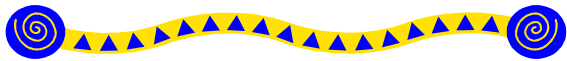


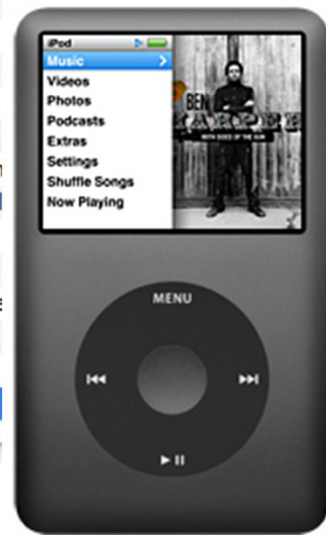
# Arrays and Lists



**What is  
a list?**



▲	Name	Time	Artist	Album	Ge
5	<input checked="" type="checkbox"/> I Dare You to Move	4:08	Switchfoot	Learning to Breathe	
6	<input checked="" type="checkbox"/> I've Been Everywhere	3:20	Johnny Cash	Unchained	
7	<input checked="" type="checkbox"/> Brown Eyed Girl (Single Version)	3:05	Van Morrison	Super Hits	
8	<input checked="" type="checkbox"/> Born to Be Wild	3:31	Steppenwolf	Steppenwolf: All Time Greatest	
9	<input checked="" type="checkbox"/> Magic Carpet Ride	4:28	Steppenwolf	Steppenwolf: All Time Greatest	
10	<input checked="" type="checkbox"/> Crazy (Single Version)	2:42	Patsy Cline	Patsy Cline's Greatest Hits (Ren	
11	<input checked="" type="checkbox"/> Brick House	3:46	The Commodores	20th Century Masters - The Mill	
12	<input checked="" type="checkbox"/> Cleveland Rocks	2:33	The Presidents of the...	Pure Frosting	
13	<input checked="" type="checkbox"/> Chariots of Fire: Main Title Theme	3:32	Carl Davis & Royal Li...	Great Movie Themes	
14	<input checked="" type="checkbox"/> Dueling Banjos (From "Deliverance")	3:11	The Hit Crew	Smash Hit Dramas Movie Theme	
15	<input checked="" type="checkbox"/> Main Theme (From "Superman")	4:12	John Williams	The Music of John Williams - 40	
16	<input checked="" type="checkbox"/> Main Theme (From "Superman")	4:12	John Williams	The Music of John Williams - 40	
17	<input checked="" type="checkbox"/> I've Been Everywhere	3:20	Johnny Cash	Unchained	
18	<input checked="" type="checkbox"/> Born to Be Wild	3:31	Steppenwolf	Steppenwolf: All Time Greatest	



**What is  
an Array?**

# What is an array?

# **An array is a group of items all of the same type which are accessed through a single identifier.**

```
int nums[10];
```

**0 1 2 3 4 5 6 7 8 9**

# nums

[illegible]

# Strings are arrays

```
string s = "compsci";    //Strings are arrays
```

	0	1	2	3	4	5	6
s	c	o	m	p	s	c	i

**The first index position in a String is 0.  
A String is an array of characters.**

# Arrays

```
int nums[10] = {0};    // int array
```

	0	1	2	3	4	5	6	7	8	9
nums	0	0	0	0	0	0	0	0	0	0

**Arrays are filled with garbage values when instantiated, unless specified otherwise.**

# Arrays

```
const int SIZE = 10;  
int nums[SIZE] = {0};    // int array
```

	0	1	2	3	4	5	6	7	8	9
nums	0	0	0	0	0	0	0	0	0	0

**The size must always be an integer constant.  
It is best to use a declared constant**



# Arrays

```
int nums[6] = {2,7,8,234,745,1245};
```

	0	1	2	3	4	5
nums	2	7	8	234	745	1245

**An array can be initialized with values.**

# Indexes

	0	1	2	3	4	5	6	7	8	9
nums	9	0	0	0	0	0	0	0	0	0

The **[spot/index]** indicates which value in the array is being manipulated.

**nums[0] = 9;**

The **0** spot is being set to **9**.

# Indexes

Java indexes must always be *integers* and the first index will always be 0.

	0	1	2	3	4	5	6	7	8	9
nums	0	0	0	0	0	0	0	0	0	0

# Printing arrays

```
int nums[7] = {1,2,3,4,5,6,7};
```

```
cout << nums[0] << endl;  
cout << nums[1] << endl;  
cout << nums[2] << endl;  
cout << nums[5] << endl;
```

**OUTPUT**

**1  
2  
3  
6**

	0	1	2	3	4	5	6
nums	1	2	3	4	5	6	7

# Printing arrays

```
const int SIZE = 7;  
int nums[SIZE] = {1,2,3,4,5,6,7};  
for(int spot = 0; spot < SIZE; spot++)  
{  
    cout << nums[spot] << endl;  
}
```

## OUTPUT

1  
2  
3  
4  
5  
6  
7

# Setting Array Spots

# Setting array spots

```
const int SIZE = 10;  
int nums[SIZE] = {0};
```

```
nums[0] = 231;  
nums[4] = 756;  
nums[2] = 123;
```

```
cout << nums[0] << endl;  
cout << nums[1] << endl;  
cout << nums[4] << endl;  
cout << nums[4/2] << endl;
```

## OUTPUT

231

0

756

123

# Setting array spots

```
Const int SIZE = 10;  
double nums[SIZE] = {0.0};
```

```
nums[0] = 10.5;  
nums[3] = 98.6;  
nums[2] = 77.5;
```

```
cout << nums[0] << endl;  
cout << nums[3] << endl;  
cout << nums[7] << endl;
```

## OUTPUT

```
10.5  
98.6  
0.0
```



# Setting array spots

```
const int SIZE = 6;  
int nums[SIZE] = {0};  
for(int spot = 0; spot < SIZE; spot++)  
{  
    nums[spot] = spot*4;  
}
```

	0	1	2	3	4	5
nums	0	4	8	12	16	20