## Playing Around With Strings

Let's dive into Strings and see how can you concatenate them. This lesson will also introduce you to Automatic Type Casting and you'll learn how to parse Strings as Integers and Floats.

A string is basically a series of characters.

## Concatenating strings

Let's perform some operations on strings.



The plus operator concatenates strings. Concatenation means that you join the contents of two strings one after the other.

Strings are *immutable* which means that their value cannot be changed. When concatenating two strings, the result is saved in a third string.

## **Automatic Type Casting**

If any of the operands of plus is an integer, the result becomes a string. JavaScript automatically converts the operands of an operator to the same type. This is called *automatic type casting*:

```
console.log("1 + \'2\' becomes",1 + '2');
console.log("\'1\' + 2 becomes",'1' + 2);
```

Rules may become confusing, so don't abuse automatic type casting.

Parsing Strings as Integers

Just know that you may have to explicitly cast a string to an integer to be able to add it to another integer:

```
console.log("1 + + \"2\"")
console.log(1 + +"2") // +"2" gives a sign to "2", converting it to a number

console.log("1 + Number(\"2\")")
console.log(1 + Number("2"))

console.log("1 + Number.parseInt(\"2\", 10 )")
console.log(1 + Number.parseInt(\"2", 10 ))

console.log("1 + Number.parseInt(\"2", 10 ))

console.log("1 + Number.parseInt(\"2\")")
console.log(1 + Number.parseInt(\"2\")")
```

All the above conversions work. The first relies on giving a sign to a numeric string which converts it to a number. Then 1+2 becomes 3. The second type cast is more explicit: you use Number to wrap a string and convert it to a number.

I recommend using the third option: Number.parseInt with a radix. parseInt converts a string into a number. The second argument of parseInt is optional: it describes the base in which we represent the number.

```
console.log("Number.parseInt(\"JS in Practice\")");
console.log(Number.parseInt("JS in Practice"));

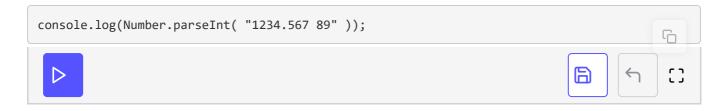
console.log("Number.parseInt(\"10\", 2 )");
console.log(Number.parseInt(\"10", 2 ));

console.log("Number.parseInt(\"a\")");
console.log(Number.parseInt(\"a\"));

console.log("Number.parseInt(\"a\", 16 )");
console.log(Number.parseInt(\"a\", 16 ));
```

Arbitrary strings are often NaN. "2" in base 2 is 10. You can see how easy it is to convert a binary or a hexadecimal (base 16) string into a decimal number. Base 16 digits are 0123456789abcdef. The last 6 digits may also be upper case.

Number.parseInt recognizes the starting characters of a string as integer numbers, and throws away the rest:



## Parsing Strings as Floating Numbers

The dot is not a character present in integer numbers, so everything after 1234 is thrown away by Number.parseInt.

You can also use Number.parseFloat to parse floating point. It parses the floating point number until the terminating space:

