CS4HS 2014: What Now?!

The State of CS Education
Lunch discussions?
NCWIT
Aspirations in COMPUTING
http://www.technology-alliance.com/stemchallenge/youthapps.html
http://studentappchallenge.house.gov/About.aspx
HB 1472

“Boards of directors must approve AP computer science courses as equivalent to high school mathematics or science, and must denote on a student's transcript that AP computer science qualifies as a math-based quantitative course for students who take the course in their senior year. In order for a board to approve AP computer science as equivalent to high school mathematics, the student must be concurrently enrolled in or have successfully completed algebra II.”

National Initiatives

• NSF CS10K – 10,000 teachers in 10,000 HSs
• Computing in the Core – advocacy coalition
• STEM bill – 7/14 House approval

• President Obama: ”Don’t just play on your phone, program it.”

• Course development
Standards

• Computer Science Teachers Association
• Linked to Common Core

https://csta.acm.org/Curriculum/sub/K12Standards.html
Code.org K-8 Course

• Blockly programming (like Scratch)
• Celebrities

http://code.org/educate/20hr
Exploring Computer Science

1. Human Computer Interaction
2. Problem Solving
3. Web Design
4. Programming
5. Data Modeling
6. Robotics

http://www.exploringcs.org/
AP CS: Principles

- Computing is a **creative** activity
- **Abstraction** reduces information and detail to facilitate focus on relevant concepts
- **Data** and information facilitate the creation of knowledge
- **Algorithms** are used to develop and express solutions to computational problems
- **Programming** enables problem solving, human expression, and creation of knowledge
- The **Internet** pervades modern computing
- Computing has global **impacts**

http://www.csprinciples.org/
AP CS A

• Equivalent to first-quarter college course
• Focus on algorithm design and programming
• Programming is done in Java

http://homes.cs.washington.edu/~reges/uwhs/
# Course progression?

## Exploring Computer Science
- No prerequisites
- Earn CTE credit (fulfill part of 3-semester grad requirement)
- Learn to program in Scratch and Python
- Learn about what computer scientists do
- Expect 0-2 hours of homework a week
- [Learn more...](#)

## Creative Computing
- Algebra 1 Required
- **No previous programming course or experience needed!**
- Earn CTE credit (fulfill part of 3-semester grad requirement)
- Part one of a two-semester series
- Learn to program in Python
- Expect 0-2 hours of homework a week
- [Learn more...](#)

## Advanced Placement
- Algebra 1 Required
- Strong critical-reading skills required
- **No previous programming course or experience needed!**
- Earn CTE credit (fulfill part of 3-semester grad requirement)
- Learn to program in Java
- College-level course
- Expect 0-2 hours of homework a week
- [Learn more...](#)

Project Lead the Way

• Currently: CSP-like course
• Working on 4-year high school sequence

https://www.pltw.org/our-programs/computer-science
Certification

• Career and Technical Education

• Provisional certification often possible

https://www.k12.wa.us/certification/CTEMain.aspx
Online Professional Development

• Berkeley BJC: http://bjc.berkeley.edu/
• Mobile Computer Science Principles: https://sites.google.com/a/css.edu/mobilecsp/home
• CS4HS Online: http://googlecs4hsonline.org/
• Stanford CS 100: https://www.coursera.org/course/cs101
Puget Sound CSTA

- Monthly professional development
- Events for students
- Mailing list for questions

http://www.pscsta.org/