

Lesson 5

Review

Programming Concepts

What we have learned so far

Variables

Math

If Statements

Arrays

Loops

Functions

Variables

```
var name = "Pat"
```

A “box” we can put values in

```
var score = 0
```

```
var title = "The Best Game"
```

```
var highScores = [ 1, 2, 3 ]
```

```
var gameLost = false
```

Math

```
SCORE = SCORE + 1
```

Basic operators:

```
1 + 1 //Add  
1 - 1 //Subtract  
1 / 1 //Divide  
2 * 1 //Multiply
```

Short Cuts:

```
SCORE = SCORE + 1  
SCORE += 1  
SCORE++
```

If

```
if (youAreHappy) {  
    clapHands()  
}
```

This is how your code can make decisions.

```
var myNumber = 2  
if (myNumber == 2) {  
    myNumber = 3  
}
```

This code can be read as “If myNumber is 2, then make myNumber 3”.

Comparisons

```
if (1 < 2) {  
    mathWorks = true  
}
```

Basic Operators:

```
a == b  //a is the same as b  
a < b   //a is smaller than b  
a <= b  //a is smaller or the same as b  
a > b   //a is bigger than b  
a >= b  //a is bigger or the same as b  
a != b  //a is not the same as b
```

Arrays

```
theRainbow = [  
    'red',      'orange',  
    'yellow',   'green',  
    'blue',     'indigo',  
    'violet']
```

Arrays are essentially lists.

You access an element of an array with square brackets.

The first element is accessed with 0:
`myArray[0]`.

While Loop

```
while (notDone) {  
    keepGoing()  
}
```

This is how you keep doing something until you reach some condition.

```
var myNumber = 3  
var myGuess = 0  
while (myGuess != myNumber) {  
    myGuess = newGuess()  
}
```


For Loop

```
for (i = 0; i < 10; i++) {  
    print(i)  
}
```

This is the counting loop. You start with some number and end with another. Great for going through arrays.

Here's how we could print out all the colors of the rainbow:

```
for (i=0; i<theRainbow.length; i++) {  
    console.log(theRainbow[i])  
}
```

Functions

```
function getAdvice(){  
    return "Always be learning."  
}
```

Blocks of code that do some task which we can reuse in our program.

The can also return a value.

```
function getGreeting(){  
    return "hello"  
}  
var greeting = getGreeting()  
//greeting is now "hello"
```

Example

Let's walk through some code and see what changes on each line.

```
function draw() {
  playerHitObstacle = false
  HIGH_SCORES = [ 15, 10, 5 ]
  GAME_STATE = "loaded"
  SCORE = 0
  scoreMultiplier = 1

  if (playerHitObstacle) {
    console.log('player hit box')
    GAME_STATE = "lost"
    return
  }

  if (passedOver(PPLAYER, currentObstacle)) {
    SCORE = SCORE + 1 * scoreMultiplier
  }

  if (GAME_STATE == "loaded") {
    context.fillText("Press Enter to Start", 109, 92)
    context.fillText("High scores:", 272, 120)
    for (var i=0; i<HIGH_SCORES.length; i++) {
      context.fillText(HIGH_SCORES[i], 317, 140+20*i)
    }
  }
}
```