Standard: Technology Literacy (2009)

8.1: Education Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

8.2: Technology Education, Engineering, and Design: All students will develop an understanding of the nature and impact of technology, engineering, technology design, and the designed world, as they relate to the individual, global, and the environment.

9.1: 21st Century Life and Career Skills: All students will demonstrate the creativity, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.

Strand:

8.1.A: Technology Operations and Concepts
8.1.F: Critical Thinking, Problem Solving, and Decision Making

8.2.B: Design: Critical Thinking, Problem Solving, and Decision Making
8.2.F: Resources for a Technological World
8.2.G: The Designed World

9.1.A: Critical Thinking and Problem Solving
9.2.E: Communication and Media Fluency
9.2.F: Accountability, Productivity, and Ethics

Curriculum aligned with: 2009 New Jersey Core Curriculum Content Standards for 21st Century Skills (9.1 A-F)

21st Century Theme: *Global Awareness ☐,Financial, economic, business and entrepreneurial literacy ☐ Civic literacy ☐,Health literacy ☐Environmental Literacy X*

21st Century Skills: *Critical Thinking & Problem Solving ☐,Creativity and Innovation ☐,Collaboration, Teamwork and Leadership ☐,Cross-Cultural Understanding and Interpersonal Communications X Communication and Media Fluency ☐, Accountability, Productivity and Ethics ☐*

Interdisciplinary Connection: Math=MA, English=ELA, Science=SCI, Social Studies=SS, Physical Education=PE, Art=ART, Music=MU, Technology=TECH, World Language=WL Business = BU		
Essential Questions	**Enduring Understandings**	**Activities, Investigation, and Student Experiences**
● What are string objects? ● What can not be mutated? ● How to use string objects to solve problems? ● What are substrings? ● How to use array list class? ● How to declare and initialize arrays? ● How to manipulate arrays with loops? ● What are 2-D arrays? ● What are inheritance and interfaces? ● What are class diagrams?	*Students will understand….* ● How to use string objects ● The difference between string and other methods ● The array list class ● The array list methods ● The difference between add and set ● How to draw pictures of the arraylist after add, set, and remove have been performed ● Understand terminology: array, elements, index, logical size, physical size, and parallel arrays ● Declare one-dimensional arrays in Java ● Use initializer lists when declaring arrays ● Manipulate arrays using loops and array indices ● Use the physical and logical size of an array together to guarantee they do not go beyond the bounds of their array by	● Lab 1: Students will create a one-dimensional arrays, to read in numbers and place each on in an even, odd, and/or negative list. ● Lab 2: Students will create a program where the user can have conversation. (without string) this will be used again for the Magpie project. ● Lab 3: Picture: Students will create a program where it will show a picture. ● Lab 4: Picture extension: Students will use their picture program and create a new program where it will change the picture into different formats. (ex. Black and white, or different RGB) **Spot Light On:** *Use random response strategies.* **<u>Unit Project:</u>** ● Lab 5: Magpie: students will design and implement computer-based solutions to problems. This will be an interactive program between user and computer. Example (it will work like GoogleTalk just much simpler).

	identifying the boundary cases and using test data to verify results ● Understand how parallel arrays can be useful when processing certain types of data ● Work with arrays of primitive data types as well as arrays of objects while understanding the difference between the two types of data ● Understand when to choose an array to represent data instead of an ArrayList	**Modifications and/or Accommodations:** ● **Special Education:** Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks. ● **English Language Learners:** Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of online bilingual dictionary, and modified assessment and/or rubric. ● **Students at Risk of School Failure:** Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat instructions as needed. **Gifted Students:** Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related talent development opportunities.
Content Statements	**Cumulative Progress Indicators**	

Students will know… ● The string class ● The string method ● Arrays ● Arraylist method ● Arraylist class ● One-dimensional arrays ● 2-D arrays ● Simple inheritance and interfaces ● Class diagrams	● Tests ● Quizzes ● Practice problems for homework ● Projects ● Worksheets ● In-class programs ● Labs	
Desired Results		
● Understanding that 2-D arrays are stored as arrays of arrays ● Understand the meaning of row-major order ● Traversing all and part of a two-dimensional arrays ● Using nested loops to manipulate objects in a two-dimensional arrayUse output with System.out using print and println and format output to look nice ● Learn how to write code that corresponds to a class diagram and learn how to draw a class diagram that describes code.		

Standards for Mathematical Practices	Teacher Resources
1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	http://www.cengage.com/us http://achievethecore.org https://learnzillion.com https://www.khanacademy.org/ https://www.desmos.com/ http://www.ixl.com http://www.parcconline.org

Social and Emotional Learning: ***Competencies***	
SEL Competencies: • Self- awareness • Social Awareness • Self- Management • Relationship Skills • Responsible 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. • Identify and apply ways to persevere through alternative methods to achieve goals. • Utilize positive communication and social skills to interact effectively with others. •Develop, implement, and model effective problem solving and critical thinking skills.

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*	**x**	Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*