

# THREE BUILDING BLOCKS

At its simplest level, JSON has just three building blocks – single values, lists of values, and sets of name-value pairs. Using just these three simple building blocks, JSON can represent very complex data structures. Let's start by looking at each one individually:

## Single Values

A single value is just one piece of data. It can be a number, a string of characters, or a boolean (true/false) value.

Numbers can be integers or floating point numbers, and are represented in JSON without any additional fluff – the following are all valid JSON numeric values:

42

1001

-33

3.1415

1256.56

-42.7

There are two valid boolean values in JSON:

`true`

`false`

Strings of characters must be enclosed within quotation marks

`"This is a string"`

The backslash character (`\`) is used to 'escape' special values within a string, e.g.:

- `\n` represents a new line character
- `\t` represents a tab character
- `\"` represents a quotation mark
- `\\` represents a single backslash

JSON strings should always be encoded in UTF-8, so you can include accented characters in your strings directly:

`"This cliché of a string is valid"`

`"this string\nis split over two lines"`

`"you can even include emoji in JSON strings:"`

## Lists

A list is, as its name suggests, an ordered sequence of one or more values. In programmer-speak, they are arrays.

JSON represents an array as a comma-separated sequence of values enclosed between [ and ] characters. The following are valid JSON lists:

```
[1, 2, 3, 4, 5]
```

```
["hello there, I am one value", true, -3.1415, 22, "boo!"]
```

## Dictionaries

A dictionary is a collection of name-value pairs, where the name is a string, and the value can be any valid JSON value. Programmers might be more used to the terms Hash table, or hash reference for this kind of data structure.

In JSON, the name and value which make up a single name-value pair are separated by the : character, and the pairs that make up the dictionary separated by commas. The entire dictionary is enclosed between { and } characters.

```
{"name" : "Bart's Widget", "price" : 23.45, "currency" : "€" }
```

Source: <https://www.bartbusschots.ie/s/2015/08/08/json-a-quick-intro/>