AP COMPUTER SCIENCE

LESSON 2:

Algorithms - Searching

edhesive

UNIT 6

Learning Objectives

- Understand how to use a for loop to search algorithm for a value in an array and examine an implementation of this algorithm
- Examine other algorithms that use the same for loop structure to traverse an array

Using a For Loop to Search an Array

To search we **iterate** through an array using a for loop. This is called **traversing** an array.

```
for(int i = 0; i<list.length; i++){
    if (list[i] == look){
        where = i;
        break;
    }
}
```

Using a For Loop to Search an Array

The **break** statement ends our for loop early if we find the value we are looking for.

```
for(int i = 0; i<list.length; i++){
    if (list[i] == look){
        where = i;
        break;
    }
}
```

Using a For Loop to count values

We can use a similar algorithm to count values in an array.

```
int count = 0;
for(int i = 0; i<list.length; i++){
    if (list[i] == look){
        count++;
    }
}
```

Using a For Loop to Check For A Condition

We can also check if all the values in an array meet a condition. For example, if all numbers are positive.

```
boolean flag = true;
for(int i = 0; i<list.length; i++){
    if (list[i] <= 0){
        flag = false;
        break;
    }
}
```

Where should the square brackets go?

```
double[] list = {1.0, 2.1, 3.3};

double list[] = {1.1, 2.2, 3.4};
```

The size of an array

```
double[] list = {1.0, 2.1, 3.3};
System.out.println(list.length);

double list[] = {1.1, 2.2, 3.4};
```