



Arkansas High School Computer Science Implementation for 2017-2018

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State Director of Computer
Science Education

December 13, 2016

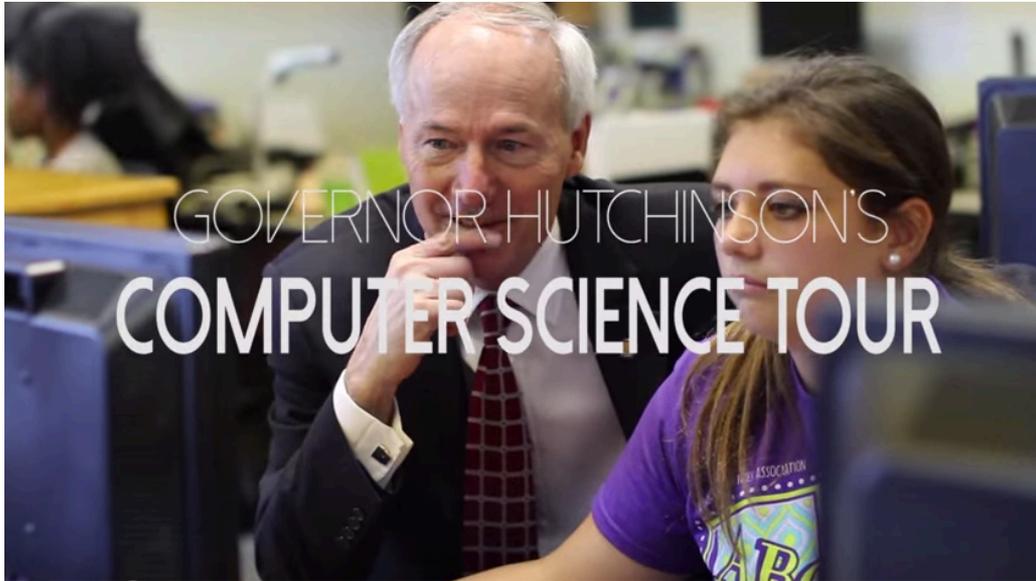


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Governor Asa Hutchinson's Leadership



<https://goo.gl/GIEKbz>



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Additional Reasons for Arkansas's Success

1. **Comprehensive Legislation / Content** - defining standards/student learning expectations and getting schools to offer the content/courses
2. **Central Point of Contact** – as this rolls out, many entities will need to be involved. There needs to exist a POC for CS, with that being their only focus, and given the authority to work as needed to support the initiative
3. **Graduation Credit** – what is in it for the students (other than knowledge); establishing a system that allows CS to count for a required credit
4. **Teacher Capacity** – aligning licensure, PD, and teacher pre-service in a way that supports existing teachers to gain the certification and begins the process of developing a maintaining pipeline of new CS certified teachers
5. **Funding** – funding will need to be allocated to support teacher PD to build capacity in addition to support other issues such as infrastructure and technology needs



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Relevant Educational Experience

Through Standards and Policy

- Arkansas passed legislation that requires every Arkansas High school to offer a computer science course Governor Hutchinson worked with both sides of isle to pass this legislation unanimously
- Set aside \$5 million to directly support Arkansas students, teachers, and schools
- Co-developed high-school pathways with the Arkansas Department of Career Education
 - Involved industry
 - Involved educators at all levels
 - Will allow credit for internships with local companies and industries
 - Remove Prerequisites
 - Allow Stacking



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Webpage and Question Submission

- www.arkansas.gov
 - Landing Page
 - CS Fact Sheet, CS Standards/Courses, CS Strategic Plan
- Submit questions at:
<https://goo.gl/forms/if01ZsXeKdvnimch2>
- Tweet about today:
 - #ARKidsCanCode
 - @AnthonyOwenADE



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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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Arkansas Mission for Computer Science

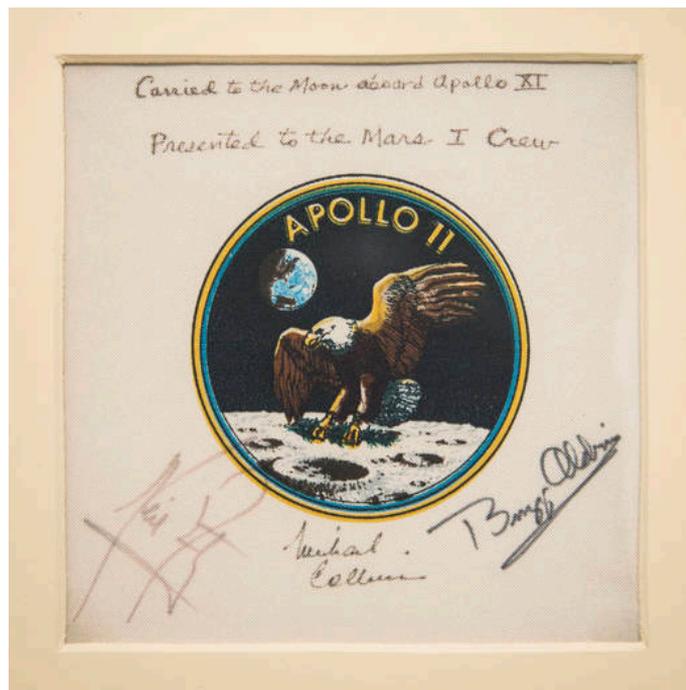
To facilitate Arkansas's transition to becoming and remaining a national leader in computer science education and technology careers



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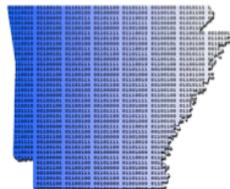
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Apollo 11 Guidance Computer



<https://www.nasa.gov/apollo11-gallery>

- approximately 64Kbyte of memory
- operated at 0.043MHz



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AR CS Belief Statements

Arkansas believes that:

- *every K-12 student in Arkansas deserves a premier computer science education that is suitable for his or her needs and can support his or her college and/or career aspirations.*
- *Arkansas will become and remain a national leader in computer technology careers through the implementation of a vertically articulated and comprehensive K-12 computer science education designed to support appropriate technological growth in all Arkansas students.*
- *due to the nature of technology, computer science education development in Arkansas must be adaptable, dynamic, and ongoing and based on research by content area experts.*



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AR CS Belief Statements

Arkansas believes that:

- *professional development opportunities must be provided that meet the grade-band specific technological needs of educators in a modern society.*
- *Arkansas educators must provide their students with an education that will facilitate the advance of useful technological skills and promote their role as digital natives.*
- *appropriate and continued collaboration with stakeholders will lead to a sustainable computer science educational system that is beneficial to students and Arkansas.*



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AR CS Belief Statements

Arkansas believes that:

- utilizing the wisdom of Arkansas educators who represent all grade levels, content areas, and regions of the state, in the development and periodic revisions of the K-12 Computer Science Standards is fundamental to ongoing successful implementation.*
- Arkansas's current, potential, and future industries that use computer technology should play a vital role in the development, implementation, and evolution of computer science education in Arkansas.*



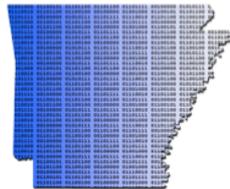
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AR CS Belief Statements

Arkansas believes that:

- the Arkansas Department of Higher Education and Arkansas's institutions of postsecondary education are instrumental in establishing and adapting the goals of secondary computer science education in Arkansas.*
- the Arkansas Department of Career Education has created a catalog of beneficial computer science courses that should evolve to become a component of this initiative and through which students can access additional areas of specialization.*



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AR CS Belief Statements

Arkansas believes that:

- *parents and other community members should be knowledgeable of the requirements of the Arkansas K-12 Computer Science Standards and be afforded the opportunity to provide feedback prior to adoption and revision of the standards.*



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2017-18 Implementation Quick Look

- K-8 Embedded Computer Science Standards at each grade level
- Coding Block for Grades 7 and 8
- All New ADE/ACE Co-Branded Grid of High School Computer Science Courses
- Computer Science Practices



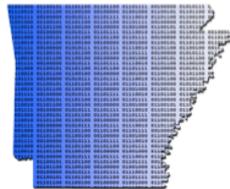
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Arkansas Computer Science Practices

The Practices are intended to be habits of mind for all students and were written broadly in order to apply to all grades.

The Practices are not content standards and are not intended to be formally assessed but may be assessed formatively.



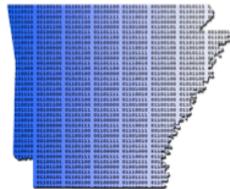
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Arkansas Computer Science Practices

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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Q&A

- Online Questions Submitted
 - <https://goo.gl/forms/if01ZsXeKdvnimcH2>
- Studio Audience Questions



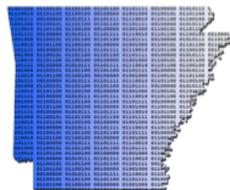
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15 Minute Break

When we return, we will provide a closer look at the information found on the ADE Computer Science Fact Sheet

While you are waiting, remember that you can submit questions at: <https://goo.gl/forms/if01ZsXeKdvnimcH2>

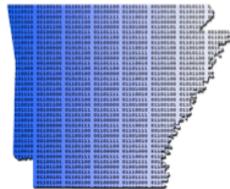


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Fact Sheet

- www.arkansas.gov
- <https://goo.gl/YW0Imq>
- Closer look at the CS Fact Sheet
 - The fact sheet is not a static document
 - It will be updated as new information is available
- 2017-18 Implementation



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Q&A

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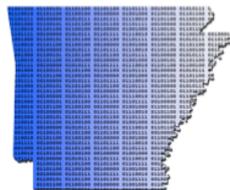
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10 Minute Break

When we return, we will provide a closer look at the High School CS grid and what schools and teachers will need to know to implement the High School CS Courses

While you are waiting, remember that you can submit questions at: <https://goo.gl/forms/if01ZsXeKdvnimcH2>



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Webpage and Fact Sheet

- www.arkansas.gov
- <https://goo.gl/YW0Imq>
- 2017-18 High School Grid of Courses



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High School Standards and Courses

- Were co-written/co-branded with Arkansas Dept. of Career Ed.
- Courses adopted by SBE during August 2016 meeting
- Grid of Courses
- Stacking will be allowed
- No-prerequisites
- Working with ASBA to write model policies



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High School Standards and Courses

- Computer Science Levels
- Computer Science Emphasis
- Computer Science Appendices
- Computer Science Levels 1-4
- Advanced Computer Science Offerings



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CS Independent Study and Internship

- Computer Science Independent Study
- Computer Science Internship
 - Both require board policy to be adopted
 - The documents state what must be addressed
 - The Arkansas School Board Association has worked with ADE to draft model policy



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Resources for You

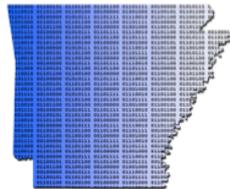
- www.arkansased.gov
- <http://www.arkansased.gov/divisions/learning-services/curriculum-and-instruction/resource-materials-for-lesson-plans/computer-science/computer-science-praxis-5651-study-resources>

ideas

INTERNET DELIVERED EDUCATION FOR ARKANSAS SCHOOLS



lynda.com



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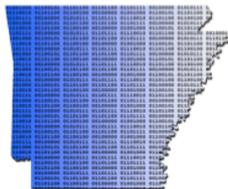
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Free Access to Lynda.com at

<http://ideas.aetn.org/>

- **Unlimited Access** - Learn what you want, when you want, from the course library.
- **4,268 Video Courses** - Find what you need in the growing library. New courses added weekly.
- **Expert Teachers** - Watch and learn from top experts who are passionate about teaching.
- **Variety of Instruction** - Courses for all levels cover technical skills, creative techniques, business strategies, and more.
- **On-the-go Learning** - Watch from your computer, tablet, or mobile device. Switch back and forth as you choose.
- **Custom Playlists** - Create and save lists of courses you want to watch, and share them with friends or colleagues.



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Computer Science Listserv

Use the Google Form found at
<http://goo.gl/forms/FqGJ2CtXe1>
to join

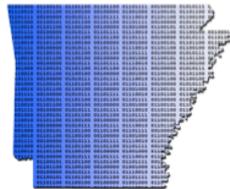


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Thank You!

- Thank you for:
 - viewing and or attending this session
 - the work you do daily to bring CS to your students
- Today's presentations will be linked on the CS Landing Page when available



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Final Q&A / Contact Information

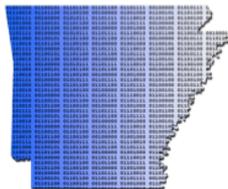
- Online Questions Submitted
<https://goo.gl/forms/if01ZsXeKdvnimcH2>
- Studio Audience Questions

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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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