

AP CS Toy Night

2015 – Kansas City, MO

What is this?

- Pedagogical Practices
- AKA teaching things about computer science so they are fun!
- Five minutes per presentation please

Where to find the info later

- A www.tinyurl.com/APToyNight
- Facebook AP CS Group

Presentations

- Makey-Makey
 - How to make input devices from everything/anything
 - Albert Chan
- Using arrays
 - Wall based manipulatives to indicate an array and its indices. Teaching searching/sorting with people representing each spot as well as pointers/variables.
 - Jeremy

Culture and Resources

- Linking to culture and history
 - <https://www.google.com/culturalinstitute/u/0/home>
 - Create your own gallery
 - Women of Bletchley Park
 - Sandy Czajka
- Java resources
 - Ebook
 - Online Code Evaluation
 - AP CS Review book
 - Brianna Morrison

Mobile and Beginner

- Mobile App Bootcamp
 - Online bootcamp for mobile development for high school students.
 - <http://mobilemakers.co/high-schools/>
 - Tom Bredemeier
- Beginning CS Concepts
 - Puzzle style programming un the web. Options for developing sound, images, or code
 - www.pencilcode.net
 - Chinma Uche

Real World Projects

- Nifty assignments using free data resources
 - Multiple assignments
 - Data manipulation
 - Projects linked on toy night page
 - Ken Williams
- Real world problems – Spoilers!
 - Searching your own and others facebook/twitter feeds for specific information
 - Filter twitter feed! To avoid specific topics
 - API use
 - Ria Galanos

Engagement

- Classroom Participation
 - www.plicker.com
 - Easy to use QR codes for quick scoring/collecting results
 - Private – other students can't read the results
 - Read results with iOS/android devices
 - Louis Fleming

Robots!

- Sphero
 - Cool round robots that can be programmed, played with, used in class and recruiting
 - Java, Swift, Objective-C, Ruby, Node, Python, et al.
 - Louis Fleming

Starting Activity

- Get to know the psychology of the classroom
 - Robot(ish) game
 - Plan to get your character from one side of the board
 - Group dynamics, logical thinking, algorithm development
 - <http://links.sstx.org/RobotGame>
 - Brian Gray

Learning Java

- Self paced Learning
 - Gamification of CS curriculum
 - Students use a non-linear point system with various projects to meet the standards for each of the marking periods
 - www.cs.leanderisd.org/current/cs1
 - www.cs.leanderisd.org/current/cs2
- Java Textbook
 - Learn Java the Hard Way
 - Talk with Graham for a copy of text at graham dot mitchell at leanderisd dot org
 - Graham Mitchell

Student Attitude

- Social Interaction
 - Don't be Creepy
 - <http://dontbecreepy.com>
 - Working with students to increase their levels of social interaction and understanding of social cues and mores.

Teaching Kit

- Java Resources
 - University of Washington is providing resources for all teachers
 - AP CS in a box
 - <http://homes.cs.washington.edu/~reges/teals/>
 - <http://homes.cs.washington.edu/~reges/teals/bjp.shtml>
 - <http://homes.cs.washington.edu/~reges/csta/exams/>
 - Contact Stuart at reges at cs dot washington dot edu for user/password information

Advanced Projects

- Nifty assignments
 - A variety of cool assignments to engage students and explore different aspects of computer science
 - <http://nifty.stanford.edu/>
- 2D Arrays
 - Always need more ways to visualize and work with multi-dimensional arrays with students.
 - www.tinyurl.com/ArrayPlotter
 - Glen Martin

Monkeys and Web

- Data Structures with Kids Toys
 - Barrel of Monkeys
 - Lists, Arrays,
 - FisherPrice Rings/Cups
 - Stack
 - Jim Huggins
- Online Resource Linking/Curating
 - Symbaloo.com
 - <http://www.symbaloo.com/mix/learningcomputerscience>
 - Lynne

Game Dev

- World Building / Game Development
 - Unity is a free world building and game development tool. It provides for early programming as well as more advanced options as the student progresses. It can be a great recruitment tool
 - Exports to all major gaming devices
 - Android, iOS, XBOX, Playstation
 - www.unity3d.com
 - Jeremy

Online

- AP CS MOOC
 - Amplify provides an AP CS MOOC for free. The online support is staffed by paid college students to answer questions associated with the course
 - <https://users-mooc.amplify.com/>
 - Rebecca Dovi

Offline

- Mobile Quiz and Walk/Talk
 - Placing 3x5 cards around the room with keywords/concepts/ideas. A stack of other 3x5 or post-its with related, complementary, component, etc. students work in groups to get all the cards to the appropriate part of the room and then have them explain why the cards fit within the category to another group
 - Cody Henrichsen cody dot henrichsen at gmail dot com

Vocab

- Array

- []
- Length
- No methods
- ####[spot] =
- __ = ####[spot]

- Java

- Constructor
- Methods
- Data members
- extends
- declaration

- Primitive

- int
- boolean
- double
- No methods

- Java

- Object
- equals()
- toString
- package
- data member
- initialization

Vocab

- GUI

- getContentPane
- setupLayout
- setupPanel
- setupListeners

- MVC

- Model
- View
- Controller

- String

- contains(string)
- indexOf(string)
- equals(string)
- substring(int)
- substring(int, int)

- ArrayList

- .size()
- .add(value)
- .add(pos, value)
- .remove(pos)