Topics: Loops and Lists

Approach: Focus on a Few Specific Problems

Main Ideas:
while loop in js, arrays of elements

1. Admin
   HW10 Due Tuesday night
   Start thinking about a project
   uses: images, lists, timers, buttons, variables, loops
   can be: slideshow, game, animation, other, ...

2. Ideas: Loop - repeated section of code
   List - numbered sequence of items

3. Getting Started: add some numbers
   a. prob1: Add numbers 0 + 2 + ... + 9
   b. Write down the algorithm
   c. prob2: Add 10 user-supplied numbers, write down algorithm
   d. Big idea: repetition, loops

4. Today: loops and lists
   a. Intro Demo: addition, dancing jumbos
   b. problems: adding, finding minimum, dancing jumbos
   c. problem → procedure → program
   d. Let’s write down the procedure for each

5. Loops: from Scratch to Javascript
   ```
   set n to (0)
   set total to (0)
   repeat until (n) = 10
     think [n]
     set total = (total) + (n)
     set n to (n) + (1)
   say [total]
   ```
   ```
   var n = 0;
   var total = 0;
   while( n < 10 ){
     alert(n);
     total = total + n;
     n = n + 1;
   }
   alert(total);
   ```
   - initialization, test, action, increment
   - Examine code: loop1.html, loop2.html
   - You try it: loop-quiz.html
   - initialization, test, action, increment

6. Lists: numbered list of elements (tech term: array)
   a. numlist.html
      - notice the set of input elements all part of a form
      - the list is called document.getElementById('formname')
      - each item is called listname[position], starts at 0
   b. Modify: add button to find the product
   c. Modify: add button to find smallest value

7. Images also come in an array
   a. dance1.html
      - set of images is a list: document.images
      - each item is called document.images[position]
      - use a loop to process all of them
   b. Modify: put pic1 in img0, pic2 in img1, ...
   c. Modify: reverse order: put pic6 in img[0], 5 in img[1],...
   d. Rotate left