API Functions and Decisions: Recipes for Motion

Review functions
- Example: make a factorial function together (in p5py)
- emphasize return values and loops
- Try it out here: http://people.csail.mit.edu/pgbovine/python/tutor.html#mode=visualize

We were working in a turtle drawing environment (pen metaphor), but now that we understand functions we can move to a higher-level environment (called “Processing”) with pre-defined functions for drawing things... (Not yet ready to dive into Maya -- that’s a whole nother can of worms)

Procedural Drawing with Functions (processing-py)
- Shiffman’s Coordinate System + Shapes Tutorial [ http://processing.org/learning/drawing/ ]
- Example: Shiffman’s primitive man
- using API functions: line, rect, ellipse
- loops review
- Example: string of pearls
- Example: starburst (draw a line and then rotate, repeat)
- nested loops: putting a loop inside a loop
- Example: fill the screen with circles
- introduce conditions!
- Example: alternating colors
- Challenge: 10 minute Procedural Drawing Contest (use loops)

Procedural Motion (processing-py)
- Introduce the idea of a frame (screen re-draws every so often)
- Linear motion
- Periodic: square, sawtooth, sine and cosine
- Noise
- Example: (each of the above in proceduralMotion.py)
- Challenge: make a motion function of your own by combining the examples (one on each channel?)

Making choices (processing-py)
- boolean
- conditions
- Example: fake bouncing ball

Debugging (processing-py)
- interpreting error messages
- print statements
- process-of-elimination using comments

Assignment
- Read Think Python 5.1-5.7, 6.1-6.4, Appendix A
- Combine procedural drawing and procedural motion - animate a ball in a custom way with a custom drawing change every time the ball hits a wall

Next time...
- procedural modeling