

# JavaScript For Loop

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Loops can execute a block of code a number of times.

## JavaScript Loops

Loops are handy, if you want to run the same code over and over again, each time with a different value.

Often this is the case when working with arrays:

Instead of writing:

```
text += cars[0] + "<br>";  
text += cars[1] + "<br>";  
text += cars[2] + "<br>";  
text += cars[3] + "<br>";  
text += cars[4] + "<br>";  
text += cars[5] + "<br>";
```

You can write:

```
var i;  
for (i = 0; i < cars.length; i++) {  
    text += cars[i] + "<br>";  
}
```

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# Different Kinds of Loops

JavaScript supports different kinds of loops:

- **for** - loops through a block of code a number of times
- **for/in** - loops through the properties of an object
- **while** - loops through a block of code while a specified condition is true
- **do/while** - also loops through a block of code while a specified condition is true

## The For Loop

The for loop has the following syntax:

```
for (statement 1; statement 2; statement 3) {  
    code block to be executed  
}
```

**Statement 1** is executed (one time) before the execution of the code block.

**Statement 2** defines the condition for executing the code block.

**Statement 3** is executed (every time) after the code block has been executed.

### Example

```
for (i = 0; i < 5; i++) {  
    text += "The number is " + i + "<br>";  
}
```

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From the example above, you can read:

Statement 1 sets a variable before the loop starts (var i = 0).

Statement 2 defines the condition for the loop to run (i must be less than 5).

Statement 3 increases a value (i++) each time the code block in the loop has been executed.

# Statement 1

Normally you will use statement 1 to initialize the variable used in the loop ( $i = 0$ ).

This is not always the case, JavaScript doesn't care. Statement 1 is optional.

You can initiate many values in statement 1 (separated by comma):

## Example

```
for (i = 0, len = cars.length, text = ""; i < len; i++) {  
    text += cars[i] + "<br>";  
}
```

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And you can omit statement 1 (like when your values are set before the loop starts):

## Example

```
var i = 2;  
var len = cars.length;  
var text = "";  
for (; i < len; i++) {  
    text += cars[i] + "<br>";  
}
```

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# Statement 2

Often statement 2 is used to evaluate the condition of the initial variable.

This is not always the case, JavaScript doesn't care. Statement 2 is also optional.

If statement 2 returns true, the loop will start over again, if it returns false, the loop will end.

If you omit statement 2, you must provide a **break** inside the loop. Otherwise the loop will never end. This will crash your browser. Read about breaks in a later chapter of this tutorial.

## Statement 3

Often statement 3 increments the value of the initial variable.

This is not always the case, JavaScript doesn't care, and statement 3 is optional.

Statement 3 can do anything like negative increment (`i--`), positive increment (`i = i + 15`), or anything else.

Statement 3 can also be omitted (like when you increment your values inside the loop):

### Example

```
var i = 0;
var len = cars.length;
for (; i < len; ) {
    text += cars[i] + "<br>";
    i++;
}
```

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## The For/In Loop

The JavaScript for/in statement loops through the properties of an object:

### Example

```
var person = {fname:"John", lname:"Doe", age:25};

var text = "";
var x;
```

```
for (x in person) {  
    text += person[x];  
}
```

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## The While Loop

The while loop and the do/while loop will be explained in the next chapter.

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## Test Yourself with Exercises!

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