

Lesson 3 - Resilient Rockaway
Standards:

Science (NGSS - Next Generation Science Standards):

1. **3-ESS3-1 (Earth and Human Activity)** – This standard emphasizes the understanding of how human activities impact the environment. In this lesson, students learn about climate change challenges in Rockaway and potential solutions for improving resilience, directly addressing the human role in protecting the environment.
2. **4-ESS3-1 (Earth and Human Activity)** – The lesson introduces students to the environmental challenges of the Rockaway ecosystem (storm surge, flooding, sea level rise), and discusses human interventions (such as dune restoration) to combat these challenges, aligning with the concept of how human decisions affect ecosystems.
3. **5-ESS3-1 (Earth and Human Activity)** – This standard involves understanding the effects of environmental changes on ecosystems and designing solutions. The lesson discusses how Rockaway's unique ecosystem is facing climate change challenges and how resilience strategies like dune restoration can help.
4. **K-ESS3-3 (Earth's Systems)** – The lesson addresses how coastal ecosystems, like the dunes of Rockaway, play a critical role in mitigating climate change effects like storm surges, which aligns with understanding how ecosystems help protect the land.
5. **3-ESS2-1 (Weather and Climate)** – This standard involves understanding weather patterns and their effects on Earth systems. The lesson connects to this standard through discussions on how climate change is impacting weather patterns and increasing the frequency and severity of storm surges and flooding.

Language Arts (Common Core State Standards - CCSS for ELA):

1. **CCSS.ELA-LITERACY.RI.3.1, RI.4.1, RI.5.1** – These standards require students to ask and answer questions to demonstrate understanding of a text. In the lesson, students will engage with the material presented in the slides and videos, answering questions about Rockaway's ecosystem and climate change challenges.
2. **CCSS.ELA-LITERACY.RI.3.7, RI.4.7, RI.5.7** – These standards focus on using information presented in various formats (like visuals, videos, and maps) to deepen understanding. Students will view videos, maps, and presentations about Rockaway and its ecosystem, helping them make connections between text and images.
3. **CCSS.ELA-LITERACY.SL.3.1, SL.4.1, SL.5.1** – The lesson encourages collaborative discussions where students engage in sharing ideas about Rockaway's ecosystem, climate change impacts, and their role as stewards. This aligns with speaking and listening standards for group conversations.
4. **CCSS.ELA-LITERACY.W.3.8, W.4.8, W.5.8** – Students will gather information from presentations and resources (such as maps, videos, and readings) to complete assignments about climate resilience and stewardship, reinforcing skills in writing and synthesizing information.

Social Emotional Learning (SEL):

1. **Self-awareness and self-management:** As students reflect on their personal connection to Rockaway and their role in caring for the environment, they practice recognizing their own feelings and actions in relation to the environment. This reflection fosters emotional and environmental awareness.
2. **Social awareness:** Through discussions about the impact of climate change on the Rockaway community and ecosystem, students will better understand the environmental challenges faced by others and how collective action is necessary for resilience.
3. **Responsible decision-making:** Students explore stewardship by thinking about their role in maintaining and protecting the local environment. This encourages responsible decision-making related to environmental sustainability.
4. **Relationship skills:** During the mapping and group activities, students will practice working together, communicating ideas, and solving problems as they learn about the importance of collaboration in community resilience.

Geography and Environmental Stewardship:

1. **Geography and Cartography:** The mapping activity connects students with their local environment and strengthens their spatial thinking as they label and personalize the Rockaway ecosystem map. This helps them understand geographical features like dunes and how they relate to the environmental challenges Rockaway faces.
2. **Environmental Stewardship:** Students reflect on what stewardship means and how they can act as caretakers of the environment, which is central to the lesson's concept of building resilience in the Rockaway ecosystem.

Key Concepts Addressed in the Standards:

- **Ecosystems and Resilience:** The lesson focuses on how the Rockaway ecosystem works, including the role of dunes in protecting the coastline, and the challenges the area faces due to climate change.
- **Climate Change and Adaptation:** Students will learn about climate change impacts on Rockaway, including flooding, storm surge, and sea level rise, and explore possible solutions to enhance resilience.
- **Stewardship and Action:** The concept of stewardship is central to the lesson, encouraging students to reflect on their role in preserving the environment and taking action to protect it.