C++ Program Structure

```cpp
#include <iostream>
// other preprocessor directives

using namespace std;
// The line above puts your code into the "standard namespace,"
// which shortens many function names to save you typing.

int main()
{
    /* Put all of your code inside the main() function.  This function must return
       an integer when it finishes, usually 0 indicate it ran successfully.  */

    return 0;
}
```

From Python to C++

Declaring/initializing variables
 	
`name_of_variable = 0`
	`int name_of_variable = 0;      // OR`
	`double name_of_variable = 0;   // OR`
	`string name_of_variable = 0;`

Output
 	
`print("Hello world!")`
`print("I am" + age + "years old.")`
	`cout << "Hello world!" << endl;`
	`cout << "I am " << age << " years old."`

Input
 	
`salary = int(input("What is your salary? "))`
	`int salary;           // no initialization needed!`
	`cout << "What is your salary? ";`
	`cin >> salary;`

Multi-word input
 	
`addr = input("What is your address? "))`
	`string addr;`
	`cout << "What is your address? ";`
	`cin.ignore(1000, '\n');`
	`getline(cin, addr);`

Comments
 	
`# This comment extends until the end of the line.`
	`// This comment extends until the end of the line.`
	
	`/* This comment extends across how every many lines`
	`there are until the next slash-star.  */`

Exponents (+, -, *, / are the same in both languages) `a = b ** c`	 `a = pow(b, c)`

Casting (converting one data type to another)
 	
Not needed for numbers in Python.
	`int x = 3, y = 2;`
	`z = x/y;      // z is set to 1`
	`              //(fractional part is thrown away)`
	
	`double z2 = (double)x/y;`
	`/* The (double)x part temporarily changes x to`
	`   a double, then does the division.  */`

Random numbers
 	
`import random`
`randnum = random.randint(1, 10)`
	`#include <cstdlib>`
	`#include <ctime>`
	`// at the top of main, put:`
	`  srand(time(0));`
	
	`// to generate a number, use:`
	`  int randnum = (rand() % 10) + 1;`