**Hooray for Arrays**

If you assigned the name of each student in your class to a separate variable, your program would become cluttered and would require a lot of tedious typing. If you iteratively replace the value of a single variable, all of the processing using that variable must be completed before it is overwritten by the next value.

The solution to this problem is a [data structure](javascript:void(0);) (a collection of information that is referred to by one name such as arrays and array lists) called an [array](javascript:void(0);) (a data structure containing a single type of data (e.g. ints, Strings, etc.) which is accessed by index positions). A data structure is a collection of information that is referred to by one name. Arrays offer an efficient way to store large quantities of data in an organized and easily accessible way for processing.

Java provides a variety of data structures for processing lists, including arrays, [linked lists](javascript:void(0);) (a data structure that can hold an arbitrary number of objects in which each object points to the next link), [trees](javascript:void(0);) (a data structure hierarchy that grows from a single root node), and [array lists](javascript:void(0);) (a data structure which stores objects and allows provides methods to add, delete, and retrieve indexed items). The simplest data structure, an array, has many features in common with the kinds of lists that you keep.

* Arrays are structured, organized, and consecutively ordered.
* Items can be added, deleted, modified, or reorganized.
* Everything is located in an easily identifiable place in memory.
* All items in the list can be referred to by the same name.
* Entries in one list can be reassigned to another list.

Programmers simply cannot function without data structures! You already have practical experience with one-dimensional arrays because you are a list-maker.

