JavaScript Tutorials – Rock Paper Scissors

Rock, Paper, Scissors, Game

Let's make a simple Rock, Paper, Scissors game. First off we shall set up the user inputs.

```html
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Rock Paper scissors</title>
</head>
<body>
  <p>Choose Rock, Paper, or Scissors </p>
  <input id="userChoice" type="text">
  <button type="button" onclick="myFunction()">Submit</button>

  <div>Results are:
  <span id="result"></span>
  </div>

</body>
</html>
```

Output
Run with JS   Auto-run JS ☑
Choose Rock, Paper, or Scissors

[   ] Submit
Results are:

The <span> tags with different ids allow us to input values from JavaScript much like we did in the Hello World tutorials.

We now create the `<script>` section where our JavaScript code. Here we create our function in this we get our input and put it into our `userChoice` variable. In the `computerChoice` variable we assign the `Math.random` function. This creates a random number. We can set the limit of what it is between by putting `0, 1` in the brackets as seen below.

```html
<script>
  function myFunction(){
    var userChoice = document.getElementById("userChoice").value;
    var computerChoice = Math.random(0, 1);
  }
</script>
```

Now we have to assign what the random number that is generated equals to. Seen as we have three possible options, rock paper and scissors, we need to divide the values between 0 and one equally. When we divide 1 by 3 we get 0.33. So we shall say the first option we can obtain is anything less than (<) 0.34 and will equal rock.

```javascript
if (computerChoice < 0.34) {
    computerChoice = "rock";
}
```

If we double 0.33 we get 0.66 and so we make the next option anything less than or equal to (<=) 0.67 and that will equal paper.

```javascript
else if(computerChoice <= 0.67) {
    computerChoice = "paper";
}
```

Anything else will have to more than 0.67 so we can just say else so we simply put:

```javascript
else {
    computerChoice = "scissors";
}
```

The choice that the computer gets can be output like so:

```
document.getElementById("computer").innerHTML = computerChoice;
```

This will print the result of the random generation when the button is clicked like so:

Choose Rock, Paper, or Scissors

[   ] Submit
Results are:

Computer chose: rock

Who Wins?

We now create a new function named compare, inside the brackets are the two parameters needed, the computers choice and the user's choice.

```
function compare(choice1, choice2){

}
```

In this function we are going to decide the outcome of the match. One outcome of the match is that both computer and user choose the same thing, and so we code this like so:

```
if (choice1 === choice2){
    document.getElementById("result").innerHTML = "The result is a tie!";
}
```

Thinking about the results of the match we compare the results of the choices. If you don't know how rock paper scissors works, it works like this. Rock beats Scissors, Scissors cuts Paper, Paper covers Rock.
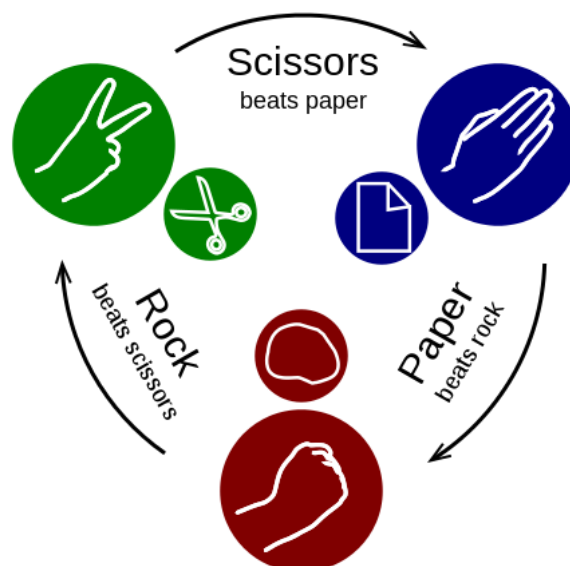
And so we create else if statements like so:

```javascript
else if (choice1 === "rock"){
    if (choice2 === "scissors"){
        document.getElementById("result").innerHTML = "rock wins";
    } else {
        document.getElementById("result").innerHTML = "paper wins";
    }
}
else if (choice1 === "paper"){
    if (choice2 === "rock"){
        document.getElementById("result").innerHTML =  "paper wins";
    } else {
        document.getElementById("result").innerHTML =  "scissors wins";
    }
}
else if (choice1 === "scissors"){
    if (choice2 === "rock"){
        document.getElementById("result").innerHTML =  "rock wins";
    } else {
        document.getElementById("result").innerHTML =  "scissors wins";
    }
}
```

This allows us to compare two possible outcomes in each depending on what we input and what the computer gets. For example if we click submit after we type "rock" into the input we will get one of the following outputs:

Choose Rock, Paper, or Scissors

rock [Submit]
Results are: rock wins

Computer chose: scissors

Choose Rock, Paper, or Scissors

rock [Submit]
Results are: The result is a tie!

Computer chose: rock

Choose Rock, Paper, or Scissors

rock [Submit]
Results are: paper wins

Computer chose: paper

But first your code won't work unless we call the `compare` function. Remember to include our two parameters, so in this case we would say (make sure to do this after your myFunction function and before the compare function):

```javascript
compare(userChoice, computerChoice);
```

Upgrades?

Make this game better! Here is a list of ways to possibly do so:

- Create a counter of the scores and display them
- Make it so no other input is accepted, for example if you type "rwgwgvw" this will happen:

  Choose Rock, Paper, or Scissors

  rwgwgvw [Submit]
  Results are: The result is a tie!

  Computer chose: rock

  It says it's a tie but clearly isn't. Make an if/else statement checking that the input is either "rock", "paper" or "scissors".
- Rock, Paper, Scissors, Lizard, Spock?