

Exploring Resiliency with the NPCC

Description:

This lesson explores how climate change will impact New York City and the various ways the City is responding through sustainability initiatives and resiliency projects. Students will read scientific research conducted by the New York City Panel on Climate Change (NPCC) and explore existing programs that work to address this data, with the goal of designing their own solutions.

Objectives:

- Create a connection between science and the policymaking process
- Describe NYC’s resiliency projects related to coastal flooding, stormwater management, and extreme heat
- Present and summarize findings on resiliency in NYC
- Connect climate change to our local communities

Vocabulary:

New York City Panel on Climate Change, resiliency, vulnerability

Materials:

- Computers, laptops, or tablets with internet access
- Poster paper
- Markers
- Printouts of DEP’s [Exploring Resiliency with the NPCC Accompanying Worksheet](#)

Background Information:

Mayor Michael Bloomberg created a body of scientists similar to the UN’s Intergovernmental Panel on Climate Change to conduct research on the effects of climate change specifically in New York City, known as the New York City Panel on Climate Change (NPCC).¹ In 2008, NPCC was assigned the role of advising the Mayor and various city stakeholders on how to prepare for climate change. The NPCC’s first report, titled "Climate Risk Information" was released in 2009.¹

Resiliency is defined as “the ability of people, the places where they live, and our infrastructure systems—such as transportation and energy—to withstand a stress or shock event, to recover, and emerge even stronger.”² In late October of 2012, Hurricane Sandy devastated much of the New York City metropolitan area. Neighborhoods were greatly impacted, with homes and businesses flooded and much of our local infrastructure damaged. After the storm passed, it became clear that New Yorkers must adapt to a new era of climate change. The storm also highlighted New York City’s vulnerability to extreme hurricanes and tropical storms, as a coastal city. Hurricane Sandy caused \$19 billion dollars in damages in New York City, which the city was forced to recover from with the goal of emerging even stronger.

After Hurricane Sandy, New York City pledged to become a more resilient city. In January of 2013, the NPCC released their second report to inform new policy on addressing Hurricane Sandy and

¹ [Columbia University Overview of NPCC](#)

² [OneNYC 2015](#)

climate change. Five months later, New York City released a comprehensive resiliency plan known as, “A Stronger, More Resilient New York.” The NPCC report helped Mayor Bloomberg and his team develop relevant and informed goals to address the various topics explored in the report.¹

The following year, the Mayor’s Office of Recovery and Resiliency, now the Mayor’s Office of Resiliency (MOR), was formed. This was the first time an office had been created to solely address resiliency initiatives in NYC. MOR “is leading the city’s short- and long-term efforts to strengthen coastal defenses, upgrade buildings, protect infrastructure and critical services, and make homes, businesses, and neighborhoods safer and more vibrant.”¹ The NPCC and the MOR work closely to coordinate scientifically informed projects throughout the city.

Explore these websites to learn more about the [NPCC](#) and the [Mayor’s Office of Resiliency](#).

Method:

- Define the term adapt with the class:
 - What does it mean to adapt?
 - Why is adaptation important as climate change intensifies?
 - What are some ways adaptation can be used as a strategy to combat climate change?
 - Define the term resiliency with the class:
 - What does it mean to be resilient?
 - As a class, identify the three main climate change hazards that affect NYC: heat, coastal flooding, and stormwater.
 - Ask students to raise their hands if they have experienced these hazards, and discuss their responses.
- Tell students they will be working in small groups to propose creative ways to address a climate change hazard.
 - Share out this prompt: Imagine in a call to action that New York City’s Mayor has requested teams of project managers to submit innovative plans to help the City respond to extreme heat, coastal flooding, and stormwater. In order to be selected for this ambitious project, teams will need to display their plan at a conference for City stakeholders. Your group is given access to unlimited resources to plan your project (be sure to specify how much time they will have for this project based on your schedule, you might need more than one class period). Your group will receive a packet of important information including NPCC data about your assigned climate change hazard and examples of current projects or strategies for adaptation. As a group, brainstorm ideas and design a solution(s) to help NYC adapt to the given hazard. Display your plans using markers and poster paper. You will then present your proposed solutions in a gallery walk.
 - Help students form small groups. Allow each group time to find an open space around the room and begin working together.
 - Pass out an informational leaflet on one of the three hazards to each group. Leaflets include:
 - Data – observations and projections of the identified hazard
 - Plans – examples of what the City is already doing or planning to do to address the impacts of the identified hazard
 - Prompts – questions to guide students in developing their ideas and plans

- Glossary – important design terms and definitions
- Pass out markers and a large sheet of poster paper to each group.
- Using the leaflets and provided materials, students should work together to brainstorm and depict their plan(s).
- Display the finished posters around the room for a gallery walk and give students time to view each group’s poster.
- Optional: Enlist yourself and some additional adults to form a “panel” who will choose the winning group. You may choose to award the group with a small prize.
- Discuss students’ observations and process for design using the prompts below.

Discussion:

- How will your neighborhood be affected by climate change? Do you notice any areas of vulnerability that the city and community should plan to address?
- Often climate change can feel overwhelmingly negative. Does focusing on projects like these, and opportunities for growth, help ease this feeling? How can we communicate a positive or optimistic message to people without sacrificing the accuracy of the information we convey?
- Other than a focus on innovative design, what other actions can we take as individuals and communities to address these local climate hazards?
- Brainstorm ways individuals and communities can work to address local climate hazards. How can communities and individuals play a role in City-level resilience projects? Where can communities and individuals access decision-making power? Research some examples of community-

level resilience projects (i.e. community gardens, food co-ops or community supported agriculture (CSA) programs, etc.), and discuss their impacts.

Extension:

- Plan a mini field trip to visit a resiliency project site as a class. Explore the [NYC Hazard Mitigation Projects map](#) for information on projects across NYC.
- For a global perspective, research how other cities around the world are responding to temperature rise, precipitation fluctuations, and sea level rise, and find exemplary initiatives taking place in these cities. How can NYC learn from these initiatives?
- Now, research cities that are lacking in their response to these three factors. How can NYC share their initiatives and how can other cities adapt NYC’s initiatives to increase global climate resiliency?
- Research cities and communities that have recently been impacted by natural disasters. Use satellite images to see the location before and after the event. Make observations on the satellite images and note the effects on infrastructure geographically. Research the strategies implemented for addressing the infrastructure changes and building resiliency.
- Look at [NASA’s Sea Level Rise web page](#) as a class to discover up-to-date satellite observations from 1993 to present-day and explore their [interactive educational page](#).

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For more information visit www.nyc.gov/dep