JavaScript Array Methods

Converting Arrays to Strings

The JavaScript method toString() converts an array to a string of (comma separated) array values.

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
document.getElementById("demo").innerHTML = fruits.toString();

Result:

Banana,Orange,Apple,Mango

The join() method also joins all array elements into a string.

It behaves just like toString(), but in addition you can specify the separator:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
document.getElementById("demo").innerHTML = fruits.join(" \* ");

Result:

Banana \* Orange \* Apple \* Mango

Popping and Pushing

When you work with arrays, it is easy to remove elements and add new elements.

This is what popping and pushing is:

Popping items **out** of an array, or pushing items **into** an array.

Popping

The pop() method removes the last element from an array:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.pop();              // Removes the last element ("Mango") from fruits

[Try it Yourself »](https://www.w3schools.com/js/tryit.asp?filename=tryjs_array_pop)

The pop() method returns the value that was "popped out":

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
var x = fruits.pop();      // the value of x is "Mango"

Pushing

The push() method adds a new element to an array (at the end):

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.push("Kiwi");       //  Adds a new element ("Kiwi") to fruits

The push() method returns the new array length:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
var x = fruits.push("Kiwi");   //  the value of x is 5

Shifting Elements

Shifting is equivalent to popping, working on the first element instead of the last.

The shift() method removes the first array element and "shifts" all other elements to a lower index.

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.shift();            // Removes the first element "Banana" from fruits

The shift() method returns the string that was "shifted out":

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
var x = fruits.shift();    // the value of x is "Banana"

The unshift() method adds a new element to an array (at the beginning), and "unshifts" older elements:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.unshift("Lemon");    // Adds a new element "Lemon" to fruits

The unshift() method returns the new array length.

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.unshift("Lemon");    // Returns 5

Changing Elements

Array elements are accessed using their **index number**:

Array **indexes** start with 0. [0] is the first array element, [1] is the second, [2] is the third ...

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits[0] = "Kiwi";        // Changes the first element of fruits to "Kiwi"

The length property provides an easy way to append a new element to an array:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits[fruits.length] = "Kiwi";          // Appends "Kiwi" to fruits

Deleting Elements

Since JavaScript arrays are objects, elements can be deleted by using the JavaScript operatordelete:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
delete fruits[0];           // Changes the first element in fruits to **undefined**

Using **delete** may leave undefined holes in the array. Use pop() or shift() instead.

Splicing an Array

The splice() method can be used to add new items to an array:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.splice(2, 0, "Lemon", "Kiwi");

The first parameter (2) defines the position **where** new elements should be **added** (spliced in).

The second parameter (0) defines **how many** elements should be **removed**.

The rest of the parameters ("Lemon" , "Kiwi") define the new elements to be **added**.

The splice() method returns an array with the deleted items:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.splice(2, 2, "Lemon", "Kiwi");

Using splice() to Remove Elements

With clever parameter setting, you can use splice() to remove elements without leaving "holes" in the array:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.splice(0, 1);        // Removes the first element of fruits

The first parameter (0) defines the position where new elements should be **added** (spliced in).

The second parameter (1) defines **how many** elements should be **removed**.

The rest of the parameters are omitted. No new elements will be added.

Merging (Concatenating) Arrays

The concat() method creates a new array by merging (concatenating) existing arrays:

Example (Merging Two Arrays)

var myGirls = ["Cecilie", "Lone"];  
var myBoys = ["Emil", "Tobias", "Linus"];  
var myChildren = myGirls.concat(myBoys);   // Concatenates (joins) myGirls and myBoys

The concat() method does not change the existing arrays. It always returns a new array.

The concat() method can take any number of array arguments:

Example (Merging Three Arrays)

var arr1 = ["Cecilie", "Lone"];  
var arr2 = ["Emil", "Tobias", "Linus"];  
var arr3 = ["Robin", "Morgan"];  
var myChildren = arr1.concat(arr2, arr3);   // Concatenates arr1 with arr2 and arr3

The concat() method can also take strings as arguments:

Example (Merging an Array with Values)

var arr1 = ["Emil", "Tobias", "Linus"];  
var myChildren = arr1.concat("Peter");

Slicing an Array

The slice() method slices out a piece of an array into a new array.

This example slices out a part of an array starting from array element 1 ("Orange"):

Example

var fruits = ["Banana", "Orange", "Lemon", "Apple", "Mango"];  
var citrus = fruits.slice(1);

The slice() method creates a new array. It does not remove any elements from the source array.

This example slices out a part of an array starting from array element 3 ("Apple"):

Example

var fruits = ["Banana", "Orange", "Lemon", "Apple", "Mango"];  
var citrus = fruits.slice(3);

[Try it Yourself »](https://www.w3schools.com/js/tryit.asp?filename=tryjs_array_slice3)

The slice() method can take two arguments like slice(1, 3).

The method then selects elements from the start argument, and up to (but not including) the end argument.

Example

var fruits = ["Banana", "Orange", "Lemon", "Apple", "Mango"];  
var citrus = fruits.slice(1, 3);

[Try it Yourself »](https://www.w3schools.com/js/tryit.asp?filename=tryjs_array_slice)

If the end argument is omitted, like in the first examples, the slice() method slices out the rest of the array.

Example

var fruits = ["Banana", "Orange", "Lemon", "Apple", "Mango"];  
var citrus = fruits.slice(2);

Automatic toString()

JavaScript automatically converts an array to a comma separated string when a primitive value is expected.

This is always the case when you try to output an array.

These two examples will produce the same result:

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
document.getElementById("demo").innerHTML = fruits.toString();

Example

var fruits = ["Banana", "Orange", "Apple", "Mango"];  
document.getElementById("demo").innerHTML = fruits;

All JavaScript objects have a toString() method.