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Next Homework: **Gold HW 1** **Black HW 1** CS hw due on: **Mon., Sep. 17, 11:59pm**

Next Lab: **Lab 1** Will be held on: **Tue. Sep. 11 or Wed. Sep. 12**

MyCS Summer 2011 workshop agenda and plan

- MyCS?_summer_2011 Piazzza class
- (q. for Mike): how many hours are needed for credit at CGU?
- CS4HS materials and list of workshops from which to get a template...
 - <http://www.cs4hs.com/>
 - <http://www.cs4hs.com/participating-schools.html> (2010)
 - <http://www.cs.uml.edu/cs4hs/>
 - http://scalablegamedesign.cs.colorado.edu/wiki/Cs4hs_2011_worksh
 - <http://www.cs.cmu.edu/cs4hs/summer11/workshops.html>

Monday, July 11 - Unit 1: HCI

- What time to start? 8am 9am?
- What time to end? 4pm?
- breaks? lunch?
- kinds of sessions? talks? break-out/brainstorming? lab times!
- ideas: try to incorporate Google docs at least once in each unit
- have a formal report-out at the end of each morning and afternoon
 - which of these ideas/lesson plans would be well-received by your middle-school students?
 - which would not?
 - how would you adapt these materials -- or how would you like them to be adapted
 - other improvements or resources that would help?
 - give them time to look at the actual Exploring CS lesson plans
- breakfast?
- **9:00-9:30am** Welcome - introductions - ice breaker game - and introduction to computer science
- **9:30-10:00am** MyCS: Middle-years computer science and its curriculum, especially Unit 1

- *What is computing? What is a computer?* pair-activity (create ppt page)
 - hand out Unit 1 lesson plans
 - 5min warmup: strawberry, fire extinguisher, telephone booth, wine, rose... sort in order of "redness"
 - Mac, PC, cell phone, car, dishwasher, traffic light, calculator, abacus, person... sort in order of "computerness"
- **10:00-10:15am** Coffee break
- **10:15-11:15am** Unit 1 lab time: Computer parts and Search Engines
 - Look up parts on Wikipedia vs Encyclopedia Britannica vs How Stuff Works
 - pictures and Google presentation vs. poster and/or computational sculpture 😊 "Gallery walk"***
 - what other thing can we connect with (Google docs/presentation software, for sure)
- **11:15-11:45** break-out and report-back session
 - we give the teachers a summary of the lessons looked at
 - ask the questions above
- **11:45-12:30pm** Lunch
 - one of the CS4HS workshops had videos at lunch -- we're now adding them to the Slides GoogleDoc?
 - The Great Robot Race***
 - Top Secret Rosies -- <http://portal.acm.org/citation.cfm?id=1929890>***
- **12:30-1:00pm** Intro to programming- modeling the spread of disease with Google Docs
 - Google 3d modeling tool, perhaps
 - Google does really great data visualization in Spreadsheet. For example, given the proper data, you can make the x-y bubble graphs in the gapminder link below. Given Prolog-style parent-child pairs, Google Docs can whip you up a tree. --Garrett
 - other cool visualizations links on slides
- **1:00-2:00pm** What is computing?
 - activity: Write instructions to make pb&j
 - YouTube? video of results from pb&j -<http://youtu.be/1KOvxBNJk88?t=6m43s>
 - origami (rose - example of recursion)***
 - LightBot? as intro to programming
 - can we run this stand-alone? [This](#) is the best we (well, I) can do.
 - Preview of Scratch's interface
 - Nick Parlante's web coding: <http://www.stanford.edu/class/cs101/>***
- **2:00-2:45pm** Computer Intelligence - the Turing Test

- [Activity 20 from CS Unplugged](#) This is a game in which 1 person pretends to be a computer and the other a human, and the class has to guess which is which based on answers to their questions.
- Other examples of computer intelligence:
 - Watson! Mention how Watson needed text input (as opposed to audio), and how Watson had trouble parsing some clues ("What is Toronto????")
 - [Eliza](#) <--
 - 20 questions game
 - other learning demos (at end, maybe) Latex symbol [demo](#); handwriting-recognition demo, etc.***
 - use Loebner Contest entries online <-- look for these***
 - <http://www.pandorabots.com/pandora/talk?botid=f5d922d97e345aa1>
 - <http://www.abenteuermedien.de/jabberwock/>
- Tie back to our discussion of "computerness" in the initial activity: What are the weak points and limitations of computers?
- **2:45-3:15pm** Summary & Feedback
 - re-gather
 - look over all of Unit 1 together
 - brainstorm what will work, how it'll work, what needs improvement
 - make sure that we refer back to the lesson plans as often as possible.

Tuesday, July 12- Unit 2: Problem Solving

- Unit 2
 - the details of how things are presented & what's covered in labs is key ...
- breakfast?
- **9:00-9:30am** Algorithms & problem solving strategies- Ask Prof Ran?
 - DNA folding: [paper](#) and [TED talk](#) and [picture](#).
 - pageRank
 - shortest paths
 - n-body problem
- **9:30-10:00am** Binary Lab/Activity & Prime numbers
 - Binary Scratch Program
 - [CS Unplugged Activity](#)
 - run-length encoding***
 - briefly bring up other bases like hexadecimal colors.
 - Jen can talk about her binary activity
- **10:00-10:15am** Coffee break
- **10:15-11:15am** Unit 2 lab time
 - Create your own code using Legos... ([MikesLegos](#) activity)
 - create a code that specifies a set of instructions... send it and have them decode and run the instructions

- each instruction is "place a brick at x,y of certain color, (orientation maybe)"
 - then, they encode these instructions and then let the other team see if they create the right tower
- [FiniteStateMachines](#) activity- Pirate Islands!
- **11:15-11:45am** break-out and report-back session
 - we give the teachers a summary of the lessons looked at
 - ask the questions above
- **11:45am-12:30pm** Lunch
- **12:30-1:00pm** Linear & Binary Search
 - activity from lesson plan- Trump Tower Activity
 - model linear & binary search: look for words in dictionary
- **1:00-2:00pm** Sorting
 - activity: have one person sort everybody by name/birthday/height
 - video <http://csunplugged.org/sorting-algorithms>
 - act out quicksort & selection sort (cs unplugged [activity](#))
 - dancing-out video of sorting algorithms (find!)
- **2:00-2:45pm** Graphs and Minimal Spanning Trees
 - cool graph puzzles (finding hamiltonian & eulerian cycles, Konigsberg bridges,...)
 - CS unplugged [activity](#) (Muddy Roads)
 - look at final unit project
- **2:45-3:15pm** Summary & Feedback
 - re-gather and talk about final project ideas (from lesson plan)
 - look over all of unit 2 together
 - brainstorm what will work, how it'll work, what needs improvement
 - make sure that we refer back to the lesson plans as often as possible.

Wednesday, July 13 - Unit 3: Web Design

- breakfast?
- **9:00-9:30am** Web & Society
 - internet privacy/security issues
 - from lesson plan: [PBS Frontline: Growing up online](#)
 - article: [The Dangers of Facebook](#)
 - discussion: issues of socially responsible web use
 - from lesson plan: write response on blog
 - or perhaps brainstorm through google docs instead?
- **9:30-10:00am** Website Design
 - Intro to web design, sketch out our own website
 - look at good and bad websites <http://www.websitesthatsuck.com/>
- **10:00-10:15am** Coffee break

- **10:15-11:15am** HTML lab
 - mini-HTML lesson www.w3schools.com/html/
 - make a web-page with HTML formatting, images, lists, hyperlinks!
 - maybe web-page contains response to the previous discussion? Or a summary of internet privacy/security issues?
- **11:15-11:45am** break-out and report-back session
- **11:45am-12:30pm** Lunch
- **12:30-1:00pm** Intro to CSS
 - create a web page that uses an internal style sheet (or a separate style sheet?) - augment previous web page
 - css reference: www.w3schools.com/css/
 - before/after markup mini-tutorial from lesson plan: <http://www.georgebenainous.com/web/>
 - http://www.w3schools.com/tags/ref_colorpicker.asp
- **1:00-2:00pm** CSS Lab
 - More Trash.CSS5HTML & CSS: page layout styles (days 15-16)
 - add navigation menus & different lists. See <http://www.georgebenainous.com/web/>
 - Adding Images
 - Zebra Tables
- **2:00-2:45pm** Preview of JavaScript[?] and Flash- show demos
 - <http://mootools.net/demos/>
 - <http://www.georgebenainous.com/web/>
 - sliding puzzle demo <http://www.lokeshdhakar.com/projects/lightbox2/>
 - lightbox show demo <http://www.lokeshdhakar.com/projects/lightbox2/>* put it all together
 - connect with algorithmic stuff from Unit 2
 - ex: max, sort
 - go into javascript & flash supplements?
- **2:45-3:15pm** Summary & Feedback
 - re-gather and talk about final project ideas (from lesson plan)
 - look over all of unit 3 together
 - brainstorm what will work, how it'll work, what needs improvement
 - make sure that we refer back to the lesson plans as often as possible.

Thursday, July 14 - Unit 4: Intro to Programming

There are Scratch Files - templates - for a bunch of projects <-- go through them & decide which ones we want to do

- breakfast?
- **9:00-9:30am** Intro to Scratch

- show Scratch demos
- create a simple Scratch program
 - get to know basic terms in Scratch
 - dialogue between Sprites
 - moving Sprites
- connect with Java, C++, Python, etc.
- **9:30-10:00am** More Scratch - event driven programming
 - alphabet learning game from lesson plan
 - act out broadcast event driven programming (from lesson plan)
 - look at the Summer Story Project from the lesson plan
 - mention Story Project (days 11-15)
- **10:00-10:15am** Coffee break
- **10:15-11:15am** More Scratch Programming
 - Variables
 - Conditionals
 - And, Or, randomness
 - Simon says with and/or/randomness? ex. Simon says, if you (have a blue shirt and black socks) or (your name starts with A) stand up.
 - Develop a Rock, Paper, Scissors program
- **11:15-11:45am** break-out and report-back session
- **11:45am-12:30pm** Lunch
 - projects/
 - animation
 - Daydream
 - jellyfish
 - Trampoline
 - Games
 - Bug on a plate
 - Interactive Art
 - Kaleidoscope
 - WHEE
 - Zen Rock Garden
- **12:30-1:00pm** Timing
 - make a timer that counts down from 10 to 0
 - share solutions & look at lesson plan solutions
 - look at sample problems
- **1:00-2:00pm** Create a timing game
- **2:00-2:45pm** Continue making game
 - share games with everybody
 - look over final project game ideas
- **2:45-3:15pm** Summary & Feedback
 - re-gather and talk about final project ideas (from lesson plan)

- look over all of unit 3 together
- brainstorm what will work, how it'll work, what needs improvement
- make sure that we refer back to the lesson plans as often as possible.

Friday, July 15

- Can we visit Google Irvine? - I bet we have some alums
- Google is trying to make this happen