**Topics so Far:**

1. Data Abstraction
   1. Identifiers
   2. Literals vs. Variables
   3. Fundamental and Derived Datatypes
   4. C++ Fundamental Datatypes
   5. Using variables
   6. Scope
2. Basic IO
   1. Data Streams
   2. Insertion/Extraction Operators
   3. Cout and Cin
   4. Special Characters
   5. Pausing the Console/Clearing the Screen
3. Math
   1. Integers
   2. Division with Intergers
   3. Floating Point Numbers
   4. Modulus Operator
   5. Order of Operations
   6. Combining Math and Assignment
   7. Math with Characters
   8. The cmath library
4. Functions
   1. Concept of Functions
   2. Declaring Functions
   3. Writing Functions
   4. Using Functions
5. (Lesson 4.5) Other Small Topics
   1. Random Numbers
   2. Increment/Decrement Operators
   3. Code Indentation
   4. Test Programs (Microprograms)
   5. Default Parameters
6. Control Flow
   1. Branching
   2. If Statements
   3. Boolean Operators (and, or, not)
   4. If and Else Statements
   5. Nesting Conditional Statements
   6. Switch Statements
   7. Boolean Functions
7. Loops/Recursion
   1. Concept of Loops
   2. While Loops
   3. Do-While Loops
   4. For Loops
   5. Nesting Loops
   6. Recursion
8. Reference parameters & Fundamental Arrays
   1. Reference Parameters
   2. Concept of Arrays
   3. Using Arrays
   4. Manipulating Arrays with Loops
   5. Passing Arrays to Functions
   6. C-Style Strings
9. File IO & Advanced IO
   1. Concept of Files
   2. File Output
   3. File Input
   4. Different Methods of File Input
   5. Useful IO Functions
10. Multidimensional Arrays & Sorting
    1. Concept of Multidimensional Arrays
    2. Using Multidimensional Arrays
    3. Arrays of C-Style Strings
    4. Concept of Sorting
    5. Bubble Sort Algorithm
    6. Selection Sort Algorithm
    7. Quicksort Algorithm
11. Pointers, Memory, and Casting
    1. Concept of Memory and Addressing
    2. Using Pointers
    3. Arrays with Pointers
    4. Moving Pointers
    5. Passing Pointers to Functions
    6. Void Pointers
12. Dynamic Memory
    1. Concept of Dynamic Memory – the Stack vs. the Heap
    2. Dynamic Memory
    3. Memory Leaks
    4. The Dynamic Part, and Exactly Sized C-Style Strings
    5. Dynamic Memory with Functions
13. Structures
    1. Concept of Abstract Data Types
    2. C++ Structures
    3. Defining Structures
    4. Using Structures
    5. Pointers to Structures – Dereferencing and the Arrow Operator
    6. Dynamic Memory with ADTs
14. Classes
    1. Concept of Object Oriented Design
    2. Defining Classes
    3. Access Modifiers – Private vs. Public
    4. Member Functions
    5. Getters and Setters
    6. Constructors
    7. Destructors
15. More Classes, with Friendship and the “const” keyword
    1. Copy Constructors
    2. Constant Variables
    3. Constant Parameters
    4. Constant Returns
    5. Constant Member Functions
    6. Class Friendship
16. Dev C++ Projects and Multiple Code Files
    1. Multiple Code Files – Headers/Implementation Pairs for Classes
    2. Dev C++ Projects