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
Create List (cont)

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

```
chickens = Chicken, Chicken2, Chicken3, Chicken4
```
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.