**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 the code written for the following actions:<br>● Movement<br>o Turning<br>o Reacting to the screen edges | *Students will understand….*<br>● A method call is an instruction that tells an object to perform an action<br>● Additional information can be passed to some methods within the parentheses. The value passed is called a parameter.<br>● An if-statement can be used to write instructions that are executed only when a certain condition is true. | **Task 1:** Open the little-crab scenario. Place a crab in the world and run the program. What do you observe?<br><br>**SCI**<br>**Task 2:** Change the act method in your crab class to include move() instruction. Compile the scenario and place a crab into the world. Try clicking the Act and Run buttons.<br><br>**Task 3:** Place multiple crabs into the world. Run the scenario. What do you observe?<br><br>**Task 4:**Place move() with Turn(5) in your scenario. Try it out. Also, try values other than 5 and see what it looks like.<br><br>**Task 5:** How can you make the crab turn left?<br><br>**Task 6:** Use a move() and Turn(N) instruction in your crab's act method. Try different values for N.<br><br>**Task 7:** Open your editor to show the carb's source code, and remove the semicolon after move(). Then compile. Also experiment with other errors, such as misspelling move or |

| **Content Statements** | **Cumulative Progress Indicators** | |
|---|---|---|
| *Students will know…*<br>● **Vocabulary: source code, method call, parameter, sequence, if-statement**<br>● Make the little crab move<br>● Make the little crab turn<br>● Determine how to deal with the screen edges | ● Tests<br>● Quizzes<br>● Practice problems for Programming assignments<br>● Worksheets | |
| **Desired Results** | | |

| | |
|---|---|
| • Open the little *crab scenario* and place a crab into the world.<br>• Observe and analyze the actions of the crab.<br>• Change methods to allow movement of the crab.<br>• Create and place multiple crabs into the world.<br>• Experiment with multiple turn and movements of the crab. | |
| Standards for Mathematical Practices | Teacher Resources |
| 1. Make sense of problems and persevere in solving them.<br>2. Reason abstractly and quantitatively.<br>3. Construct viable arguments and critique the reasoning of others.<br>4. Model with mathematics.<br>5. Use appropriate tools strategically.<br>6. Attend to precision.<br>7. Look for and make use of structure.<br>8. Look for and express regularity in repeated reasoning. | http://www.cengage.com/us<br>http://achievethecore.org<br>https://learnzillion.com<br>https://www.khanacademy.org/<br>https://www.desmos.com/<br>http://www.ixl.com<br>http://www.parcconline.org |

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

NASA Employees - h ttps://www.nasa.gov/sites/default/files/files/Space_Math_I.pdf
https://www.youtube.com/watch?time_continue=42&v=yiCYoOjCcNw&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<br>Social Awareness<br>Self-Management<br>Relationship Skills<br>Responsible Decision-Making | • Recognizing the importance of self-confidence in handling daily tasks and challenges.<br>• Demonstrate an awareness of the expectations for social interactions in a variety of ways.<br>• Demonstrate an understanding of the need for mutual respect when viewpoints differ.<br>• Recognize the skills needed to establish and achieve personal and educational goals.<br>• Utilize positive communication and social skills to interact effectively with others.<br>• Develop, implement, and model effective problem solving and critical thinking skills. |