Introductions
Daryl Detrick

Computer Science teacher at Warren Hills HS

Involved with Computer Science Advocacy on a local, state and national level:

<table>
<thead>
<tr>
<th>CSTA</th>
<th>CS4HS Google Google Ambassador</th>
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<tr>
<td>CSTANJ</td>
<td>ETS – CS Praxis NAC</td>
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<td>CSNJ</td>
<td>Building CS in NJ -</td>
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<td>CSALT</td>
<td>Martinson Foundation Grant / TCNJ</td>
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<td>Code.org</td>
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<td>CS@WH</td>
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Every student should have the opportunity to study computer science.

It can change their lives.
Economic Opportunities
500,000 current openings: These jobs are in every industry and every state, and they’re projected to grow at twice the rate of all other jobs.

Computing jobs are the #1 source of new wages in the United States

21,770 current openings in NJ.

Average computing salary $102,535

Code.org
Computer Science affects *every* field:
The states with the best Computer Science education programs will increase their chances of attracting these high paying jobs.
• Amazon HQ2 Headquarters
• $5 billion construction project
• 50,000 jobs
• NJ proposed Newark location
• NJ offered $7 billion in tax breaks
• Many other companies will follow
Computer Science Education
Not so Good News on the National Level
The majority of schools don’t teach Computer Science

- 90% of parents want their child to study computer science
- 40% of schools teach computer programming

Source: Gallup
Low-income students have less access to computer science classes

Percentage of 12th-graders whose high schools offer computer science classes, 2015

- **Any CS class**: 49% (Higher income) vs. 35% (Lower income)
- **AP CS class**: 26% (Higher income) vs. 18% (Lower income)

SOURCE: CTEq analysis of data from the U.S. Department of Education, National Assessment of Educational Progress, 2015 Mathematics Assessment
*Includes AP and non-AP classes*
“Access to CS Education has become the social justice issue of the 21st century. The way to get people out of poverty is to give them access to privileged skills.”

Chris Stevenson
Former CSTA Executive Director
Good News on the National Level
Funding for CS Education

POLICY

President Trump Earmarks $200 Million in Federal Grants for STEM, Computer Science Programs

Tech Firms Add $300 Million to Trump Administration’s Computer Science Push

tinyurl.com/CSfundingFAQs
Computer Science is the fastest growing AP Course of the past decade
Computer Science is the fastest growing AP Course of the past decade.
AP CSP - New AP Class in 2017

- Meant to increase the diversity in computer science
- Equivalent to CS for non-majors in college
- 7 big ideas: Creativity, Abstraction, Data and Information, Programming, the Internet and Global Impact
- Largest AP course launch ever
  - 2500+ schools
  - 45,000+ exams
The diversity problem in tech starts in schools

Women who try AP Computer Science in high school are ten times more likely to major in it in college.
The diversity problem in tech starts in schools

Hispanic and Black students who try AP Computer Science in high school are seven times more likely to major in it in college.
New Jersey CS Statistics

Good News and Bad News
### AP Computer Science A Test
### 5 year summary in New Jersey

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<th>2010</th>
<th>2016</th>
<th>% Growth</th>
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<tr>
<td># of students tested</td>
<td>942</td>
<td>3056</td>
<td>224%</td>
</tr>
<tr>
<td># of schools offering AP CS</td>
<td>136</td>
<td>190</td>
<td>40%</td>
</tr>
<tr>
<td># of females tested</td>
<td>156</td>
<td>697</td>
<td>347%</td>
</tr>
<tr>
<td># of black students tested</td>
<td>22</td>
<td>82</td>
<td>272%</td>
</tr>
<tr>
<td># of Hispanic students tested</td>
<td>53</td>
<td>277</td>
<td>422%</td>
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Data from: [http://home.cc.gatech.edu/ice-gt/596](http://home.cc.gatech.edu/ice-gt/596)
New Jersey Statistics on AP exam

**Females – 23%** of the test takers  
(compared to 50% of NJ population)

**Blacks – 2.7%** of the test takers  
(compared to 14% of NJ population)

**Hispanics – 9%** of test takers  
(compared to 18% of the NJ population)
Legislation and NJDOE

A Period of Transition
NJDOE CS Specialist
NJDOE Computer Science Specialist **Esther Lewars.**

Thank you **Chief Innovations Officer Joshua Koen.**
Standards

Technology Standards 8.2.E

Computational Thinking: Computer Programming

• Standards released in October 2014
  First in the Nation??

• Very basic, but a good start
CS Standards

The state of K-12 computer science standards

Arkansas is leading the way in CS Education … by far. We want NJ to be one of the leaders.

Only 10 states have created K-12 computer standards.

Momentum is building, but we still have a long way to go.
A3440 / S2030

The Department of Education shall undertake a review of the Core Curriculum Content Standards to ensure that they incorporate modern computer science standards where appropriate.

Signed by the Governor on January 19, 2016

NJDOE Standards Taskforce – revising 8.2
- CSTANJ and NJTEEA
- Integrated standards for K-6, 7-8 and 9-12.
- Computational Thinking
- Engineering Design
Advanced Placement computer science course to satisfy a part of the total credit requirement in mathematics.

Signed by the Governor on January 19, 2016

Working with NJDOE to create regulations
Computer science can count for graduation in 34 states + DC

In 34 states plus DC, computer science can count towards high school graduation math or science requirements – up from only 12 states in 2013.

NJ was the 26th state
A3870 / S2397

Creates a computer science teaching endorsement.

CSNJ worked with Rutgers, Kean, TCNJ, Rowan, Richard Stockton and Ramapo to create a proposal for a CS endorsement.

Summary

• In addition to a certification in another area
• Recommendation, not requirement at first
• Recommend no more than 15 credits
• Grandfather clause for those currently teaching CS.
A3870 / S2397

Creates a computer science teaching endorsement.

Passed Senate Education Committee 2/6/17 (5-0)
Passed Assembly Education Committee 2/13/17 (12-0)
Passed the Senate 3/13/17 (37 – 0)

Sign change.org petition to encourage Speaker of the Assembly Prieto to put the bill on the agenda

tinyurl.com/CS4NJLEG
Additional certification info

Educational Testing Service (ETS) is currently working on a Computer Science Praxis exam that should be released in September 2018.

CSTANJ has begun discussion with NJDOE on both a 15 credit endorsement and full CS certification.
States with CS Teaching Certification

27 States and DC.

NJ next?
Universities prepare WAY fewer computer science teachers than we need.

12,528 math teachers

11,917 science teachers

75 CS teachers
A2873/ S2487

Requires all high schools in NJ to offer computer science class by 2018/19

Requires all students to take computer science class as a graduation requirement by 2022/23.

Passed Assembly Education Committee 6/20/16 (8-0)
Passed Senate 6/29/17 (35 – 0)

Sign change.org petition to encourage Speaker of the Assembly Prieto to put the bill on the agenda

tinyurl.com/CS4NJLEG
Requirements for all high schools to offer computer science

4 states
NJ next?
NJ Gubernatorial Race

The states that have made the most progress recently have had governors who were elected with CS Education as part of their platform.

Governor-elect Murphy supports CSforAll
Professional Development

CS4HS 2017 summer
  • Rutgers
  • Kean
  • Princeton

NJ CS Summit on Diversity and Scalability
  • Rutgers - 2nd annual - May 2017
Professional Development

Martinson Family Foundation Grant
- provide free PD to train computer science teachers
- spring and summer workshops (1 hour to 1 week)

Code.org Regional Partnership
- Training high school and middle school teachers to teach computer science using Code.org curriculum
CSTA Chapters in NJ

CSTA Northern NJ - Kean
- President Lee Hayden
- Email – lhayden@roxbury.org

CSTA Central NJ - Rutgers
- President Adam Michlin
- Email - amichlin@gmail.com

CSTA Southern NJ – Richard Stockton
- President Adam Swift
- Email - SWIFTA@eht.k12.nj.us

CSTANJ.org
Join CSTANJ chapters

Communications

• CSTANJ Google Group - https://groups.google.com/d/forum/cstanj
• Twitter @CSTANewJersey
• www.facebook.com/cstanj

Join CSTA national at
Building CS in NJ is working with NJDOE and CSTANJ to create a website of CS Education resources.

The website will be a partnership of input from all CS Education stakeholders in NJ.

More info soon.....very soon
Computer Science Education
Good for our Students
Good for our State

Any Questions?

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