

Topics so Far:

1. Data Abstraction
 - a. Identifiers
 - b. Literals vs. Variables
 - c. Fundamental and Derived Datatypes
 - d. C++ Fundamental Datatypes
 - e. Using variables
 - f. Scope
2. Basic IO
 - a. Data Streams
 - b. Insertion/Extraction Operators
 - c. Cout and Cin
 - d. Special Characters
 - e. Pausing the Console/Clearing the Screen
3. Math
 - a. Integers
 - b. Division with Integers
 - c. Floating Point Numbers
 - d. Modulus Operator
 - e. Order of Operations
 - f. Combining Math and Assignment
 - g. Math with Characters
 - h. The cmath library
4. Functions
 - a. Concept of Functions
 - b. Declaring Functions
 - c. Writing Functions
 - d. Using Functions
4. (Lesson 4.5) Other Small Topics
 - a. Random Numbers
 - b. Increment/Decrement Operators
 - c. Code Indentation
 - d. Test Programs (Microprograms)
 - e. Default Parameters
5. Control Flow
 - a. Branching
 - b. If Statements
 - c. Boolean Operators (and, or, not)
 - d. If and Else Statements
 - e. Nesting Conditional Statements
 - f. Switch Statements
 - g. Boolean Functions
6. Loops/Recursion
 - a. Concept of Loops
 - b. While Loops
 - c. Do-While Loops
 - d. For Loops
 - e. Nesting Loops
 - f. Recursion
7. Reference parameters & Fundamental Arrays
 - a. Reference Parameters
 - b. Concept of Arrays
 - c. Using Arrays
 - d. Manipulating Arrays with Loops
 - e. Passing Arrays to Functions
 - f. C-Style Strings
8. File IO & Advanced IO
 - a. Concept of Files
 - b. File Output
 - c. File Input
 - d. Different Methods of File Input
 - e. Useful IO Functions
9. Multidimensional Arrays & Sorting
 - a. Concept of Multidimensional Arrays
 - b. Using Multidimensional Arrays
 - c. Arrays of C-Style Strings
 - d. Concept of Sorting
 - e. Bubble Sort Algorithm
 - f. Selection Sort Algorithm
 - g. Quicksort Algorithm
10. Pointers, Memory, and Casting
 - a. Concept of Memory and Addressing
 - b. Using Pointers
 - c. Arrays with Pointers
 - d. Moving Pointers
 - e. Passing Pointers to Functions
 - f. Void Pointers
11. Dynamic Memory
 - a. Concept of Dynamic Memory – the Stack vs. the Heap
 - b. Dynamic Memory
 - c. Memory Leaks
 - d. The Dynamic Part, and Exactly Sized C-Style Strings
 - e. Dynamic Memory with Functions

12. Structures

- a. Concept of Abstract Data Types
- b. C++ Structures
- c. Defining Structures
- d. Using Structures
- e. Pointers to Structures –
Dereferencing and the Arrow
Operator
- f. Dynamic Memory with ADTs

13. Classes

- a. Concept of Object Oriented
Design
- b. Defining Classes
- c. Access Modifiers – Private vs.
Public
- d. Member Functions
- e. Getters and Setters
- f. Constructors
- g. Destructors

14. More Classes, with Friendship and the “const” keyword

- a. Copy Constructors
- b. Constant Variables
- c. Constant Parameters
- d. Constant Returns
- e. Constant Member Functions
- f. Class Friendship

15. Dev C++ Projects and Multiple Code Files

- a. Multiple Code Files –
Headers/Implementation Pairs
for Classes
- b. Dev C++ Projects