

1. JavaScript Syntax

JavaScript syntax is the set of rules, how JavaScript programs are constructed:

```
var x, y, z;    // How to declare variables
x = 5; y = 6;  // How to assign values
z = x + y;     // How to compute values
```

2. JavaScript Values

- The JavaScript syntax defines two types of values:
 - i. **Fixed values** and
 - ii. **Variable values.**
- Fixed values are called **literals**.
- Variable values are called **variables**.

3. JavaScript Literals

i. Numbers:

Numbers are written with or without decimals:

Like **10.50**, **1001**

ii. Strings:

Strings are text, written within double or single quotes:

Like **"John Doe"** or **'John Doe'**

4. JavaScript Variables

- In a programming language, **variables** are used to **store** data values.
- JavaScript uses the `var` keyword to **declare** variables.
- An **equal sign** is used to **assign values** to variables.
- In this example, x is defined as a variable. Then, x is assigned (given) the value 6:

```
var x;
x = 6;
```

Example

```
var x = 5;
var y = 6;
var z = x + y;
```

- You can declare many variables in one statement.
- Start the statement with `var` and separate the variables by **comma**:
E.g: `var person = "John Doe", carName = "Volvo", price = 200;`

5. JavaScript Identifiers

- All JavaScript **variables** must be **identified** with **unique names**.
- These unique names are called **identifiers**.
- Identifiers can be short names (like x and y) or more descriptive names (age, sum, totalVolume).

- The general rules for constructing names for variables (unique identifiers) are:
 - Names can contain letters, digits, underscores, and dollar signs.
 - Names must begin with a letter
 - Names can also begin with \$ and _ (but we will not use it in this tutorial)
 - Names are case sensitive (y and Y are different variables)
 - Reserved words (like JavaScript keywords) cannot be used as names

JavaScript identifiers are case-sensitive.

6. JavaScript Data Types

- JavaScript variables can hold numbers like 100 and text values like "John Doe".
- In programming, text values are called text strings.
- JavaScript can handle many types of data, but for now, just think of numbers and strings.
- Strings are written inside double or single quotes. Numbers are written without quotes.
- If you put a number in quotes, it will be treated as a text string.
- **Example**

```
var pi = 3.14;  
var person = "John Doe";  
var answer = 'Yes I am!';
```

7. JavaScript Comments

i. Single Line Comments

Single line comments start with `//`.

ii. Multi-line Comments

- Multi-line comments start with `/*` and end with `*/`.
- Any text between `/*` and `*/` will be ignored by JavaScript.

8. JavaScript Arithmetic Operators

Arithmetic operators are used to perform arithmetic on numbers:

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
**	Exponentiation (ES2016)
/	Division
%	Modulus (Division Remainder)
++	Increment
--	Decrement