Marking Period	Unit Title	Recommended Instructional Days
Marking Period 1	**Unit 1:** ● Task 1: Take some time to become familiar with the architecture of the computer you will use for this course. Describe your hardware and software using the following guidelines: -What hardware components make up your system? -How much memory does your system have? -What are the specifications of your CPU? (Do you know its speed and what kind of microprocessor it has?) -What operating system are you using? What version of that operating system is your computer currently running? -What major software applications are loaded on your system? ● Task 2: You have just written some software that you would like to sell. Your friend suggests that you copyright the software. Discuss why this might be a good idea. ● Task 3: Each student will choose a field related to computer science and do the following: 1. Create an 8 -10 slide PowerPoint Presentation describing the field, its benefits, salary, and necessary training 2. Write a 2 -3 page essay describing their findings on the field they chose 3. Make a 5- 7-minute presentation to the class on their findings. **Unit 2:** ● Task 1: Students will create a program that utilizes output statements to display their name in block letters. ● Task 2: Students will write and run a program to display their mailing address ● Task 3: Students will create a program to display a heading for a hospital billing statement.	MP1 - 45 days, Units 1-3

	● Task 4: Students will create a program to display a heading for student reports. ● Task 5: Students will create a program to calculate and print a bill for a roof repair of a leaking roof. **Unit 3:** ● Task 1: Students will create a program to display a 2D image of the Mull-Lyer Illusion in the graphics window. ● Task 2: Students will create a program to display a yield sign with outText. ● Task 3: Students will create a C++ program to display 2D representations of a square, a right triangle, an isosceles triangle, and a pentagon with appropriate outText labels. ● Task 4: Students will modify the Mull-Lyer Illusion so that the program connects two of the line segments so that the segments do not produce the illusion.	

Life Literacy & Key Skills Disciplinary Concept: *Core Idea*	**Performance Expectation/s:**	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**
Creativity and Innovation Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed. **Digital Citizenship** Network connectivity and computing capability extended to objects, sensors and everyday items not normally considered computers allows these devices to generate, exchange, and consume data with minimal human intervention. **Technology Literacy** Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in	**TECH.9.4.12.CT.1:** Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3). **TECH.9.4.12.CT.2:** Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a) **TECH.9.4.12.DC.8:** Explain how increased network connectivity and computing capabilities of everyday objects allow for innovative technological approaches to climate protection. 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and	**Essential Question/s:** ● What is computer science? ● How does hardware and software make up computer architecture? ● What is the difference between high-level and low-level languages? ● What are data types? ● What is output? ● What are the basic components of a C++ program? ● How do you set up a C++ program? ● How are pixels, points, and coordinate systems used to create graphics in programming? ● What is the structure of a graphics program? ● How are 2D images created in C++ programming? **Activity Description:** ● Describe what computer science is and what it is not ● Give a brief history of computers ● Decipher hardware and software make up computer architecture ● Distinguish between high-level and low-level programming languages

selecting the best tool for a given task. Collaborative digital tools can be used to access, record and share different viewpoints and to collect and tabulate the views of groups of people.	utility for accomplishing a specified task (e.g., W.11-12.6.). • 9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data. 9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments.	● Create a new project ● Identify reserved words and library identifiers ● Distinguish the different uses for the int, double, and char data types ● Understand the syntax for and use of output statements to display data ● Edit and compile given source code ● Set up a graphics program using the graphics library files ● Create programs to display 2D images in the graphics window ● Use lineTo, moveTo and outText statements in their graphics programs
Career Awareness, Exploration, Preparation, & Training Disciplinary Concept: ***Core Idea***	**Performance Expectation/s:**	
Career Awareness and Planning There are strategies to improve one's professional value and marketability. **Career Awareness and Planning** Career planning requires purposeful planning, based on research, self-knowledge, and informed choices.	**WRK.9.2.12.CAP.3:** Investigate how continuing education contributes to one's career and personal growth. **WRK.9.2.12.CAP.6:** Identify transferable skills in career choices and design alternative career plans based on those skills.	
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
-Self- awareness -Social Awareness -Self- Management -Relationship Skills -Responsibility -Decision-Making	● Recognizing the importance of self-confidence in handling daily tasks and challenges. ● Demonstrate an awareness of the expectations for social interactions in a variety of ways. ● Demonstrate an understanding of the need	

	for mutual respect when viewpoints differ. ● Recognize the skills needed to establish and achieve personal and educational goals. ● Utilize positive communication and social skills to interact effectively with others. ● Develop, implement, and model effective problem solving and critical thinking skills.	

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
● Tests ● Quizzes ● Practice problems for homework ● Worksheets ● Lab work: Write programs ● Observation ● Oral Explanation Check	**Benchmarks:** ● Students will obtain a score of 70% or higher, students who complete the proper assigned classwork will be assigned ● Rubric evaluations **Summative Assessments:** ● District Assessments ● Evidence that students can perform the functions ● Final documents/projects

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
	● Meet with the student's special education or inclusion teacher prior to initial assessment to learn how to best tailor the format	● Allow access to supplemental materials, including use of online bilingual dictionaries.	● Connect students to related talent development opportunities, often offered through area colleges, with the

	of any classwork, quiz or test to their individual special needs, as well as to discuss whether or not homework is appropriate. ● Provide access to an individual or classroom aide, when required by the student's IEP or 504, to improve student focus, comprehension and time on task. ● Provide access to modified materials as needed to improve accessibility (slant boards, headphones for auditory processing disorders, gym mats for additional cushioning, active/sensory seating pads, helmets and body padding as required by physical therapist, etc.). Many can be borrowed from a student's special education classroom, or the school's Occupational or Physical Therapists.	● Meet with an ELL trained or inclusion teacher prior to initial assessment to learn how to best tailor the format of any classwork, quiz or test to their individual needs.	assistance of guidance counselors.

Supplemental Resources

Technology:

- Assistive technology may be required for students with IEPs and 504s. Access to computers with screen readers, voice recognition software, and talking word processing applications may be beneficial. Some students with limited verbal abilities may require access to assistive communication devices and tablets that can be accessed through the school's speech therapist.

Other:

- Microsoft Visual C++ Software
- Fundamentals of C++ Second Edition
- Course Technology
- Thomson Learning
- Lambert / Nance

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
• Offer resources to students in a variety of ways to accommodate for multiple learning styles. • Engage all learners through implementation of various resources including visual, audio, and tactile materials. • Provide easy access to course resources so the student can utilize materials within the classroom or at home to reiterate content learned within the course.	• Utilize a multi-sensory (Visual, Auditory, Kinesthetic, Tactile) approach as needed during instruction to better engage all learners. • Provide alternate presentations of skills and steps required for project completion by varying the method (repetition, simple explanations, visual step-by-step guides, additional examples, modeling, etc). • Allow additional time to complete classwork as needed, when required according to students' IEP or 504 plan. Break assignments up into shorter tasks while repeating directions as	• Provide extended time to complete classwork and assessments as needed. Assignments and rubrics may need to be modified. • Provide access to preferred seating, when requested. • Check often for understanding, and review as needed, providing oral and visual prompts when necessary.	• Offer pre-assessments to better understand students' strengths, and create an enhanced set of introductory activities accordingly. • Integrate active teaching and learning opportunities, including grouping gifted students together to push each other academically. • Propose interest-based extension activities and opportunities for extra credit.

	needed. Offer additional individual instruction time as needed. ● Modify test content and/or format, allowing students additional time and preferential seating as needed, according to their IEP or 504 plan. Review, restate and repeat directions during any formal or informal assessments.		

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)							
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Standards in Action: *Climate Change*

Standard 9	
9 Career Ready Practices	__X__CRP1. Act as a responsible and contributing citizen and employee. __X__CRP2. Attend to financial well-being. __X__CRP3. Consider the environmental, social and economic impacts of decisions. __X__CRP4. Demonstrate creativity and innovation. __X__CRP5. Utilize critical thinking to make sense of problems and persevere in solving them. __X__CRP6. Model integrity, ethical leadership and effective management. __X__CRP7. Plan education and career paths aligned to personal goals.

	__X__CRP8. Use technology to enhance productivity, increase collaboration and communicate effectively. __X__CRP9. Work productively in teams while using cultural global competence.