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VI.1 - ARKANSAS COMPUTER SCIENCE

EXHIBIT ONE (1)



ARKANSAS

K-12 COMPUTER SCIENCE

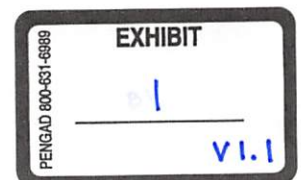
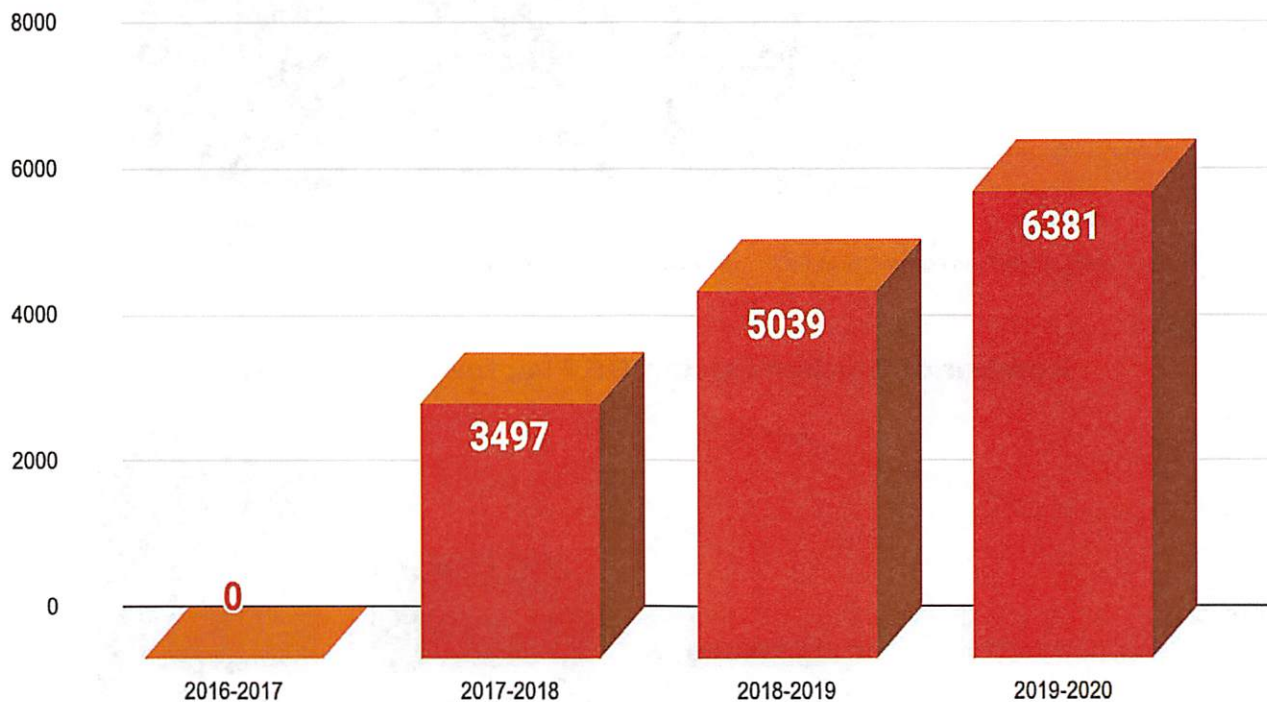
#ARKIDSCANCODE - SETTING THE STANDARD



Computer Science Flex Credit Update

During the December 2020, Arkansas State Board of Education (SBE) meeting, Joel Lookadoo, Arkansas 2019 Teacher of the Year, inquired about the number of students that were using the Flex Credit in place of various other graduation requirements. This report provides that information. Mr. Anthony Owen, State Director of Computer Science, compiled the data into spreadsheet form and produced the visuals found below.

Number of Students Using CS Flex for Any

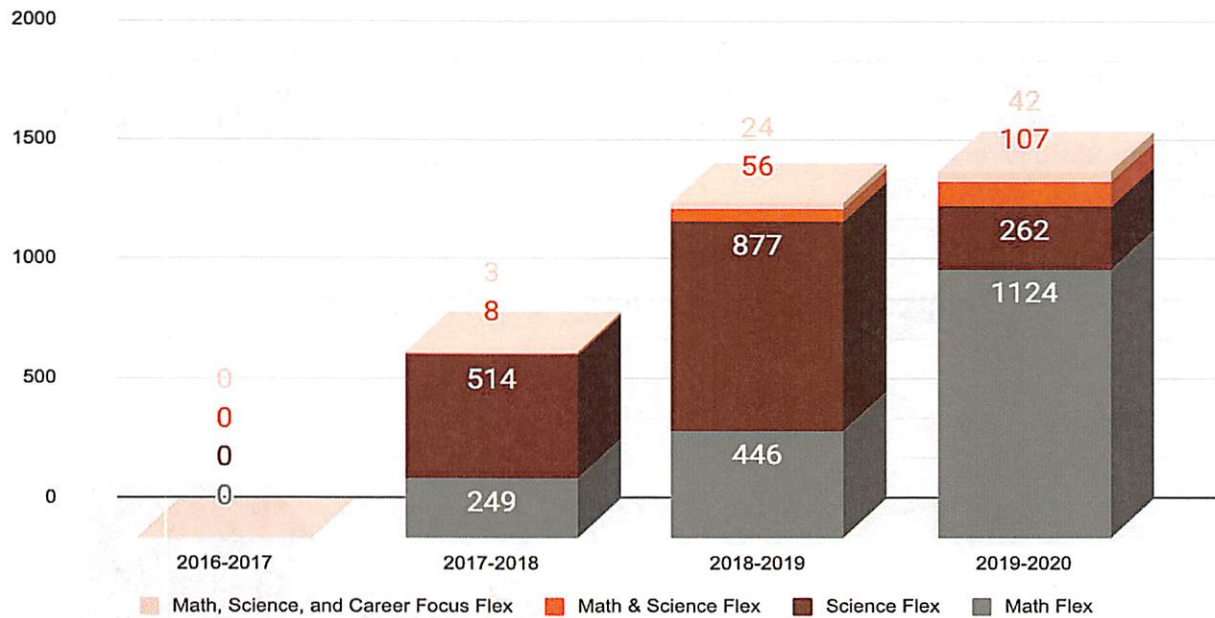




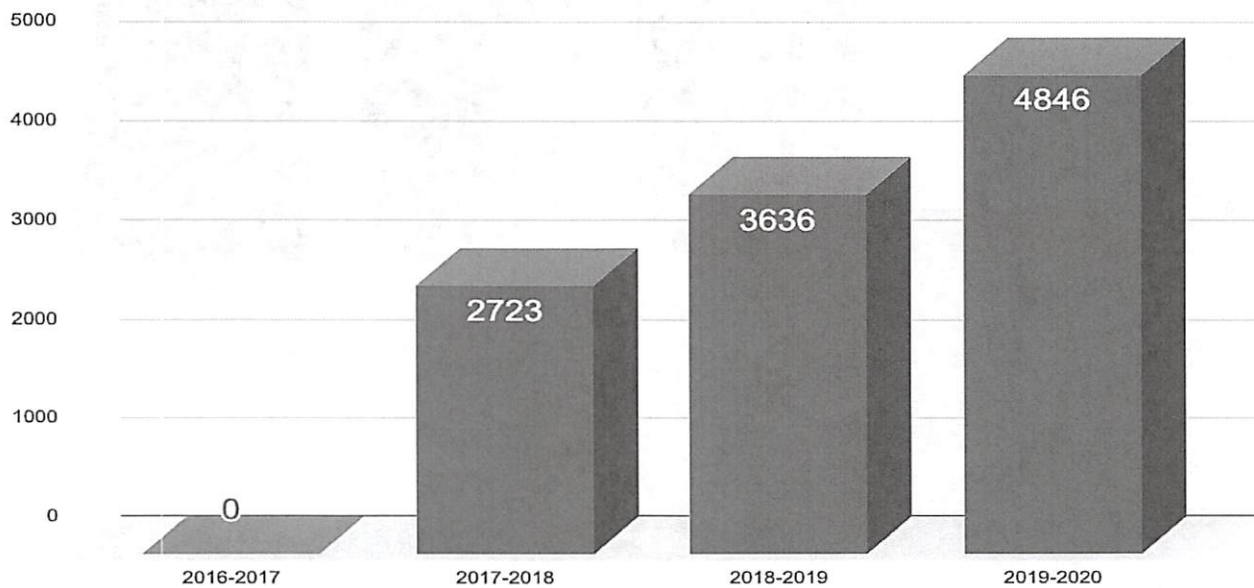
ARKANSAS
K-12 COMPUTER SCIENCE
#ARKIDSCANCODE - SETTING THE STANDARD



Number of Students Using CS Flex for Math, Science, and Career Focus



Number of Students Using CS Flex for Career Focus



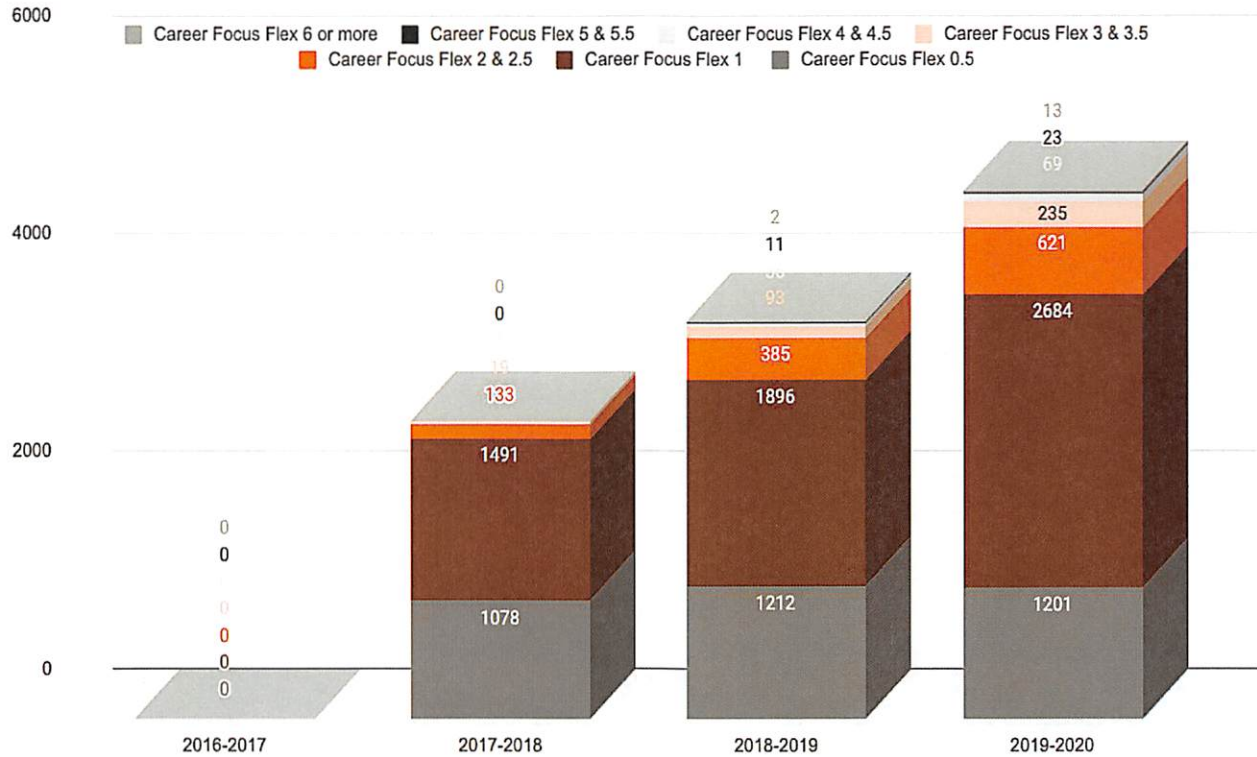


ARKANSAS K-12 COMPUTER SCIENCE

#ARKIDSCANCODE - SETTING THE STANDARD



CS Flex Career Focus Usage (Students)



FUTURE READY:

IMPROVING ACCESS TO COMPUTER SCIENCE



High school students today are preparing for a world _ and workforce _ driven by new technology. While coding is an important part of that world, computer science offers broad application and introduction to many different fields. Read on to learn how new legislation can bring more computer science opportunities to all Arkansas students.

1 CREDIT

The Arkansas Department of Education has submitted draft legislation to the Arkansas General Assembly that would require every student in Arkansas to have one credit in computer science before graduation. This legislative request is in line with the 2020 Computer Science and Cybersecurity Task Force's and Governor Asa Hutchinson's recommendations.

The proposed legislation and resulting guidelines would implement this requirement through a phased-in approach, beginning with the ninth grade class of the 2022-2023 school year.

9 PATHWAYS

The Arkansas State Board of Education (SBE) adopted the 2020 revised Computer Science and Computing Standards and high school courses. The adopted courses include the following nine pathways:

- High School Computer Engineering
- High School Cybersecurity
- High School Data Science
- High School Game Development and Design
- High School Mobile Application Development
- High School Networking
- High School Programming
- High School Robotics
- High School Artificial Intelligence and Machine Learning

Each pathway has three full computer science flex credits, resulting in 27 courses _ in addition to the 30+ AP, IB and concurrent credit courses.



#CSFORAR



MANY OPTIONS

In addition to the 27 courses, Arkansas also allows up to one credit for each of its Computer Science Independent Study and Computer Science Internship options. Arkansas also recognizes the following Advanced Placement (AP) and International Baccalaureate (IB) courses, each worth one credit:

- AP Computer Science Principles
- AP Computer Science A
- IB Computer Science

In the fall of 2020, the ADE Office of Computer Science worked with the Department of Career and Technical Education (DCTE) to establish four credits of Computer Science Youth Apprenticeships and four credits of Computer Science Career Practicum options.

The ADE has also established nine computer science concurrent credit course codes and nine weighted computer science course codes. These combined options provide more than 60 credit options for schools and students to select from to meet their needs.

THE CS FLEX CREDIT, WHICH APPLIES TO MORE THAN 60 COMPUTER SCIENCE AND COMPUTING COURSE OPTIONS, ALLOWS SCHOOLS AND STUDENTS FLEXIBILITY IN CHOOSING THE COURSES AND PATHWAYS THAT GROW TECHNICAL KNOWLEDGE AND SKILLS.

MORE EDUCATORS

Since 2015, the number of certified computer science educators has risen from fewer than 50 to more than 500. The department is continuing to support training and certification efforts by:

- Allocating more than \$1.2 million a year in training
- Providing educators who are fully 528 certified and teach courses with bonuses of \$2,000 per year for up to five years

The department is continuing to expand access to additional flexible pathways for CS certification beyond PRAXIS testing, training for approval code and technical permit options.

ALL EQUIPPED

The ADE Office of Computer Science continues to fund innovative methods for curriculum delivery, including our partnerships with Virtual Arkansas and ASTATE Upskill.

The Arkansas Department of Education's suggested legislation would require a certified computer science educator to be employed in every high school in Arkansas, beginning with the 2023-2024 school year. This would allow:

- More time to train and certify additional CS teachers
- An adequacy study to be conducted
- An adjustment to the funding matrix, if necessary

FUTURE READY:

GET TO KNOW COMPUTER SCIENCE



High school students today are preparing for a world – and workforce – driven by new technology. That's why computer science is so important! These courses go way beyond coding, giving students an introduction to many different fields. Check out some of the great opportunities computer science can bring to your school.

JUST **1** CREDIT

The Arkansas Department of Education has submitted draft legislation that would require one computer science credit for graduation, beginning with the freshman class of the 2022-2023 school year.

60+ OPTIONS

There are lots of courses – plus independent study, concurrent credit, AP classes, internships and other opportunities – that count for the computer science credit. Choosing is the hard part!

WHAT CAN YOU DO WITH COMPUTER SCIENCE?

9 PATHWAYS

The Arkansas State Board of Education (SBE) has adopted nine high-quality, high school pathways co-developed with Arkansas educators and industry leaders. Each pathway has three full computer science flex credits, resulting in 27 courses.



ARTIFICIAL INTELLIGENCE

Sci-fi goes real life in the state's newest CS pathway.



COMPUTER ENGINEERING

Explore hardware engineering and software development.



CYBERSECURITY

Hackers are everywhere - and protecting data is big business.



DATA SCIENCE

Have a knack for technology AND math? Excel here!



GAME DESIGN

There's a lot going on behind that screen [like major opportunities!].



APP DEVELOPMENT

Put great ideas - and potential careers - to good use.



NETWORKING

Connect technology. Share data. Earn money.



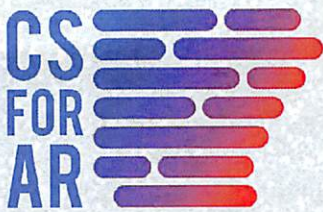
PROGRAMMING

Tell computers how to do... well, almost anything!



ROBOTICS

Create high-tech tools to replicate human behavior.



COMPUTER SCIENCE

in

ARKANSAS



ONLINE HIGH SCHOOL COMPUTER SCIENCE AND CERTIFICATION PREPARATION PROFESSIONAL DEVELOPMENT

Do you want to teach computer science, but don't know where to start? Need help acquiring your 528 certification? Our High School Computer Science and Certification Preparation professional development may be right for you!

The purpose of this training is to help narrow down and focus your studies on important concepts while also giving you a basic understanding of various computer science principles. This training is for any Arkansas educator wishing to teach high school computer science, needing assistance passing the Computer Science Praxis Exam 5652, or wanting to learn more computer science and CS education.

During this 5-day training, participants will review Arkansas high school computer science course codes, CS standards, the CSforAR fact sheet, curriculum resources, and other prep material specifically related to the Computer Science Praxis exam. Although a substantial amount of content will be covered, participants should plan to spend time studying after this training and prior to taking the Praxis exam.

This PD will be offered online and requires participants to virtually attend all 5 days. Successful completion of all 5 days is required to receive the 5016 Computer Science approval code, which is good through 2025-26 school year.

Dates for the online PD sessions will be consecutive Saturdays from January 23 through February 20. The zoom link will be sent to the email address as listed in escWorks upon registration. Registration information can be found at bit.ly/CSforARPD. Sign up today! Or, contact us at CSforAR@arkansas.gov with questions or for more information.



COMPUTER SCIENCE EDUCATOR OF THE YEAR AWARD CYCLE

The CSforAR team recently announced the process for the Arkansas Computer Science Educator of the Year award for the 2020-2021 school year. This award is open to any licensed educator currently working in a K-12 Public School or Public Charter School and who demonstrates a strong commitment to and substantial impact on the CS initiative in their school and community.

Five finalists will be selected from the applicants, and each will receive \$2,500. Of the five finalists, one will be selected as the Arkansas Computer Science Educator of the Year for 2021 and receive an additional award of \$12,500.

Eligible educators may apply [here](#) until February 28, 2021. The five finalists will be selected and announced by the end of March, and the winner will be announced in May.

2020-2021 GOVERNOR'S ALL-REGION AND ALL-STATE CODING COMPETITIONS

It's time to plan for the Governor's All-Region Coding Competition. This competition is open to Arkansas public, private, and homeschool school students in grades 8th - 12th. Qualifying teams from the regional event will continue to state. All-Region events are scheduled for Friday, February 26, and the All-State Competition is scheduled for Saturday, May 1.

Due to the ongoing COVID-19 pandemic, the 2020-2021 Governor's All-Region and All-State Coding Competition regional level event will be conducted online/digitally. The rules have been updated to reflect this change.

A full listing of the rules can be found [here](#).

CSforAR has established a webpage (<http://bit.ly/ARCodingComp>) to provide information regarding the regional and state competitions.

Members of each placing team will receive a cash prize as a deposit into an established 529 College Savings Plan:

- 1st place - \$2,000
- 2nd place - \$1,000
- 3rd place - \$500

Schools that sponsor the 1st, 2nd, and 3rd place teams will receive the following awards to support their computer science program:

- 1st place - \$10,000
- 2nd place - \$6,000
- 3rd place - \$4,000

For more information visit:

<http://adecm.arkansas.gov/ViewApprovedMemo.aspx?Id=4619>

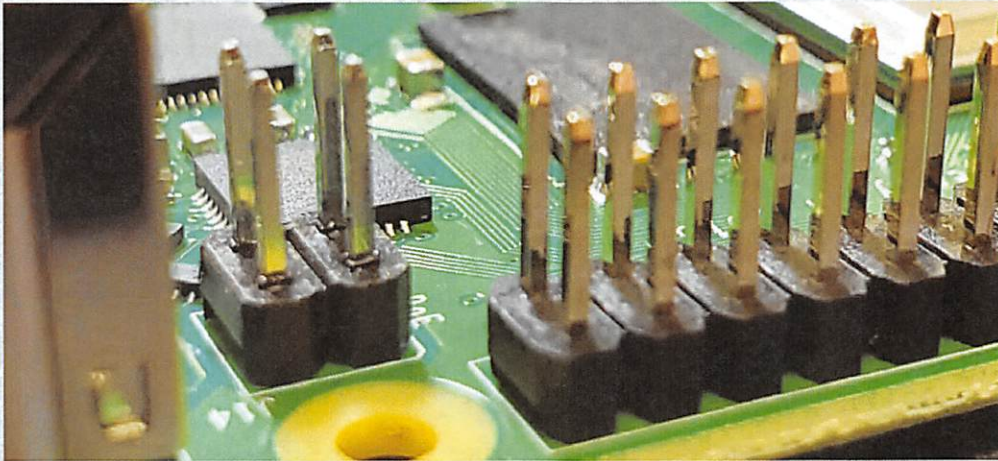


WINNERS DURING COMPUTER SCIENCE EDUCATION WEEK 2020

CS Ed Week 2020 was a huge success, and computer science educators across the state did a wonderful job creating activities for their students.

During the week of December 7-11th, the CSforAR Team hosted two fun activities. The first was the ADE Employee Scavenger Hunt. This took place over four days where ADE employees were sent a clue everyday as to where they could find an ornament piece. The winners who found all four pieces were awarded their very own completed CSforAR ornament.

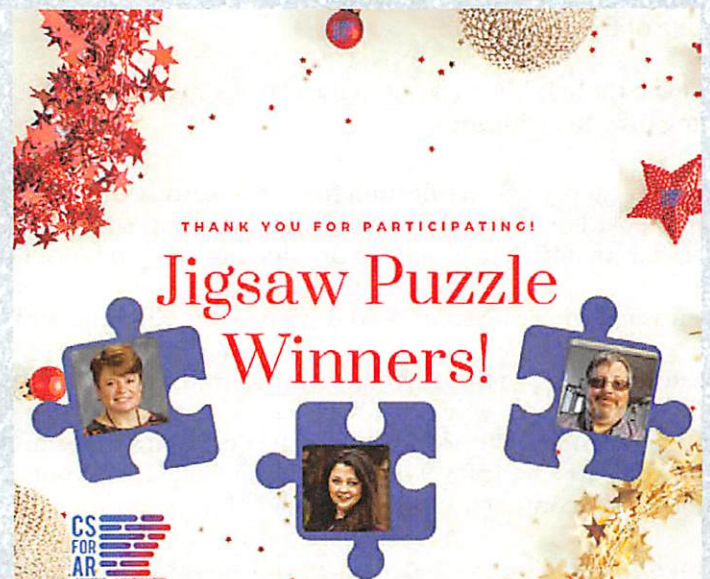
The second activity was the digital Jigsaw Puzzle! Over a span of 4 days, images in the shape of a jigsaw-piece were released and anyone who was able to guess the image was considered a winner.



Participants had to guess that the picture shown above was of a Raspberry Pi! More specifically, a Raspberry Pi 4!

The CSforAR team wants to thank everyone who participated, and hopes our winners are enjoying their prizes!

Here are our winners from both!



COMPUTER SCIENCE SPOTLIGHT

This month, we move half a step away from the CSforAR team to introduce one of our regular colleagues.

Adam Musto, STEM Program Coordinator for ADE Division of Career and Technical Education (DCTE), has been a frequent guest of the CS Coffee Cafe.

"My responsibilities include managing standards, licensing, funding, and certifications for STEM career and technical programs in the state of Arkansas," said Musto. "I work with schools, co-ops, other state agencies, and private industry to help find ways to get Arkansas students on the right track to enter STEM careers.

"We do this by developing programs of study, which are a series of courses that focus on a specific career field and culminate in an industry-recognized certification that lead to employment or continuation in postsecondary education."

Even though he's not an official member of the CSforAR team, Musto does have a similar start with technology. His first memory with technology was "playing the first Mario on the NES."

"I was around 4 years old. I didn't think much of it at the time other than it was a fun game to play. I still enjoy casual gaming, and though I don't really have a preferred platform, I'm in for any adventure or strategy game."

Musto has been an early adopter of technology all his life.

"My first computer was an HP desktop I got as a gift in the mid-1990s. I actually still have it in my attic. I don't remember much about it other than it ran Windows 95 and the total RAM was in MBs, not GBs. I remember connecting to dial-up internet and using the AOL disks to surf what little there was of the Internet back then. No one I lived with knew anything about computers, so I learned by playing around with it. That experience is what made me realize technology was special."

Before taking the position with DCTE, Musto was a Biology teacher at Searcy High School. Even though he wasn't a CS teacher, Musto said, "my goal as a teacher was always to give students hands-on experiences with content relevant to their current and future lives."

"When possible, I would let my students explore a topic on their own, allow mistakes to happen, then be there for support when a student got stuck. This would be uncomfortable for some students at first, but the look on their face when they realized they learned something new on their own was always worth it. I felt like it gave them confidence to continue to learn more on their own outside of the classroom."

And even though Musto is not in the classroom currently, he is considering getting his CS certification.

"I want to get my CS certification for a few reasons, but mostly I want to have a better understanding of what CS is and what it looks like in the classroom. I think it is important that I am always working to better understand the programs that fall under my office to be able to provide the best guidance I can to schools and teachers."

When asked where he sees CS education taking Arkansas and its students in the future, Musto became very poignant.

"I read something in the past that has stuck with me. I don't remember who it was, but they were saying that at some point in the future, people who don't have basic computer science skills will have the same lack of opportunities as people who cannot read today. We are already in the beginning stages of this, as can be seen by how few jobs there are left that don't require at least a basic level of computer literacy. I see computer science in Arkansas as working to ensure that Arkansas graduates are computer literate and ready for the future."

Adam Musto can be reached at adam.musto@arkansas.gov and welcomes any inquiries about STEM CTE.

"No one I lived with knew anything about computers, so I learned by playing around with it. That experience is what made me realize technology was special."

During Computer Science Education Week 2020, the Arkansas Department of Education Office of Computer Science announced the continuation of its cross-initiative program supporting both the Arkansas Computer Science (#ARKidsCanCode) and Arkansas Reading Initiatives (#RISEArkansas). Over the next couple of newsletters, the CSforAR Team will be highlighting one of the four books public school libraries will be receiving.

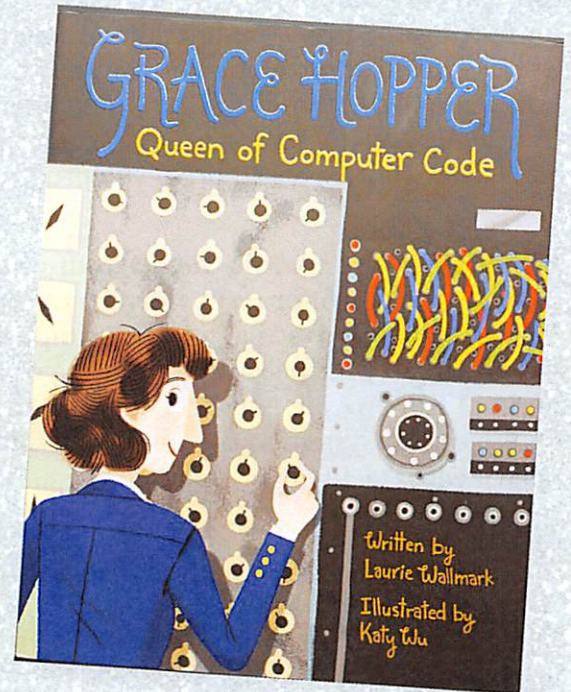
BOOK HIGHLIGHT: GRACE HOPPER: QUEEN OF COMPUTER CODE #ARKIDSCANCODE / #RISEARKANSAS

"If you've got a good idea, and you know it's going to work, go ahead and do it." The inspiring story of Grace Hopper—the boundary-breaking woman who revolutionized computer science—is told in an engaging picture book biography.

"Who was Grace Hopper? A software tester, workplace jester, cherished mentor, ace inventor, avid reader, naval leader—AND rule breaker, chance taker, and troublemaker. Acclaimed picture book author Laurie Wallmark (*Ada Byron Lovelace and the Thinking Machine*) once again tells the riveting story of a trailblazing woman. Grace Hopper coined the term "computer bug" and taught computers to "speak English." Throughout her life, Hopper succeeded in doing what no one had ever done before. Delighting in difficult ideas and in defying expectations, the insatiably curious Hopper truly was "Amazing Grace" . . . and a role model for science- and math-minded girls and boys. With a wealth of witty quotes, and richly detailed illustrations, this book brings Hopper's incredible accomplishments to life." - Review from [Sterling Publishing](#)

For more information visit:

<http://adecm.arkansas.gov/ViewApprovedMemo.aspx?Id=4612>



CSFORAR DIRECTOR SPEAKS WITH THE COLLEGE BOARD & BGR GROUP

On December 16, 2020, State Director of Computer Science Anthony Owen delivered remarks during the College Board & BGR Group webinar titled "Jobs, Jobs, Jobs: Success Stories and Strategies to Grow and Diversify State Computer Science Workforce Pipelines".

Among the presenters were:

- Moderator: Stefanie Sanford, Chief, Global Policy & External Relations, The College Board
- Angélica Infante-Green, Commissioner of Elementary and Secondary Education, Rhode Island
- Anthony Owen, State Director of Computer Science, Arkansas Department of Education
- Jhone Ebert, Superintendent of Public Instruction, Nevada Department of Education
- Maureen Reyes, Executive Director, AP Program Management, The College Board



Owen discussed how Arkansas recently won the 2020 Frank Newman innovation award from the Education Commission of the States for broadening access to computer science (especially for African American students), as well as the Governor's CS Initiative as a whole and how Arkansas continues to increase CS enrollment.

ARKANSAS COMPUTER SCIENCE GOLD MEDAL PROGRAM SURVEY DUE JANUARY 31ST

The Arkansas Department of Education (ADE) Office of Computer Science announced the Computer Science Gold Medal School Program (ACSGM) which will recognize Arkansas high schools for outstanding work in supporting and implementing the Arkansas Computer Science and Computing Initiative (ACSCI). Schools will be ranked annually based on information submitted to and reviewed by the Arkansas Department of Education (ADE) Office of Computer Science. The criteria that forms the basis of the rubric will center on Governor Asa Hutchinson's 5-year goals and the recommendations of the 2020 Arkansas Computer Science and Cybersecurity Task Force. The program is to begin during the 2020-2021 school year.

The ACSGM will provide the ADE Office of Computer Science a mechanism to proffer results-driven recommendations and goals for Arkansas schools to strive for in the implementation and growth of their local computer science and computing programs. In addition, the ACSGM will provide ADE and the Governor a clearly identified, criteria-based system to acknowledge schools that are implementing the ACSCI with fidelity over multiple years.

The ACSGM rubric is currently available at: <https://bit.ly/ACSGMRubric>

The [submission portal](#) will close at 11:45p.m. on January 31, 2021.
Rankings for the 2021 Gold Medal Schools will be announced in the Spring.



**ARKANSAS
COMPUTER
SCIENCE**
GOLD MEDAL SCHOOL

GREAT ARKANSAS HISTORY VIDEO GAME CODING COMPETITION

The Arkansas Department of Education (ADE) Office of Computer Science announced the second year of the Great Arkansas History Video Game Coding Competition (GAHVGCC).

This competition is open to Arkansas students in grades 4-8. By emphasizing storytelling, state history and coding, this competition will allow students to demonstrate their coding abilities, while supporting literary growth and expanding their knowledge of Arkansas History.

Schools are encouraged, but not required, to complete an Intent to Submit form, which can be accessed at: <https://forms.gle/Y26WBTfYsRN7p7ct8>.



Teams will consist of no more than six students in grades 4-8, and is open to public, private, and homeschool students with Arkansas residency. The contest submission window will open on March 31, 2021, and will close on April 5, 2021 at noon.

This year's theme for the Great Arkansas History Video Game Coding Competition is "The Old Gray Lady" and her influential role in Arkansas History.

Winning teams will be announced in May 2021.

The official competition webpage can be viewed on the Division of Elementary and Secondary Education website at: bit.ly/ARCSHistComp.

Contest rules can be accessed at: bit.ly/ARCSHistCompRules.

For more information, please contact a member of the CS Specialist team at CSforAR@arkansas.gov.

TECHNOLOGY STUDENT ASSOCIATION CONFERENCE

Don't miss the Arkansas Technology Student Association (TSA) State Conference scheduled for April 15-16, 2021. The competitions this year include 16 middle school and 24 high school events for registered TSA students across the state. The conference this year will be virtual with opportunities to advance to the National TSA Conference scheduled to be held in Florida this summer.

Don't have a TSA chapter at your school? Don't worry, it's not too late to get started. Do you need help with conference details? Make sure you read through the Call to Conference found at <https://bit.ly/ARTSACTC2021>. This document is full of conference information including; registration, deadlines, forms, events, etc.

For more information about the state conference or starting a TSA student organization, contact Tammy Glass, CS Specialist and State TSA Advisor at tammy.glass@arkansas.gov.



**ARKANSAS
SCHOOL**
FOR MATH,
SCIENCES,
+ THE ARTS

UPCOMING EVENTS

Arkansas School for Math, Sciences, and the Arts (ASMSA) announced a computer science professional development opportunity available to you through ASMSA's Coding Arkansas' Future initiative.

This Praxis Training Bootcamp will be held March 5 - 7. To register for this opportunity, please complete this [Google Form](#).

Please send all questions to Daniel Moix at moixd@asmsa.org.



**UPCOMING
TRAINING**
bit.ly/CSforARPD

**#CSFORAR
COFFEE CAFE**
bit.ly/ARCSCoffee

CONTACT US

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Little Rock, AR 72201

CSforAR@arkansas.gov

January 2021



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#ARKidsCanCode #CSforAR



Issue 7

C E R T I F I C A T E

STATE OF ARKANSAS)
) ss.
 COUNTY OF SALINE)

I, SHARON K. HILL, CCR, a Certified Stenomask Reporter and Notary Public before whom the foregoing proceedings was taken, do hereby certify that the same is a true and correct transcription before the Arkansas Division of Elementary and Secondary Education, State Board of Education, in Little Rock, Arkansas, and via Zoom, on January 14, 2021; that the said proceedings was reduced to typewritten form by me or under my direction and supervision; and that the foregoing pages constitute a true and correct transcription of all proceedings had in said matter.

I FURTHER CERTIFY that I am neither counsel for, related to, nor employed by any of the parties to this action.

I FURTHER CERTIFY that I have no contract with any parties within this action that affects or has a substantial tendency to affect impartiality, that requires me to relinquish control of an original transcript or copies of the transcript before it is certified and delivered to the custodial agency, or that requires me to provide any service not made available to all parties to the action.

WITNESS, MY HAND AND SEAL, THIS DATE: January 27, 2021.



Sharon K. Hill

SHARON K. HILL, CCR
 Certified Court Reporter
 Certificate No. 670

