Fundamentals of Computer Science
At-A-Glance - Lamar CISD

Ongoing Skills Imbedded All Year	**Professional Standards/Employability Skills/Technical Skills**		
	3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions. 3(B) The student will debug and solve problems using reference materials and effective strategies. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(A) The student will demonstrate the ability to insert external standalone objects such as scripts or widgets into web pages. 4(B) The student will communicate an understanding of binary representation of data in computer systems, perform conversions between decimal and binary number systems, and count in binary number systems. 4(C) The student will identify a problem's description, purpose, and goals. 4(D) The student will demonstrate coding proficiency in a programming language by developing solutions that create stories, games, and animations. 4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(F) The student will communicate an understanding of and use variables within a programmed story, game, or animation. 4(G) The student will use arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		
Grading Period	**Unit Name**	**Estimated Time Frame**	**TEKS**
Grading Period 1 29 Days	**Introductory Skills/Set Up**	**3 Days**	3A
	3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions.		
	Unit 1: Welcome	**1 Day**	1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 2A, 2B, 2C, 2D, 6A, 6B, 6C, 6D, 6E
	1(A) The student will identify job and internship opportunities and accompanying job duties and tasks and contact one or more companies or organizations to explore career opportunities. 1(B) The student will examine the role of certifications, resumes, and portfolios in the computer science profession. 1(C) The student will employ effective technical reading and writing skills. 1(D) The student will employ effective verbal and non-verbal communication skills. 1(E) The student will solve problems and think critically. 1(F) The student will demonstrate leadership skills and function effectively as a team member. 1(G) The student will demonstrate an understanding of legal and ethical responsibilities in relation to the field of computer science. 1(H) The student will demonstrate planning and time-management skills. 1(I) The student will compare university computer science programs. 2(A) The student will investigate and explore various career opportunities within the computer science field and report findings through various media. 2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 2(D) The student will use generally accepted design standards for spacing, fonts, and color schemes to create functional user interfaces, including static and interactive screens. 6(A) The student will identify and explain the function of basic computer components, including a central processing unit (CPU), storage, and peripheral devices. 6(B) The student will use system tools, including appropriate file management. 6(C) The student will compare different operating systems. 6(D) The student will describe the differences between an application and an operating system. 6(E) The student will use various input, processing, output, and primary/secondary storage devices.		

	Unit 2: Introduction to Programming **(through 2.13)**	**25 Days**	2B, 2C, 3B, 4C
	2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 3(B) The student will debug and solve problems using reference materials and effective strategies. 4(C) The student will identify a problem's description, purpose, and goals.		
Grading Period 2 **27 Days**	**Unit 2: Introduction to Programming** **continue**	**5 Days**	2B, 2C, 3B, 4C
	2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 3(B) The student will debug and solve problems using reference materials and effective strategies. 4(C) The student will identify a problem's description, purpose, and goals.		
	Unit 3: Project: Pair-Programming w/ Karel Painting	**5 Days**	2B, 2C, 2D, 3A, 3B, 3C, 4C, 4D
	2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 2(D) The student will use generally accepted design standards for spacing, fonts, and color schemes to create functional user interfaces, including static and interactive screens. 3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions. 3(B) The student will debug and solve problems using reference materials and effective strategies. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(C) The student will identify a problem's description, purpose, and goals. 4(D) The student will demonstrate coding proficiency in a programming language by developing solutions that create stories, games, and animations.		
	Unit 4: What is Computing?	**8 Days**	4E, 4F, 4G, 5A, 5B, 5C, 5E, 5F
	4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(F) The student will communicate an understanding of and use variables within a programmed story, game, or animation. 4(G) The student will use arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 5(A) The student will discuss privacy and copyright laws and model ethical acquisition of digital information by citing sources using established methods. 5(B) The student will compare various non-copyright asset sharing options such as open source, freeware, and public domain. 5(C) The student will demonstrate proper digital etiquette and knowledge of acceptable use policies when using networks. 5(E) The student will discuss and give examples of the impact of computing and computing-related advancements on society. 5(F) The student will analyze how electronic media can affect reliability of information.		
	Unit 5: Digital Information	**9 Days**	2A, 3C, 4A, 4B, 4E, 4G, 5D
	2(A) The student will investigate and explore various career opportunities within the computer science field and report findings through various media. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(A) The student will demonstrate the ability to insert external standalone objects such as scripts or widgets into web pages. 4(B) The student will communicate an understanding of binary representation of data in computer systems, perform conversions between decimal and binary number systems, and count in binary number systems. 4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(G) The student will use arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 5(D) The student will explain the value of strong passwords and virus detection and prevention for privacy and security.		

Grading Period 3 28 Days	**Unit 6: Basic JavaScript**	**15 Days**	1A, 2B, 2C, 4E, 4F, 4G, 4H, 4I, 4J, 4K, 4L
	1(A) The student will identify job and internship opportunities and accompanying job duties and tasks and contact one or more companies or organizations to explore career opportunities. 2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(F) The student will communicate an understanding of and use variables within a programmed story, game, or animation. 4(G) The student will use arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		
	Unit 7: The Internet	**13 Days**	6A, 6B, 6C, 6D, 6E
	6(A) The student will identify and explain the function of basic computer components, including a central processing unit (CPU), storage, and peripheral devices. 6(B) The student will use system tools, including appropriate file management. 6(C) The student will compare different operating systems. 6(D) The student will describe the differences between an application and an operating system. 6(E) The student will use various input, processing, output, and primary/secondary storage devices.		
Grading Period 4 31 Days	**Unit 8: Web Design**	**27 Days**	2C, 3C, 4D, 4E, 4F
	2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(D) The student will demonstrate coding proficiency in a programming language by developing solutions that create stories, games, and animations. 4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(F) The student will communicate an understanding of and use variables within a programmed story, game, or animation.		
	Unit 9: Project: Designing for an Impact	**4 Days (start)**	3A, 3B, 3C, 4H, 4I, 4J, 4K, 4L
	3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions. 3(B) The student will debug and solve problems using reference materials and effective strategies. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		
Grading Period 5 30 Days	**Unit 9: Project: Designing for an Impact**	**10 Days**	3A, 3B, 3C, 4H, 4I, 4J, 4K, 4L
	3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions. 3(B) The student will debug and solve problems using reference materials and effective strategies. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		

	Unit 10: Digital Citizenship & Cyber Hygiene	**10 Days**	3A, 3B, 3C, 4H, 4I, 4J, 4K, 4L
	3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions. 3(B) The student will debug and solve problems using reference materials and effective strategies. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		
	JavaScript & Graphics (import from Golden)	**5 Days**	2B, 2C, 2D, 3A, 3B, 3C, 4C, 4D
	2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 2(D) The student will use generally accepted design standards for spacing, fonts, and color schemes to create functional user interfaces, including static and interactive screens. 3(A) The student will seek and respond to advice or feedback from peers, educators, or professionals when evaluating problem solutions. 3(B) The student will debug and solve problems using reference materials and effective strategies. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(C) The student will identify a problem's description, purpose, and goals. 4(D) The student will demonstrate coding proficiency in a programming language by developing solutions that create stories, games, and animations.		
	JavaScript Control Structures (import from Golden)	**5 Days**	1.3.7, 2.3, 2-AP-11, 2-AP-19
	Students will learn the basics of creating graphics objects. Graphic creation relies on setting the type, shape, size, position, and color on the artist's canvas before adding to the screen. Using the geometric concepts, and the concept of getWidth() and getHeight(), multiple graphic objects can be created in JavaScript.		
Grading Period 6 **27 Days**	**JavaScript Functions and Parameters (Golden)**	**10 Days**	1A, 2B, 3C, 4E, 4F, 4G, 4H, 4I, 4J, 4K, 4L
	1(A) The student will identify job and internship opportunities and accompanying job duties and tasks and contact one or more companies or organizations to explore career opportunities. 2(B) The student will create algorithms for the solution of various problems. 3(C) The student will publish information in a variety of ways such as print, monitor display, web pages, or video. 4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(F) The student will communicate an understanding of and use variables within a programmed story, game, or animation. 4(G) The student will use arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		
	Unit 17: Micro: Bits **Unit 18: MakeCode: Arcade**	**15 Days**	2B, 2C, 4D, 4E, 4F, 4G, 4H, 4I, 4J, 4K, 4L
	2(B) The student will create algorithms for the solution of various problems. 2(C) The student will discuss methods and create and publish web pages using a web-based language such as HTML, Java Script, or XML. 4(D) The student will demonstrate coding proficiency in a programming language by developing solutions that create stories, games, and animations. 4(E) The student will identify and use the appropriate data type to properly represent the data in a program problem solution. 4(F) The student will communicate an understanding of and use variables within a programmed story, game, or animation. 4(G) The student will use arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division. 4(H) The student will communicate an understanding of and use sequence within a programmed story, game, or animation. 4(I) The student will communicate an understanding of and use conditional statements within a programmed story, game, or animation. 4(J) The student will communicate an understanding of and use iteration within a programmed story, game, or animation. 4(K) The student will use random numbers within a programmed story, game, or animation. 4(L) The student will test program solutions by investigating intended outcomes.		

	EXAM	**2 Days**	