JavaScript Wrap Up

JavaScript is a versatile programming language ... if you know it, you can learn others.

The Big Picture

Without JavaScript, HTML is quite limited
- Only static page-layouts are possible
- JS allows
  - Adaptivity ... the page can be customized to the browser, site, user, etc.
  - Interactivity ... users can give information and a response can be displayed; Memory Bank
  - Applications ... tasks unrelated to documents can be created
  - Animations

Big Picture

Notice the standard HTML process
- HTML is parsed -- read & “decoded”
- During parse JavaScript runs ... allowing it to generate HTML, e.g. document.write()
- Browser generates the page from HTML
- After page generated, all is quiet until an event happens, caused by user or timer
- Event handlers handle the events, and then all is quiet again

This sequence defines the action.

Consider The PC

Analyze the process for Purple Con
- HTML is parsed
- JavaScript runs ...
- HTML generated
- Browser makes page
- All is quiet except for events from user
- Event handlers handle events, quiet returns

Consider The PC

Analyze the process for an animation
- HTML is parsed
- JavaScript runs ...
- HTML generated
- Browser makes page
- All is quiet except for events from timer
- Event handlers handle events, quiet returns

Other Languages

JS is a “modern” programming language like C, C++, Java, etc.
- Expect to find numbers, strings, Booleans.
- Variables (of same form) must be declared
- There are if-statements & else-statements
- There is a for-statement
  for (j=0; j<5; j++) {
    <statement list>
  }

It is not easy to teach yourself, but you can learn quickly.
**Review & Tutorial**

Can you create an animation?
Can you take in data and compute answers?
Got questions?

**As Variable & String**

Consider:

```javascript
for (j = 0; j < 7; j++) {
    document.write('<img src="giphix/BrownBox.gif" onMouseOver="here (j)" onMouseOut="gone (j)">
    <img src="giphix/BrownBox.gif" onMouseOver="here (j)" onMouseOut="gone (j)">
    for (j = 0; j < 7; j++) {
        document.write('<img src="giphix/BrownBox.gif" onMouseOver="here (j)" onMouseOut="gone (j)">
    }
``` 

**One More Application**

Bubbles:

```html
<html>
<head>
<title>Bubbles</title>
</head>
<body bgcolor="navy">
<script language="JavaScript">
var i, j, pix = new Array(2);
pix[0] = new Image; pix[0].src = "NavyBox.gif";
pix[1] = new Image; pix[1].src = "bubble.gif";
for (i = 0; i < 30; i++) {
    for (j = 0; j < 30; j++) {
        document.write('<img src="NavyBox.gif" onClick="clearBubble (i," + j + ")">
    }
    document.write("<br>");
}
timerID = setTimeout ("animate ()", 2000);
function animate () {
    var row, col;
    row = Math.floor (Math.random ());
    col = Math.floor (Math.random ());
    document.images[row * 30 + col].src = pix[1].src;
    timerID = setTimeout ("animate ()", 200* Math.random (5) + 50);
}
function clearBubble (row, col) {
    document.images[row * 30 + col].src = pix[0].src;
}
function random (range) {
    return Math.floor (range * Math.random ());
}
</script>
</body>
</html>
```

**Summary**

JavaScript can build Web pages, process forms and animate... it's a whole lot more interesting than HTML!

Add the applications you've written in JS to your personal Web page.