Topics: Problems to Procedures II

Approach: Discussion, Explanation, Discussion

Main Ideas:

1. Admin
   Pick Lab times NOW Tues 3:00, 4:30, 6:00
   Info Sheets - if new, complete one today

2. Quick recap of day 1 and an agenda for today
   Day 1
   Computer Science: Problems and Procedures machines can perform
   Learning how computers and the Internet work
   Learning to ‘speak’ algorithms: devise, read, discuss
   Algorithm: a sequence of steps to solve a problem
   Representing information as lists of numbers
   Today
   A procedure for setting up a website
   Find smallest number in a list (using cards)
   Introduction to Scratch

3. Problem: How do I set up a website and post pictures
   We do a live demo for Windows users
   We include translation for Mac OSX users

4. Problem: Finding lowest card in a hand
   Some algorithms for sorting 10 cards used "find lowest card"
   What is an algorithm for doing that?
   Now, what if you only had this system:
   Limited to a desk with 10 spaces (numbered 1,2,...10)
   Problem: get the lowest card into space 1
   Operations are:
   move card from space n to space m
   swap cards in spaces n and m
   compare card in space n to card in space m
   if first is bigger then ...
   repeat ..
   variables ..
   Other problems: find max, reverse order, median

5. From cards to cats
   Scratch is a programming system
   A limited number of operations, infinite number of combinations
   You devise algorithms to create animations and games
   You express the algorithms by assembling puzzle pieces
   Here is a problem, devise an algorithm:
   Get cat to walk back and forth across the screen
   each time it gets to edge of screen, play a note
   each time it passes the middle of the screen, say "Hello"