C# Programming Reference Sheet

Built In Data Types & Literals

Integers:
```
byte, sbyte, int, uint, long, ulong,
short, ushort
```

Floating Point Numbers:
```
decimal, double, float
```
Strings and Characters:
```
char, string
```
Boolean:
```
bool
```

Working with Strings

Assignment (giving a string a value)
```
string strA = "Hello, "
```
Concatenation (joining strings)
```
string strB = strA + "nice to meet you."
```
Comparison
```
strA == strB, or string.Compare(strA, strB)
```
Construction from other types:
```
otherType.ToString()
```

Simple Programming Statements

Constant declaration
```
public const int Hours = 24;
```
Variable declaration
```
public int Minutes;
```
Assignment
```
Minutes = Hours * 60;
```
Method call
```
Console.WriteLine("Unit COS20007");
```
Sequence of statements - grouped
```
{}
```

Structured Programming Statements

If statement
```
If (a == b) {}
```
Case statement
```
switch (caseSwitch) {case 1: break}
```
While loop
```
while (n > 1) {}
```
Repeat loop
```
do {} while (n < 5)
```
For loop
```
for (int i = 0; i < 5; i++)
```

Declaring Methods

Declare a method with parameters:
```
static void MyMethod(string fname)
```
Declare a method that returns data:
```
public int Addition(int a, int b)
```
Pass by reference:
```
public void Subtraction(ref int a);
//ref is two-way
void Subtraction(ref int a);
//out is out-only
```

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 Message(string message)
```
Enumerations
```
enum Month {jan, feb, mar, apr}
```
Structs
```
public struct Point2d {
int _x, _y
public Point2d(int x, int y) {…
```

Arrays

Declaration
```
String[] Message = new String[5]
```
Access
```
Message[0]
```
Loop with index i
```
for(int i = 1; i < 4; i++) {
        …message[i]…
```
For each loop
```
foreach(string str in message) {…
```

Programs and Modules

Creating a program
```
namespace Program
class MainClass {}
```
Using a class from a library
```
#include SwinGameAPI;
```

Other Things

Reading from Terminal
```
Console.ReadLine();
```
Writing to Terminal
```
Console.WriteLine("Hello World")
```
Comments
```
// or /**/
```