

## Section 6 Lesson 2: Sorting and Searching

### Try It: Practice Activities

#### Objectives

- Recognize the sort order of primitive types and objects
- Trace and write code to perform a simple Bubble Sort of integers
- Trace and write code to perform a Selection Sort of integers
- Trace and write code to perform a Binary Search of integers
- Compare and contrast search and sort algorithms
- Analyze the Big-O for various sort algorithms

#### Vocabulary

Identify the vocabulary word for each definition below.

	Also called a linear search, an algorithm that searches through an array until a value is found. The array does not need to be sorted.
	An algorithm that finds the minimum value in an array and swaps that value with the first number in the array. The next smallest value is swapped with the second number in the array. The process is repeated until the array is sorted.
	An algorithm that checks the value of the first two elements, then swaps them if necessary so that the larger of the two is the second number. Next, the second and third numbers are compared. The larger of those two are swapped, if necessary so that the larger of the two is the second number. The process continues until the largest number in the array is the last number in the array. Then the process is repeated until the array is sorted.
	A search algorithm that works with sorted data. The array is divided in half, searched in the correct half repeatedly, until the item is found.
	An algorithm that divides an array in half repeatedly until all data is isolated. Then the isolated data is “merged” back together in correct order.
	The ASCII sort order for data.

## Try It/Solve It

1. Create an array of Strings that stores all the names of the students in your class. Sort it using one of the algorithms covered in this lesson. Do a binary search for your name in the sorted list and find out what index your name is at in the list of your classmates.
2. Create a table containing the sort algorithms discussed in class. What are the differences? How are they the same?
3. Create a table containing the search algorithms discussed in class. What are the differences? How are they the same?
4. Explain how sorting order is determined if the data contains strings and numbers.