

JavaScript Workshop

What is an Object?

What is an object?

- There are many definitions of an object, the one that is used most often is: An object is code and data merged into one unit.
- Objects are defined by its class, which determines everything about an object. Objects are individual instances of a class.
- Each object is unique from other objects created from the same class. What makes each object unique are the property values assigned to it and how it implements its methods.

Car class ----> creates a Ford object

----> creates a BMW object

----> creates a Honda object

Components of an object: properties and methods

- An object's data (properties) are just regular variables. These variables can hold any type of data, including other objects.
- An object's code (methods) are just regular functions. These functions may take argument(s) or return a value, depending on the function.
- The property values of an object stay with that object during its lifetime. Meaning as long as the web page (.html) is open in the browser, the JavaScript object will hold the property values that were set to it.

Car class properties ---> color, engine, size, speed

Car class methods ---> stop, go, turn, accelerate

Creating an object instance

- Most objects need to be first created (instantiated) before they can be used. After the object is instantiated from the class, it's properties and methods are available to be used in your code.
- When instantiating an object, you create a variable that references that class. This object variable is similar to a regular variable, but instead of storing a number or string, it stores a reference to a class.
- This reference allows JavaScript to know what properties and methods are available for this object.

```
var objectVariable = new Class();
```

Using an object properties and methods

- Using an object's properties and methods (after it is instantiated):

```
var objectVariable = new Class();
```

```
objectVariable.method();
```

```
objectVariable.property = value;
```

- Methods may return a value and/or may require an argument. Properties can be SET (value assigned) or GET (value retrieved).

```
variable = objectVariable.property (GET property value)
```

```
objectVariable.property = variable or literal value (SET property value)
```

JavaScript Core objects

- There are many "built-in" objects that can be used within your code. These are known as either native or host objects.
- Some native JavaScript objects are String, Math, Array, Date and host JavaScript objects would include Form, Image, Element, etc.
- The difference between native and host objects are that host objects are supplied by the environment of the web browser not the JavaScript language itself.

Array objects

- Arrays are like variables but hold multiple values as opposed to one. Arrays need to be instantiated before they can be used.
- Creates an array object called "a" that holds 3 string values:

```
var a = new Array();
```

```
a[0] = "Frank";
```

```
a[1] = "Steve";
```

```
a[2] = "Pete";
```

- The index value [x], is used to determine what order the value is put into the array.

Array properties and methods

- Arrays have one property: `length` - returns the number of elements stored in the array.

Some array methods:

`pop()` - Removes and returns the last value.

`push()` - Adds one or more values at the end.

`shift()` - Removes and returns the first value.

`unshift()` - Adds one or more values to the beginning.

`sort()` - Sorts the values in the array in alpha order.

Arrays are used for:

- Displaying the date
- Using with form elements (storing, retrieving, validating)
- Manipulating images on page (caching, rollovers, positioning)
- Accessing page elements (DOM)

- JavaScript Workshop website:
<http://www.javascriptworkshop.com>
- Any questions?
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- Recommended reading:
[JavaScript: A Beginner's Guide, Second Edition](#)