

NV STEM Advisory Council

Nevada STEM Coalition
Computer Science K12 Education Task Force

Briefing

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January 12th, 2016 - President Obama in his State of the Union address challenged the nation to provide a Computer Science education to all students

January 30th, 2016 - President Obama Announces \$4 Billion “Computer Science For All” Initiative

Computer Science Job Challenge

- 50% of STEM jobs are expected to be computer related by 2020
- By 2020, projected one million CS jobs will be unfilled!
- Only 2% of STEM college graduates are in CS
- Embarrassing lack of diversity
 - In 1980's women 38% of CS graduates now just 12%
 - Very low minority representation
- Represents a key economic sector and skill in Nevada's economic diversification plan.
 - Brookings recommendation
 - Incorporate CS into the P-12 Curriculum
 - 67% of Software Jobs are outside of the High-Tech industries

Computer Science

- 21st Century method of solving problems that is separate from science, engineering, or mathematics
 - Abstraction, Automation, and Analysis
 - Computational Thinking is “Big Problem” Solving
- Coding not Computer Application Literacy
 - It is not Keyboarding, HTML, PowerPoint, or Photoshop
 - Technology Innovators vs Technology Consumers
 - Can be part of a larger technology strategy
- No longer simply a CTE subject but is now a core academic subject
- In the 21st Century, all kids need to learn to think computationally

K12 Computer Science (National)

- National efforts to expand Computer Science in K12
 - AR, CA, MA, TX, NC major expansion of CS
 - S.F. And Chicago will require CS of all students
 - UK, Finland, Estonia, & China already do
- New CS courses and curricula
 - Designed to increase diversity
 - ECS, AP CSP, Joy of Computing
 - Integrating CS with MS Math and Science
 - Project GUTS and Project Bootstrap
 - K5 (plugged and unplugged)
- Initial K12 CS Pathways have started to appear
 - Content/Subjects/Languages

K12 Computer Science

What Next?

- Follow the model from other states and NV STEM
 - i.e. ECEP, TACSE, ACCESS, MassCAN
- Establish Advocacy Organization(s) or Group(s)
- Establish Initial Task Force
 - <= You are here
- Hold Stakeholder Summit
- Develop Statewide CS Goals
- Develop Statewide CS Action Plan
 - May phase in over a number of years
- Integrate CS Plan with State Technology Plan
- Integrate CS Plan with State STEM Plan

Computer Science K12 Task Force Members

- NV Legislature
- Nevada State Board of Education
- UNLV (White House Change Champion)
- UNR
- NV Department of Education
- CCSD
- Nevada Ready 21
- OSIT
- Southern Nevada RPDP
- Community

K12 Computer Science

Short Term Milestones

- NV STEM Coalition STEM Summit II
 - Separate Computer Science breakout session
- State Board of Education
 - High School Graduation Requirements Subcommittee
- 2017 Nevada State Legislature
 - Interim Education Committee
- State Strategic STEM Plan
- White House “Computer Science of All” Initiative
 - May become main focus

Where do we want to be?

- Rigorous CS Classes for Core Subject Graduation
 - Approved by State Board
- All High Schools offer AP CS (A or CSP)
- Increased number of students
 - taking AP CS
 - earning CS CTE Certificate
- Required for Graduation
- Full P20 CS Pathways
 - Separate track or integrated with other subjects
- All students required to take some Computer Science
 - K5, Middle School, and High School
 - Every school offers some Computer Science

White House Computer Science for All Initiative

- \$4 billion available over three years
- For states to increase access to CS in P-12 classrooms.
- States submit five-year “Computer Science for All” plans
- Every state with well-designed strategy would receive funds.
- \$100 million in competitive grants for leading districts to execute ambitious CS expansion efforts for all students
 - Traditionally underrepresented students