

# Computer Science I 2021-2022

## At a Glance - Lamar CISD

Ongoing Skills Imbedded All Year	Professional Standards/Employability Skills/Technical Skills		
Grading Period	Unit Name	Estimated Time Frame	TEKS
<b>Grading Period 1</b> <b>8/23-10/1</b> <b>28 Days</b>	<b>Introductory Skills/Set Up</b>	<b>5 Days</b>	2H
	2(H) The student will seek and respond to advice from peers and professionals in evaluating quality and accuracy.		
	<b>Unit 1: Intro to Computer Science</b>	<b>10 Days</b>	6A, 6B, 6C, 6D, 6V
	6(A) The student will compare and contrast types of operating systems, software applications, and programming languages. 6(B) The student will demonstrate knowledge of major hardware components, including primary and secondary memory, a central processing unit (CPU), and peripherals. 6(C) The student will differentiate among current programming languages, discuss the use of those languages in other fields of study, and demonstrate knowledge of specific programming terminology and concepts. 6(D) The student will differentiate between a high-level compiled language and an interpreted language. 6(V) The student will compare and contrast strongly typed and un-typed programming languages.		
	<b>Unit 2: Installing Python and Jgrasp</b>	<b>3 Days</b>	6A
	6(A) The student will compare and contrast types of operating systems, software applications, and programming languages.		
<b>Grading Period 2</b> <b>10/4-11/5</b> <b>25 Days</b>	<b>Unit 3: Introduction to Python Coding</b>	<b>10 Days</b>	2A, 2D, 4M, 5A, 5B, 5C, 5D
	2(A) The student will create and properly display meaningful output. 2(D) The student will write programs with proper programming style to enhance the readability and functionality of the code by using meaningful descriptive identifiers, internal comments, white space, spacing, indentation, and a standardized program style. 4(H) The student will identify and debug errors. 5(A) The student will discuss intellectual property, privacy, sharing of information, copyright laws, and software licensing agreements. 5(B) The student will model ethical acquisition and use of digital information. 5(C) The student will demonstrate proper digital etiquette, responsible use of software, and knowledge of acceptable use policies. 5(D) The student will investigate measures, including passwords and virus detection/prevention, to protect computer systems and databases from unauthorized use and tampering.		
<b>Grading Period 2</b> <b>10/4-11/5</b> <b>25 Days</b>	<b>Unit 4: Simple Data Types</b>	<b>9 Days</b>	2D, 4D, 4J, 4M, 4Q, 6O, 6P
	2(D) The student will write programs with proper programming style to enhance the readability and functionality of the code by using meaningful descriptive identifiers, internal comments, white space, spacing, indentation, and a standardized program style. 4(D) The student will identify the data types and objects needed to solve a problem. 4(Q) The student will develop program solutions that use assignment. 4(J) The student will debug and solve problems using error messages, reference materials, language documentation, and effective strategies. 4(M) The student will create program solutions that exhibit robust behavior by understanding, avoiding, and preventing runtime errors, including division by zero and type mismatch. 6(O) The student will choose, identify, and use the appropriate data types for integer, real, and Boolean data when writing program solutions. 6(P) The student will demonstrate an understanding of the concept of a variable.		

	<b>Unit 5: Intro to Turtle Graphics</b>	<b>6 Days</b>	2F, 4R
	2(F) The student will simple vector graphics using lines, circles, and rectangles. 4(R) The student will develop sequential algorithms to solve non-branching and non-iterative problems.		
	<b>Unit 6: More Python Libraries</b>	<b>10 Days</b>	1B, 2F, 4P, 4R
	1(B) The student will extend the learning environment beyond the school walls with digital products created to increase teaching and learning in the other subject areas. 2(F) The student will simple vector graphics using lines, circles, and rectangles. 4(P) The student will create program solutions to problems using available mathematics libraries, including absolute value, round, power, square, and square root. 4(R) The student will develop sequential algorithms to solve non-branching and non-iterative problems.		
<b>Grading Period 3</b> <b>11/8-12/17</b> <b>25 Days</b>	<b>Unit 7: Keyboard Input/Selection Control Structures</b>	<b>15 Days</b>	2B, 2E, 4S, 4U
	2(B) The student will create interactive console display interfaces, with appropriate user prompts, to acquire data from a user. 2(E) The student will improve numeric display by optimizing data visualization. 4(S) The student will develop algorithms to decision-making problems using branching control statements. 4(U) The student will demonstrate proficiency in the use of the relational operators.		
	<b>Unit 8: Repetition Control Structures (fixed loop only)</b>	<b>10 Days</b>	4T
	4(T) The student will develop iterative algorithms and code programs to solve practical problems.		
<b>Grading Period 4</b> <b>1/4-2/18</b> <b>33 Days</b>	<b>Unit 8: Repetition Control Structures/Random Numbers</b>	<b>8 Days</b>	4S, 4T, 4U, 4W
	4(S) The student will develop algorithms to decision-making problems using branching control statements. 4(T) The student will develop iterative algorithms and code programs to solve practical problems. 4(U) The student will demonstrate proficiency in the use of the relational operators. 4(W) The student will generate and use random numbers.		
	<b>Unit 9: Modular Programming</b>	<b>15 Days</b>	6H, 6I, 6J
	6(H) The student will create subroutines that do not return values with and without the use of arguments and parameters. 6(I) The student will create subroutines that return typed values with and without the use of arguments and parameters. 6(J) The student will understand and identify the data-binding process between arguments and parameters.		
	<b>Unit 11: Boolean Logic</b>	<b>10 Days</b>	2B, 4O, 4V, 6O
	2(B) The student will create interactive console display interfaces, with appropriate user prompts, to acquire data from a user. 4(O) The student will demonstrate proficiency in the use of the arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 6(O) The student will choose, identify, and use the appropriate data types for integer, real, and Boolean data when writing program solutions.		
<b>Grading Period 5</b> <b>2/21-4/14</b> <b>34 Days</b>	<b>Unit 12: Number Systems</b>	<b>8 Days</b>	6L, 6M, 6N
	6(L) The student will understand the binary representation of numeric and nonnumeric data in computer systems. 6(M) The student will understand the finite limits of numeric data. 6(N) The student will perform numerical conversions between the decimal and binary number systems and count in the binary number system.		
	<b>Unit 14: String Processing</b>	<b>10 Days</b>	6R
	6(R) The student will demonstrate an understanding of how to represent and manipulate text data, including concatenation and other string function.		
	<b>Unit 13: The Array Data Structure (1 Dimensional only)</b>	<b>16 Days</b>	6T, 4T
6(T) The student will identify and use the structured data type of one-dimensional arrays to traverse, search, and modify data. 4(T) The student will develop iterative algorithms and code programs to solve practical problems.			

<b>Grading Period 6 4/19-5/26 28 Days</b>	<b>Unit 16: Algorithms and more Loops</b>	<b>14 Days</b>	4A, 4K, 6T
	4(A) The student will use program design problem-solving strategies to create program solutions. 4(K) The student will explore common algorithms, including finding greatest common divisor, finding the biggest number out of three, finding primes, making change, and finding the average. 6(T) The student will identify and use the structured data type of one-dimensional arrays to traverse, search, and modify data.		
	<b>Unit 17: Sequential Text Files or Unit 18: More Graphics: Events and Computer Animation</b>	<b>7 Days 7 Days</b>	
	EXAM		