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
● Why is Java an important programming language? ● What is the Java Virtual machine and what is meant by byte code? ● How can user interface styles be chosen and developed? ● How are programs edited, compiled, and ran? ● What are compile time errors?	*Students will understand….* ● The uses and benefits of Java as a programming language ● The Java Virtual Machine ● How to describe the structure of a simple Java program ● How to format a program to give a pleasing, consistent appearance ● How to avoid and correct compile time errors ● Write a simple graphics program	● Task 1: What is a portable program? Describe two features of JAVA that make it a better language than C++. What is a thread? Describe how threads might be used in a program. ● Task 2: What does JVM stand for? What is byte code? Describe how the JVM uses byte code. What is an applet? Describe how applets are used. ● Task 3: Give, in your own words, a short, concise definition of a program. What is the effect of the message println? Describe how to use the System.out object. Write a sequence of statements to display your name, address, and phone number in the terminal window. ● Task 4: Write the three steps in writing and running a program. What are compile-time errors?

Content Statements	Cumulative Progress Indicators	
Students will know… ● **Java is the fastest growing programming language in the world** ● **Java compilers transfer information into Java Byte Code which can be deciphered by the machine** ● **Java programs include variables, arithmetic expressions, statements, objects, messages, and methods** ● **Three steps of the coding process are editing, compiling, and running** ● **Java programs accomplish tasks by sending messages to objects** ● **There are several user interface styles,**	● Tests ● Quizzes ● Practice problems for homework ● Projects ● Worksheets ● In-class programs	

among them are terminal based and graphical based		
Desired Results		
● Understanding of the effectiveness and reliability of Java. ● Distinguish the pros to using Java programing language rather than C++. ● Understanding of the programming three step process. ● Able to locate and correct compile time errors that occur when running a program.		
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

LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*

Sally Ride https://www.nasa.gov/pdf/740534main_Precal-ED_Space%20Vectors.pdf
https://en.wikipedia.org/wiki/Sally_Ride

The mission is to ensure that every student is able to see themselves in our rich and diverse history.

Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-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. • 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.