Announcements

- Read Chapter 9, Sec 2 for next time
- Assignment 6 due next Tuesday
- Today
  - Chapter 9, Section 1 - Lists

Collections

- In some animations, several objects must perform the same actions
  - Example: marching band marching
- It is convenient to collect all objects into a group (collection)
  - Major benefit – write code for all the objects in the group (rather than separate code for each object)

List

- A list - one way to organize objects into a collection
  - You may use lists to organize
    - Shopping list
    - Todo list
- In programming, a list is a collection of objects or information. We call an organizing structure a **data structure**.
Creating Lists

- In Alice, a list can be a list of numbers, or a list of objects, or a list of colors, etc.
- Let’s create a list of chickens

![Image of chickens]

Create List (cont)

- Type in name
- Select type
- Select “make a list”
- Add chickens to list (click “new item” 4 times)
- Result is:

![Image of list with chickens]

Programming with a List

- Can “iterate through a list”
  - Do something to each item in the list
    - In order (use “For all in order”)
    - All together (use “For all together”)

Example/Demo: Iteration in Order

For each chicken in order
  chicken says “hello”
For each chicken in order
  chicken turns its head and neck around
Applying a Part of an object

• Drag in chicken turn
• Select part
• Drag over part
• Drag in item
• Type in part

Example/Demo: Iteration Together
For all chicken together
  chicken says “hello”
For all chicken in together
  chicken turns its head and neck around

List Questions
• What are differences between For all in order and For all together?
• When would you want to use each of them?
• What can you put in a list?
• When can you refer to a part of an object in a list?

Classwork today
• Create a list of players
• Make them do several things.