C# Programming Reference Sheet

Built In Data Types & Literals

Integers
Int, int32, int64
(e.g. 5, 10, 15)
Floating Point Numbers
Float, long, double
(e.g. 3.14, 2.5555555, 69.69)
Strings and Characters
```
String char (e.g. "hello", 'h')
```
Boolean
Bool(e.g. true, false)

Working with Strings

Assignment (giving a string a value)
String Name = "Gamaliel"

Concatenation (joining strings) string name =
"Gamaliel " + "D'mello"

Comparison
```
String.Compare(str1, str2)
```
Construction from other types:
```
String text = age.ToString()
```

Simple Programming Statements

Constant declaration: Public Const **float** PI = 3.14f

Variable declaration: var var_name

Assignment: PI = 3.14

Method call: Console.WriteLine("text")

Sequence of statements – grouped
If …. else

Structured Programming Statements

If statement
If (comparison using ==, =>, <=, < or >)
Case statement
```
Case (variable)
Switch 1: expression
default
```
While loop
```
While (i < 10) {do these steps}
```
Repeat loop repeat … until
for{i=0 ; i<count ; i++}

Declaring Methods

Declare a method with parameters:
Public void print("text passed as arg")
Declare a method that returns data:
```
Public int addtwo(var One, var Two)
Return result = One + Two
```
Pass by reference:
```
Public int swap(var One, var Two)
{
      …
}
```

Boolean Operators and Other Statements

Comparison: equal, less, larger, not equal, less eq
```
==, <, >, !=, <=
```
Boolean: And, Or and Not
```
&&, ||, !=
```
Skip an iteration of a loop
```
Continue
```
End a loop early
```
break
```
End a method:
```
Return;
```

Custom Types

Classes
Public class x{ }

Enumerations: enum week{Monday, Tuesday, ETC. }

Structs: struct Employee{
  public int EmpId;
  public string FirstName;
  public string LastName;
}

Arrays

Declaration
int die[] = new int[5]

Access: die[2], die[3]

Loop with index i
```
While i<die.length
Die[i]; i++
```
For each loop
```
For each (roll r in die){do this}
```

Programs and Modules

Creating a program
```
using System;
namespace HelloWorld
{class Hello {static void Main() {
 Console.WriteLine("Hello World!");}}}
```

Using a class from a library
```
Using System;
```

Other Things

Reading from Terminal: Console.Read

Writing to Terminal: Console.Write

Comments: // (single line) or /* */ (multiline)