MyCS 2014 Pomona Workshop- Python

Welcome! We are excited to have you join us for the day as we unveil a subset of our new Python curriculum designed for students who have completed MyCS.

Welcome: (9:30-9:45)
- Group Introductions

What is Possible:(9:45-10:00)
- Brief overview of curriculum, some motivating examples to demonstrate the variety of programs that can be built in Python

Getting Started: (10:00-10:30)
- Here is a link to a page with all the links and resources we will be using: http://tinyurl.com/pyCSconference
- We will start with print statements, conditionals and simple functions
- Lists and Strings: pen paper exercises, PythonBat exercises

Textbook and Challenges: (10:30-10:45) + continue after coffee break
- Interactive Python-Turtle Graphics
- PythonBat-Loops!

******************COFFEE BREAK************************10:45-11:00

Sidebar: Straight-line math: (11:10-11:30)

Back to Textbook and Challenges: (11:30-12:15)
- Turtle Graphics (More advanced topics)
- Functions-create a string interpreter

******************LUNCH AND GROUP VIDEO***********12:15-1:30

Start Project (1:30-3:00)
- For the rest of the day, you will be working on one of the nine projects below. You will find starter code on the MuddX site for each of the projects.

Turtle Projects	Monte Carlo Projects	Open Ended
Create a turtle game with arrow key control of objects in the game. (Perhaps a maze which a character must navigate?)	Estimate Pi using a Monte Carlo method. Using graphics.py to draw board, darts and interim estimate.	Create a Rock- Paper-Scissors game. You may also create an AI which uses previous moves to predict future moves.
Create a function to graph numerical functions. Can either take manual input for window sizing or auto-fit the y-axis given a domain and function. You may also use Euler's method to plot solutions to differential equations.	Simulate the Monty Hall game show problem using the Monte Carlo method.	Markov Generation of your favorite text (first order).
Create a tree drawing using an L-system (you may create your own or we can give you one). Color appropriately and make branch sizes for a tree.	Challenging Project: Monte Carlo Integration	Create your own project!

Reflection and Surveys (remaining time):

Link: http://tinyurl.com/pyCSsurvey