Myths

POST-WORKSHOP THOUGHTS

Myth #1: CS is learning how to use computers

- Computer Science
  - Designing and building software and hardware (and more)
  - NOT just using computers such as
    - Typing (“keyboarding”)
    - Using Microsoft Word, Excel, Powerpoint
    - Graphics design
- Mechanical (automotive) Engineering analogy
  - Designing and building a car
  - NOT just using/driving a car

Myth #2: CS is programming

- Programming is an important part of CS to realize ideas
- ideas + programming = software
- In CS terms
  - algorithm + implementation = software/program
- Analogy to writing a novel
  - Characters/plot/… + writing = novel
- For the same problem, we can analyze different algorithms to determine their relative merits
  - Before writing any programs

Myth #3: CS is not a serious subject of study

- Computer Science has been a well-established major in colleges since the 1980s
  - MIT started awarding bachelor's degrees in Computer Science and Engineering in 1975
    - http://www.eecs.mit.edu/about-us/mit-eecs-department-facts
  - Many universities have CS majors/departments
  - Some universities have a "school/college" of CS, which have multiple CS-related departments/majors
    - for example, Carnegie Mellon, Clemson, Georgia Tech, Utah
  - Georgia Tech and Harvey Mudd require all students to take a CS course
  - CS is the most popular major at Stanford in 2011-12
    - http://www.stanforddaily.com/2012/07/19/computer-science-becomes-stanfords-most-popular-major/
- AP CS started in 1984
  - http://en.wikipedia.org/wiki/Advanced_Placement_Computer_Science

Myth #4: AP CS courses do not need math

- AP CS and the proposed AP CS Principles ("almost for sure")
  - Have math pre-requisites
  - Aim at college-bound students, same as any AP course
  - Earn college credits
  - Compete with other AP courses such as Calculus and Physics
  - Unlikely student audience:
    - Not thinking about college
    - Behind in math
    - Failing FCAT
- CS majors in college are usually expected to take Calculus during their first year

Myth #5: CS is expensive to teach

- Most of the resources are free:
  - Software tools
  - Schools usually have computers
    - Corporations upgrade computers periodically, donations to schools are not uncommon
  - Online lesson plans, assignments
  - Online resources for professional development

Myth #6: CS must be a separate course

- A separate CS course would be nice
- Incorporating CS materials in existing courses might be appropriate

Myth #7: CS materials are not fun

- Non-computer activities such as:
  - CS Unplugged
- Animation-based tools such as:
  - Alice
  - Scratch
- Engaging assignments such as:
  - Guzdial and Ericson (multimedia approach)
  - Sedgewick and Wayne (interdisciplinary approach)
  - Niffy Assignments
- Mobile devices as platform:
  - Smart phones
  - Tablets

Myth #8: There is only one education/career path in computing

- College degree
  - AP CS and the proposed AP CS Principles in high schools
    - Focus of this CS4HS workshop
  - CS (or related) major in college/university
  - Designing and building software/hardware systems/products (e.g. for Google, Harris, IBM, Microsoft, NASA, Raytheon) or teaching CS in high schools
  - College + graduate degrees
    - Research and development (R&D) of ideas that might not become products in the next few years (e.g. Google Car, Google Glass, IBM Watson) or teaching/research in college/university
- Non-college-degree certification
  - Vocational/technical schools [and some community colleges] offer courses such as:
    - A+, http://certification.comptia.org/
    - Apple, http://training.apple.com/
    - Cisco, http://www.cisco.com/web/learning/
    - IBM, http://www.ibm.com/certify/
    - Microsoft, http://www.microsoft.com/learning/
    - Oracle, http://education.oracle.com/
  - Usually providing support for products from a specific vendor
  - Corporate customers usually need in-house support for these products
- Self-taught, tinkering, …