# Cornwall-Lebanon School District Curriculum Overview

## High School- Computer Science Foundations 1

| length of time in weeks | Concepts & Competencies | Common Assessments | Academic Standards (PA Core if applicable) |
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| Unit 1 — 2 | **Computers**<br>Student will be able to identify key phases and events of computer evolution. Student will be able to identify main hardware and software components of a computer. Student will be able to list three types of networks and their characteristics. Student will be able to define artificial intelligence and identify current AI activities and the potential positive/negative impacts on the human culture. Student will be able to demonstrate an understanding of the binary number system and its relevance to computers. | ➢ U1 Quiz<br>➢ Number System Conversion Worksheet | 3A-C-4-16<br>3A-D-4-18 |
| Unit 2 — 1 | **Computer Science**<br>Student will be able to define computer science and the four sub-areas in this field. Student will be able to demonstrate an understanding of the future of CS and how it is related to education, the workplace and society. Student will be able to list four careers in the CS field along with their defining job responsibilities and recommended level of education needed. | ➢ U2 Essay Test | 3A-I-1-26<br>3A-I-1-28 |
| Unit 3 — 2 | **Your First Program**<br>Student will be able to create a new C windows console application in Visual Studio environment. Student will be able to define the four phases of the software development life cycle and the activities that each encompasses. Student will be able to list and define the three types of programming errors. | ➢ Programming Project Completion<br>➢ U3 Quiz | 3A-A-6-12 |
| Unit 4 — 2 | **Data**<br>Student will be able to list and define the four main data types and use them appropriately in a program. Student will be able to demonstrate a knowledge of C syntax and naming conventions. Student will be able to get and handle user input in a program. Student will be able to use mathematical | ➢ Programming Projects Completion<br>➢ U4 Programming Test | 3A-A-5-6 |

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| | operations to do calculations in a program. Student will be able to demonstrate an understanding of algorithms and their practical applications. | | |
| Unit 5 2 | **Selection Structures**<br>Student will be able to create and use an "if" statement to change the flow of the program based on varying conditions. Student will be able to use logical operators to create Boolean conditions. Student will be able to create a "switch" statement to handle user input and provide a variety of flow paths. | ➢ Programming Projects Completion | 3A-A-3-10 |
| Unit 6 1 | **Random Numbers**<br>Student will be able to create code to access programming language libraries. Student will be able to generate a random number in their code. | ➢ Programming Project Completion<br>➢ MP Exam | 3A-A-3-11 |
| Unit 7 1 | **Web Design**<br>Student will be able to create an HTML document using Notepad. Student will be able to use basic HTML tags to create a web page about themselves. | ➢ Website Project Completion | 3B-A-5-10 |
| Unit 8 2 | **Java Applets and Applications**<br>Student will be able to define key syntax differences between C and Java. Student will be able to create and execute a Java application using Textpad environment. Student will be able to list key differences between Java applications and Java applets. Student will be able to draw basic shapes in a variety of colors using a Java applet. Student will be able to create and execute a Java applet containing a self portrait. | ➢ Programming Projects Completion<br>➢ Unit 8 Short Answer Test | 3B-A-5-8 |
| Unit 9 2 | **Repetition Structures**<br>Student will be able to code and execute a program that repeats a block of code using a while loop. Student will be able to code and execute a program that repeats a block of code using a for loop. Student will be able to identify which loop is most appropriate for given situations. Student will be able to use repetition statements to draw in a Java applet. | ➢ Programming Project Completion<br>➢ Unit 9 Quiz | 3A-A-3-10<br>3A-I-7-25 |
| Unit 10 2 | **Events in Visual Basic**<br>Student will be able to create and execute a Visual Basic event-driven program using the Visual Studio environment. Student will be able to compare and contrast structured programming (C, Java) with event-driven programming (VB) from both the programmer's and user's perspectives. | ➢ Programming Projects Completion | 3B-A-7-5 |