**AP Computer Science - ArrayList Class**

An ArrayList is similar to an array, but has certain advantages to it that lends itself to GridWorld. Primarily, an ArrayList can hold objects. Secondly, an ArrayList is unbounded and will grow or shrink its size as we add or remove elements.

**Declaring ArrayLists**

ArrayList <String> names = new ArrayList <String> ();

**Adding to ArrayLists**

names.add("Dixon"); Adds an element at the end of the ArrayList

names.add(2, "Smith"); Adds an element at specified index within the ArrayList; Elements 2+ shift up one index

**Removing from ArrayLists**

names.remove("Dixon"); Removes "Dixon" from the ArrayList, if it exists

names.remove(5); Removes the element at index 5 of the ArrayList; Elements after 5 shift down one index

**Getting Information from ArrayLists**

names.get(4); Returns the element at the specified index, but doesn't remove it.

**Changing an element in an ArrayList**

names.set(3, "Jackson") Replaces the element at the specified index with a new object.

**Other ArrayList Methods**

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| **Method** | **Purpose** | **Example** |
| clear() | Removes all elements | names.clear(); |
| contains | Returns true if element is in ArrayList | names.contains("Dixon"); (true) |
| indexOf() | Returns index of first element matched (integer returned) | names.indexOf("Smith") |
| isEmpty() | Return true if the ArrayList has no elements, else false; | if (names.isEmpty() ) |
| size() | Returns the number of elements in the ArrayList (integer) | int s = names.size(); |