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

• How is random behavior added to a program? • What is a keyboard control? • Why is sound added to a program?	*Students will understand….* • When a method we wish to call is not in our own class or inherited, we need to specify the class or object that has the method before the method name, followed by a dot. This is called dot notation. • Comments are written into the source code as explanations for human readers. They are ignored by the computer.	**Task 1:** Write down, on paper, an expression using the getRandomNumber method and the less-than operator that, when executed, is true exactly 10 percent of the time. **Task 2:** Write down another expression that is true 7 percent of the time. **Task 3:** Try out the random course changes shown above in your own version. Experiment with different probabilities for turning. **Task 4:** Try running your scenario with multiple crabs in the world. D they all turn at the same time, or independently? Why? **Task 5:** Add some worms to your world. Also add some crabs. Run the scenario. What do you observe? What do the worms do? What happens when a crab meets a worm? **Task 6:** Create another method named turnAtEdge. Move the code that checks whether we are at the edge of the world into this method. Call this method from your act method. **Task 7:** Add a new class to your scenario. The class should be a subclass of Animal, called Lobster and it should use the prepared image lobster.png. What do you expect lobsters to do when you place them into the world as they are? Compile your scenario and try it out.

Content Statements	**Cumulative Progress Indicators**	
Students will know… ● Vocabulary: dot notation, random numbers, defining methods, comments ● Add random behavior ● Add other objects to the world ● Make objects interact with each other ● Control the world with the keyboard ● End the game ● Add sound	● Tests ● Quizzes ● Practice problems for homework ● Programming assignments ● Worksheets	
Desired Results		

• Execute and observe code that allows a random number of steps and direction of the crabs • Add worms to the world. • Observe the circumstance when a crab meets a worm. • Create a method for random turns. • Create a methods for random reactions to reaching the edges of a world. • Add lobsters to the world. • Review and analyze the actions of a lobster placed in the world. • Add code to allow key-pressed directions for crab movement. • Add code to create the end game, i.e. when the lobster catches the crab. • Add sound to coincide with actions, i.e. a crab eats a worm; a lobster eats a crab; • Record and use a computer microphone to create sounds to use in 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

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

- Wanda Diaz-Merced - https://www.nasa.gov/pdf/585032main_Geom-ED_Full-Circle.pdf
- https://www.youtube.com/watch?time_continue=11&v=zUQYrwYXCxs&feature=emb_logo

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.