

#ARKidsCanCode / #CSforAR: Arkansas's Computer Science Initiative

Anthony A. Owen
State Director of Computer
Science Education

August 3, 2017



ARKANSAS
K-12 COMPUTER SCIENCE

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Arkansas Vision for Computer Science

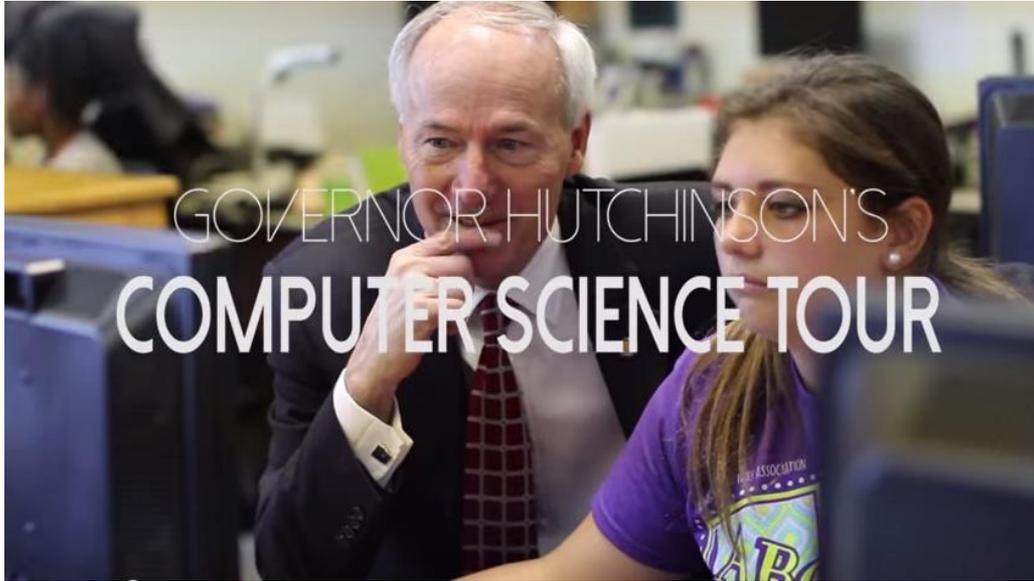
All Arkansas students actively engaging in a superior and appropriate computer science education



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Governor Asa Hutchinson's Leadership



<https://goo.gl/zsY7sv>

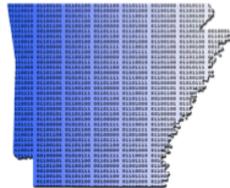


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- Video from:

<https://www.youtube.com/watch?v=WVCOM9lhJk&t=2s>



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EdTech Focus on K-12 Fall 2016 ed.



Facebook Donates \$1 Million In Virtual Reality Equipment To Arkansas Schools

POSTED 6:34 PM, JANUARY 17, 2017, BY [CJOELLISON](#). UPDATED AT 08:07AM, JANUARY 18, 2017

SO, ARKANSAS IS LEADING THE LEARN TO CODE MOVEMENT

Microsoft digital alliance supports technology education in Arkansas
By Raamel Mitchell, Public Affairs and Citizenship Director of Microsoft on December 12, 2016
Filed under [Microsoft](#), [CityNext](#)

Home / News /
Arkansas leading way on computer classes, Texas left in dust
By Brian Fanneoy [twitter](#)
This article was originally published March 20, 2016 at 5:45 a.m. Updated March 21, 2016 at 5:45 a.m.



Arkansas Gov: All High Schools Should Teach Computer Science

Asa Hutchinson @AsaHutchinson | Feb. 1, 2016



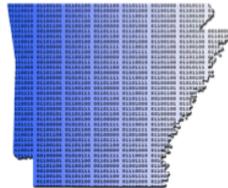
NO EXCUSES - ONLY ACTIONS



www.wikimedia.org

Apollo 11 Guidance Computer

- approximately 64Kbyte of memory
- operated at 0.043MHz



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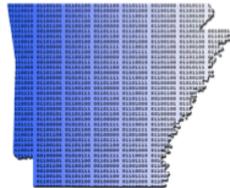
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Short Term Success vs Long Term Sustainability

The Arkansas Computer Science [Strategic Plan](#) aligns work to the vision of the state and incorporates task force recommendations as appropriate.

Arkansas is entering Phase 2 of our plan:

- Phase 1 – 2015-2017
- Phase 2 – 2017-2021
- Phase 3 – 2021-Forward



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2015-17 Phase 1

Legislation
Regulation
POC
Standards
/Courses
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Promotion

2017-21 Phase 2

Expand Teacher
Capacity
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2021 – Forward Phase 3

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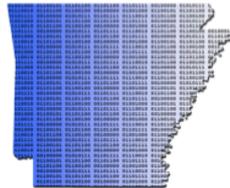
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ADE/ARCareerEd CS Fact Sheet

The majority of the presentation will be walking through the Fact Sheet found at:

<http://bit.ly/2sj6TCL>

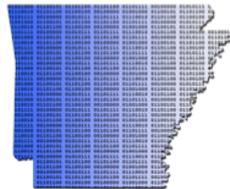
I strongly suggest you do not print the Fact Sheet!



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The remaining portions of this presentation may not be used during the session.



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Computer Science K-8 Standards

- Found at: <http://goo.gl/WHXkWu>
 - Adopted during January SBE Meeting
 - Implementation required beginning in the **2017-2018** school year
 - Separated into three documents
 - K-4 Embedded Standards
 - 5-8 Embedded Standards
 - Coding Block for Grades 7 or 8 (Required instruction for every student; not just offered)

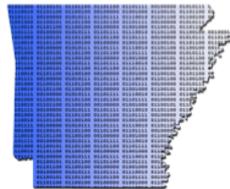


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Computer Science K-8 Standards

- Found at: <http://goo.gl/WHXkWu>
 - Teacher Clarification Statements
 - CT.1.K.1 - Discuss the following basic steps when problem solving: understanding the problem; considering various strategies
 - NOTE for CT.1.K.1 through CT.1.4.1 - *Problems within these standards can be, but are not limited to, real world problems or problems encountered in the student's daily-life. Examples include, but are not limited to, tying shoes and how to get from a classroom to the cafeteria.*



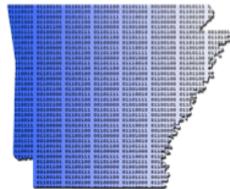
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Coding Block for Grades 7 or 8

The computer science 7-8 coding block is designed to be taught during a standalone block of time over a minimum of four to five weeks. As part of this block, students will examine how to formulate algorithms as well as create, analyze, test and debug computer programs in order to solve real-world problems. Students will be required to use a text-based programming language to accomplish these tasks.

These standards are not intended to be embedded in activities spread out over multiple courses.



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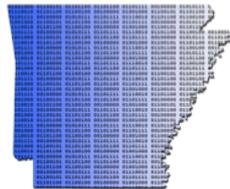
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Arkansas Computer Science Practices

Students will exhibit proficiency in computer science through:

- **Perseverance** - Students expect and persist in overcoming the challenges that occur when completing tasks. They recognize that making and correcting mistakes will take place during the learning process and problem solving.
- **Collaboration** - Students effectively work and communicate with others ensuring multiple voices are heard and considered. They understand that diverse thoughts may lead to creative solutions and that some problems may be best solved collaboratively.



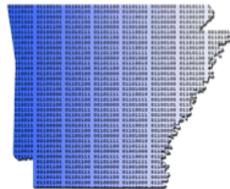
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Arkansas Computer Science Practices

Students will exhibit proficiency in computer science through:

- **Patterns** - Students understand and utilize the logical structure of information through identifying patterns and creating conceptual models. They decompose complex problems into simpler modules and patterns.
- **Tools** - Students evaluate and select tools to be used when completing tasks and solving problems. They understand that appropriate tools may include, but are not limited to, their mind, pencil and paper, manipulatives, software application programs, programming languages, or appropriate computing devices.



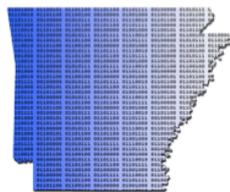
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Arkansas Computer Science Practices

Students will exhibit proficiency in computer science through:

- **Communication** - Students effectively communicate, using accurate and appropriate terminology, when explaining the task completion or problem solving strategies that were used. They recognize that good documentation is an ongoing part of the process, and when appropriate provide accurate documentation of their work in a manner that is understandable to others.



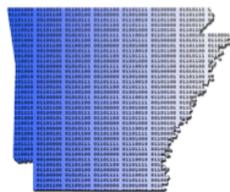
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Arkansas Computer Science Practices

Students will exhibit proficiency in computer science through:

- **Ethics and Impact** - Students comprehend the ramifications of actions prior to taking them. They are aware of their own digital and cyber presence and its impact on other individuals and society.
- **Problem Solving** - Students exhibit proficiency in Computer Science through identifying and systematically solving problems (e.g., engineering design process). They recognize problem solving as an ongoing process.



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Building Teacher Capacity

- 2015 – \$1.7 million in startup grants; up to \$20,000 per school that applied and agreed to implement CS face-to-face
- 2016 - \$1.1 Million in professional development grants to training partners
- 2017 – \$750K annually for statewide computer science specialists and training



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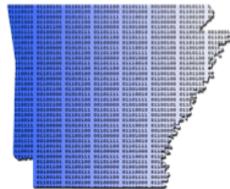


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Arkansas Future Grant (ArFuture)

- For traditional, home school and non-traditional students in Arkansas
- First come/first serve basis
- Provides two years of tuition and fees at an Arkansas community or technical college to any student who enrolls in a high demand field of study, such as computer science or welding

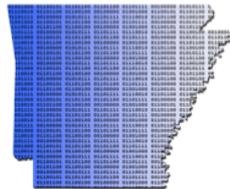


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Arkansas Future Grant (ArFuture)

- **Will not** require new general revenues
- Addresses important factors such as student accountability
- All recipients are required to meet monthly with a program mentor
- Upon graduation, the student must work full-time in Arkansas for a minimum of three years

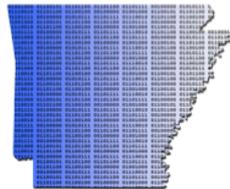


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Arkansas Future Grant (ArFuture)

“ArFuture will send a clear message to prospective employers that the state is committed to building the 21st century workforce that will attract industry and allow the Arkansas economy to thrive.” – Gov. Asa Hutchinson



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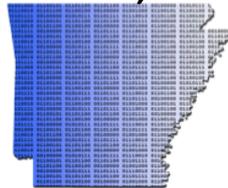
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Teacher Opportunity Program (TOP)

- Currently provides scholarships for teachers that are seeking further degrees
- The first priority for the award of funds under the TOP is the award of reimbursements for additional education in:
 - (A) Science, technology, engineering, or mathematics fields;
 - (B) Computer science;
 - (C) Literacy or reading;
 - (D) Prekindergarten education;
 - (E) Special education.

Act 160



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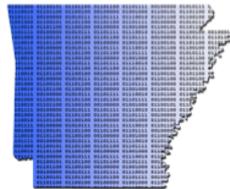


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Awareness and Engagement

- Promotion?
 - <https://www.youtube.com/watch?v=PV4NR2uuBC8>
- Recognizing Trends?
 - #ARKidsCanCode
 - #CSforAR
 - #CSforALL
- Researching ways to leverage your state tax dollars with Federal funding?
- Story



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Q&A / Contact Information

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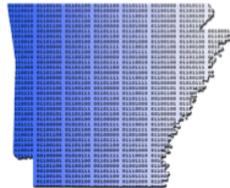
Arkansas State Director of Computer Science
Education

anthony.owen@arkansas.gov

Follow me on Twitter: @AnthonyOwenADE

*To be added to the Arkansas Computer
Science ListServ, use the form found at:*

<http://goo.gl/forms/FqGJ2CtXe1>



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