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# JavaScript Array Methods

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## Converting Arrays to Strings

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

### Example

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

Result:

Banana,Orange,Apple,Mango

**Try it Yourself »**

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

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

Result:

Banana \* Orange \* Apple \* Mango

[Try it Yourself »](#)

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## 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.

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## JavaScript Array pop()

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

### Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.pop();
```

[Try it Yourself »](#)

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

### Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];
```

```
let fruit = fruits.pop();
```

[Try it Yourself »](#)

---

## JavaScript Array push()

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

### Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.push("Kiwi");
```

[Try it Yourself »](#)

The `push()` method returns the new array length:

### Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
let length = fruits.push("Kiwi");
```

[Try it Yourself »](#)

---

## Shifting Elements

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

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## JavaScript Array shift()

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

## Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];
fruits.shift();
```

[Try it Yourself »](#)

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

## Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];
let fruit = fruits.shift();
```

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---

# JavaScript Array unshift()

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

## Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];
fruits.unshift("Lemon");
```

[Try it Yourself »](#)

The `unshift()` method returns the new array length.

## Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.unshift("Lemon");
```

[Try it Yourself »](#)

---

## 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

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits[0] = "Kiwi";
```

[Try it Yourself »](#)

---

## JavaScript Array length

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

## Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits[fruits.length] = "Kiwi";
```

[Try it Yourself »](#)

---

## JavaScript Array delete()

### Warning !

Array elements can be deleted using the JavaScript operator **delete**.

Using **delete** leaves **undefined** holes in the array.

Use `pop()` or `shift()` instead.

### Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
delete fruits[0];
```

[Try it Yourself »](#)

---

## Merging (Concatenating) Arrays

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

### Example (Merging Two Arrays)

```
const myGirls = ["Cecilie", "Lone"];  
const myBoys = ["Emil", "Tobias", "Linus"];
```

```
const myChildren = myGirls.concat(myBoys);
```

**Try it Yourself »**

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)

```
const arr1 = ["Cecilie", "Lone"];  
const arr2 = ["Emil", "Tobias", "Linus"];  
const arr3 = ["Robin", "Morgan"];  
const myChildren = arr1.concat(arr2, arr3);
```

**Try it Yourself »**

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

## Example (Merging an Array with Values)

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

**Try it Yourself »**

---

# Splicing and Slicing Arrays

The `splice()` method adds new items to an array.

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

# JavaScript Array splice()

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

## Example

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

[Try it Yourself »](#)

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

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

[Try it Yourself »](#)

# Using splice() to Remove Elements

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



## Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];  
fruits.splice(0, 1);
```

[Try it Yourself »](#)

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.

---

## JavaScript Array slice()

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

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

[Try it Yourself »](#)

## Note

The `slice()` method creates a new array.

The `slice()` method 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

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

[Try it Yourself »](#)

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

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

[Try it Yourself »](#)

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

## Example

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

[Try it Yourself »](#)

---

# 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

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

**Try it Yourself »**

## Example

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

**Try it Yourself »**

## Note

All JavaScript objects have a `toString()` method.

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## Finding Max and Min Values in an Array

There are no built-in functions for finding the highest or lowest value in a JavaScript array.

You will learn how you solve this problem in the next chapter of this tutorial.

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# Sorting Arrays

Sorting arrays are covered in the next chapter of this tutorial.

## Complete Array Reference

For a complete Array reference, go to our:

[Complete JavaScript Array Reference.](#)

The reference contains descriptions and examples of all Array properties and methods.

## Test Yourself With Exercises

### Exercise:

Use the correct Array method to remove the **last item** of the `fruits` array.

```
const fruits = ["Banana", "Orange", "Apple"];  
            ;
```

Submit Answer »

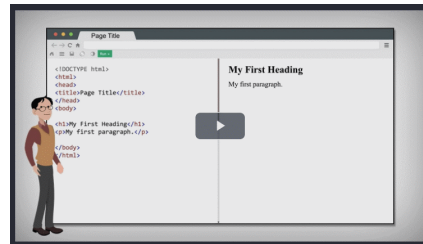
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