DEFINITION

```
var a = [];                    // empty array
var b = [ 1, 2, 'hello' ];
var c = [ 1, 2, [ 3, 4 ] ]; // nested
```

INDICES

```
b[0];            // returns first item in b
c[2][1];         // returns 4 with c as above
b[0] = 2;        // redefine first item
b[b.length - 1]; // returns last item in b
```

FINDING Items

```
var b = [ 1, 2, 'hi', 3, 'hi' ];
b.indexOf(2);       // returns 1
b.indexOf('hi');    // returns 2, first index
b.indexOf(4);       // not found, returns -1
```

ADDING/REMOVING Items

```
var b = [ 1, 2, 'hello' ];
b.push(7);       // add to end of array
b.unshift(0);    // add to beginning of array
     // b is now [ 0, 1, 2, 'hello', 7 ]

var c = [ 1, 2, 3 ];
c.pop();          // remove last item
c.shift();        // remove first item
     // c is now [ 2 ]
```

Remove 1 item by position:
```
var d = [ 'k', 'p', 'c', 't' ];
// remove 'c': start index 2, remove 1 item
d.splice(2, 1);
```

Remove multiple items in sequence:
```
var d = [ 'k', 'p', 'c', 't', 's', 'e' ];
// remove 'p', 'c', 't':
// start index 1, remove 3 items
d.splice(1, 3);
```

COPY Arrays

Copy whole array
```
var arrayCopy = oldArray.slice();
```

Copy subarray
```
var oldArray = [ 1, 2, 3, 4, 5, 6 ];
var newArray = oldArray.splice(1, 3);
// newArray = [ 2, 3, 4 ];
```

LENGTH

```
var d = [ 'k', 'p', 'c', 't', 's', 'e' ];
d.length;     // returns 6
```

SORT Items

Sort numeric or alphabetical:
```
var d = [ 'k', 'p', 'c', 't', 's', 'e' ];
d.sort();
// d = [ 'c', 'e', 'k', 'p', 's', 't' ];
var e = [ 7, -2, 0, 10, 4 ];
e.sort();
// e = [ -2, 0, 4, 1, 10 ];
```

BUILD Array from String or Array

```
var a = Array.from("lorem");
// a = [ 'l', 'o', 'r', 'e', 'm' ];
var b = Array.from([ 1, 2, 3 ], x => x * 2);
// b = [ 2, 4, 6 ];
```

REVERSE

```
var d = [ 'k', 'p', 'c', 't', 's', 'e' ];
d.reverse();
// d = [ 'e', 's', 't', 'c', 'p', 'k' ];
```

COMBINE Arrays

```
var c = [ '1', '2', '3' ];
var d = [ '4', '5', '6' ];
var e = c.concat(d);
// e = [ '1', '2', '3', '4', '5', '6' ];
```

BUILD String From Array Items

Get string of items separated by comma or other string:
```
var d = [ 'k', 'p', 'c', 't', 's', 'e' ];
var a = d.join();
    // a = 'k,p,c,t,s,e'
var b = d.join(' ');
    // a = 'k p c t s e'
var c = d.join(' - ');
    // a = 'k - p - c - t - s - e'
```

LOOP Over Arrays

Apply function to each item in array:
```
var d = [ 'k', 'p', 'c', 't', 's', 'e' ];
d.forEach( function( item, i ){
   console.log( item, i );
   // i is the index starting at 0
   // item is the item at index i
});
```

FILTER Arrays

Get new array with items with given property:
```
var d = [ 5, -2, 10, 7, 3, 12 ];
var m = d.filter(item => item > 4);
    // m = [ 5, 10, 7, 12 ]
```

MAP to New Array

Create new array after applying function to each element of old array:
```
var d = [ 5, -2, 10, 7, 3, 12 ];
var m = d.map(x => x + 1);
    // m = [ 6, -1, 11, 8, 4, 13 ]
```

TEST for Item

Determine if an item is present in an array (no IE support):
```
var d = [ 5, -2, 10, 7, 3, 12 ];
d.includes(10)  // returns true
d.includes(8)   // returns false
```