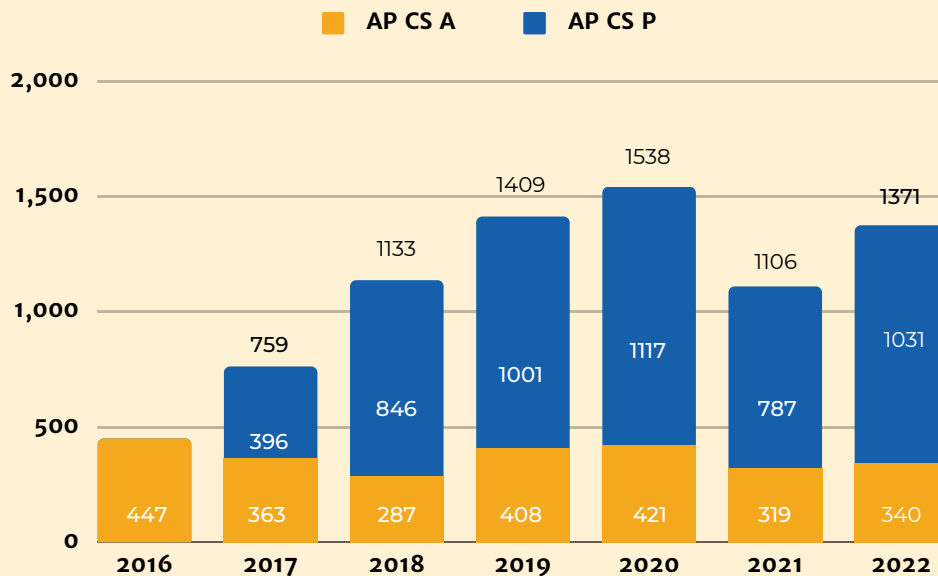
During his time at Bryan Station High School, Stephen found support through AdvanceKentucky's AP Exam Prep Sessions. Says Parsons, "I am very grateful for Bryan Station's involvement with AdvanceKentucky while I was a high school student, and it ended up being a huge asset to me. The payments for passing AP exams went a long way for me as a high-schooler and freed up some time I might have spent working to instead focus on school. But I remember the AdvanceKentucky study sessions being even more helpful. Taking a full day to be immersed in one subject, with a large group of other students doing the same thing, helped me feel much more prepared for the AP exams." His advice to high school students: "If you plan to go to college, AP math, science, and English classes are a great opportunity to get a head start and build your skills early. No matter what you end up studying, there will likely be core requirements that include at least one class in each of those subjects and you'll be better prepared." Read more about Stephen's story at AdvanceKentucky.com under Our Impact.



"Taking AP math, science, and English classes in high school gave me a tremendous advantage in college. Firstly, I was prepared for the style of the coursework and was able to do very well in my classes. Second, I was able to skip over many of the core requirements and prerequisites and jump right into classes that interested me." - Stephen Parsons

We believe that computer science should be offered in every school in Kentucky, grades K-12. To help accomplish this goal, we look for partnerships to create and manage professional development solutions for teachers at every level. Our vision is that every student in the Commonwealth will have access to a quality computer science course with a clear pathway to workforce opportunities.

Increase in AP[®] Computer Science Exams



207%

increase in the number of AP CS exams administered statewide since the addition of AP CSP in 2016

61%

of the increase in new exams has come from AdvanceKentucky teachers.

71%

71% of teachers participating in Code.org AP CS Principles training provided by AdvanceKentucky have gained approval to teach CS in their schools.

2022 By the Numbers

67 In 2020, AdvanceKentucky launched the first statewide chapter of CSTA, Computer Science Teachers Association. As of 2022, there are 99 members.

553 As of 2022, 553 Kentucky teachers have been trained by Code.org and AdvanceKentucky. 278 elementary, 98 middle grades, and 177 high school.

1 new CTE pathway created as a result of the growth of teachers trained in additive manufacturing

AdvanceKentucky CS initiatives



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All In on Computer Science at Eminence High School

For over three years, AdvanceKentucky has supported the development of a computer pathway at Eminence High School. In the fall of 2019, Sheri McGuffin shared the opportunity to train in the Code.org AP[®] CS Principles course with Jen Gilbert, planting a seed for a much larger program.

The Eminence School District chose to participate in the CSforALL SCRIPT Workshop process facilitated by AdvanceKentucky which created the foundation for a vision and action plan for continued computer science support. Building off of these meetings, Eminence continues to look for collaborative opportunities to strengthen vertical alignment of CS standards.

Since 2019, 37 students have taken or are currently enrolled in CS classes set in motion by AdvanceKentucky's. These include CS Principles, 3D-printing-focused Digital Literacy in partnership with JCTC, and AP[®] CS A for JAVA programming. Next year, Eminence plans to add a computational thinking course and internship, rounding out the full pathway.



118

trained additive
manufacturing teachers

9

districts have
completed CSforALL
SCRIPT workshops

169

teachers have
completed Code.org
AP CS P training

120

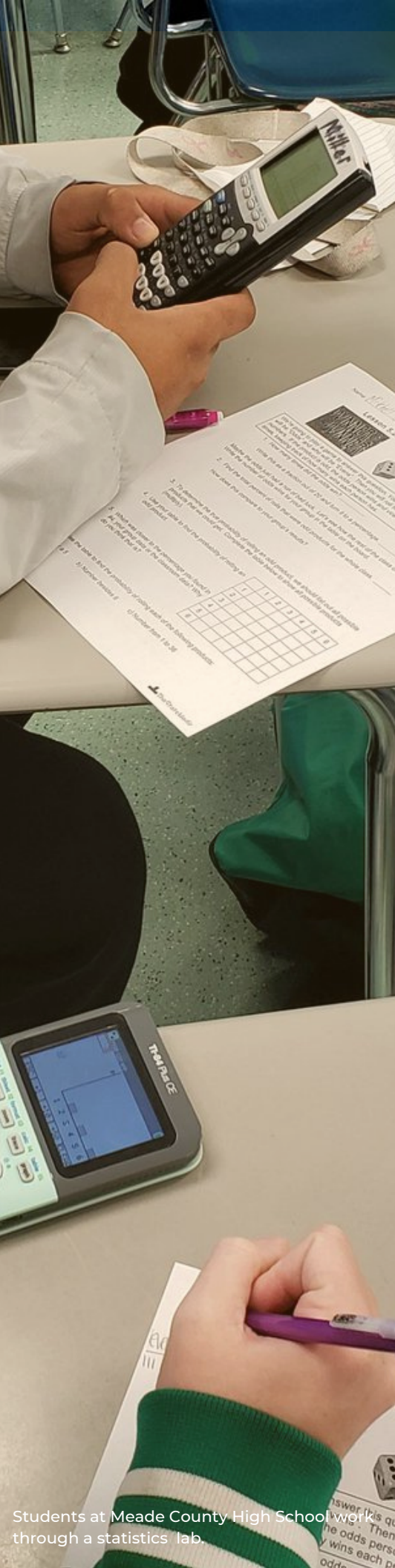
teachers have earned
approval to teach CS

“The scholarships, professional development, and collegial support through the programs supported by AdvanceKentucky like CSTA KY have made the computer science program at Eminence High School not only possible, but successful.” -Jennifer Gilbert, *Eminence Independent*

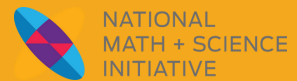
AdvanceKentucky CS initiatives



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The team at AdvanceKentucky and KSTC would like to acknowledge the contributions of the people and organizations who have contributed to our growth and success through the years. Without the help of these valuable partners we would not be where we are today:



- Appalachian Regional Commission
- Council for Postsecondary Education
- James Graham Brown Foundation
- Partners for Rural Education
- LIFT
- Charter Communications
- Somerset Community College
- CSforALL
- Beauty and Joy of Computing
- Lighthouse Beacon Foundation
- 150+ Partner Schools
- 300+ classroom teachers who have served or currently serve as mentors, trainers, and consultants

We thank you for your continued support in our efforts to provide STEM opportunities for all students across the Commonwealth.

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