



How to Implement Community-Based Climate Change Education

October 24, 2022



IG: [Sustainable_Jersey](#) | Twitter: [@SJ_Program](#) and [@SJ_Schools](#) | FB: [@SustainableJersey](#) | LinkedIn: [sustainable-jersey](#)



Presenters

Randall Solomon, Sustainable Jersey

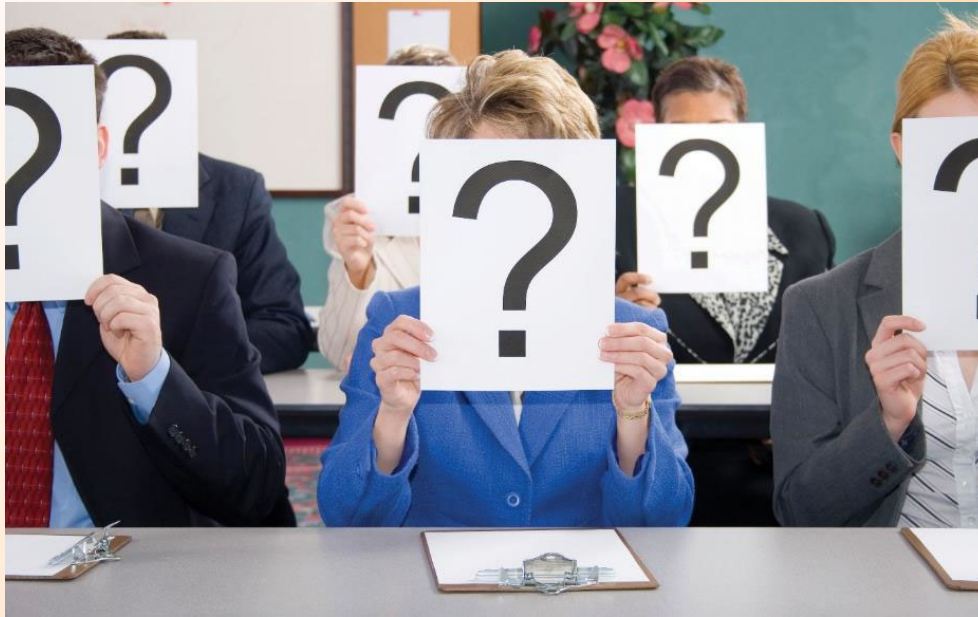
Dr. Lauren Madden, TCNJ School of Education

Allison Mulch, NJ Audubon





Let's hear from you!



[This Photo](#) by Unknown Author is licensed under [CC BY-SA-NC](#)



IG: Sustainable_Jersey | Twitter: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey

In 2021, G-20 education ministers held their meeting with the theme of *People, Planet, and Prosperity* just ahead of the United Nations' climate conference in November. Many stakeholder groups have urged the G-20 leaders to make compulsory climate education a key priority, “**as fundamental as reading and writing,**”

“If just 16% of high school students in middle- and high-income countries were educated about climate change, there would be a tremendous reduction of carbon emissions (nearly 20 gigatons) by 2050. Through education, not simply about climate change itself, but the “green skills” and habits of mind needed to address the effects of climate change, more sustainable future becomes possible.”

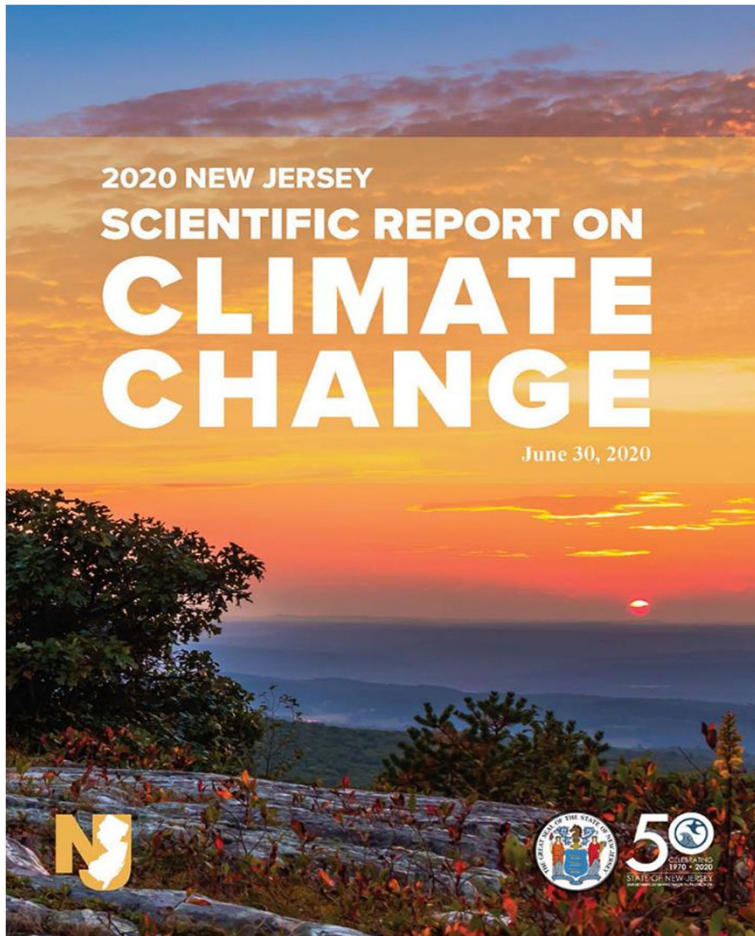
Kwauk and Wintrop (2021)



New Jersey Climate Change Education Student Learning Standards



IG: Sustainable_Jersey | Twitter: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey



Why teach about climate change?

- Climate change refers to the long-term shifts in temperatures and weather patterns (UN, 2022).
- Education is our most powerful tool and a critical force in preparing the next generation to address climate change.

What's at stake for New Jersey?

Warmer temperatures are producing more severe heat waves. Sea-level rise and heavy rains are causing more intense flooding. These and other climate-related hazards are projected to escalate through the 21st century and will fall heaviest on NJ's most vulnerable residents.

Health

- Increased heat-related illness
- Degraded air quality
- Spread of vector-borne disease
- Storm-related injury and death

Economy

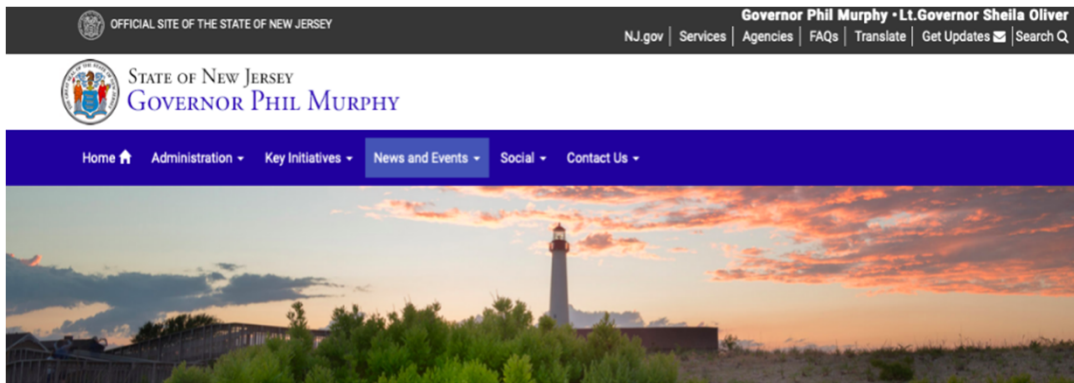
- Damage to infrastructure
- Damage to homes and businesses
- Economic disruption
- Potential decrease in agricultural yields

Environment

- Greater wildfire risk
- Habitat loss
- More short-term droughts
- Potential freshwater salinization

njclimateresourcecenter.rutgers.edu

Introducing the Climate Change Standards



First Lady Tammy Murphy Announces New Jersey Will Be First State in the Nation to Incorporate Climate Change Across Education Guidelines for K-12 Schools

06/3/2020

TRENTON – First Lady Tammy Murphy today announced that the New Jersey State Board of Education has adopted her initiative to make New Jersey the first state in the nation to incorporate climate change education across its K-12 learning standards. The New Jersey Student Learning Standards (NJSL) outline what is taught in New Jersey's public schools and set the foundation for school districts to craft instruction and curricula. With this adoption, climate change education will be incorporated across seven content areas—21st Century Life and Careers, Comprehensive Health and Physical Education, Science, Social Studies, Technology, Visual and Performing Arts, and World Languages. Climate change standards

Climate Change Education by Grade Band

With the adoption of the [2020 New Jersey Student Learning Standards \(NJSL\)](#), New Jersey became the first state in the nation to include climate change across content areas. These standards are designed to prepare students to understand how and why climate change happens, the impact it has on our local and global communities and to act in informed and sustainable ways.

Districts are encouraged to utilize the NJSL to develop interdisciplinary units focused on climate change that include authentic learning experiences, integrate a range of perspectives and are action oriented. While the [2016 NJSL-English Language Arts \(ELA\) and Mathematics](#) do not have specific climate change standards, districts may want to consider how they can design [interdisciplinary climate change units](#) that incorporate relevant ELA and mathematics standards. Likewise, it may be helpful to review the [2020 NJSL documents](#) to identify other relevant standards that might be incorporated as well as to understand the role of core ideas, performance expectations and practices in curriculum development and lesson planning.

Click on the desired grade band below to see the 2020 NJSL that specifically reference climate change as well as those that might be incorporated in an interdisciplinary climate change unit. Within each grade band, the 2020 NJSL appear in order of their standard number:

- | | |
|-------------------------------------------------|------------------------------------------------------|
| 1 – Visual and Performing Arts | 7 – World Languages |
| 2 – Comprehensive Health and Physical Education | 8 – Computer Science & Design Thinking |
| 5 – Science | 9 – Career Readiness, Life Literacies and Key Skills |
| 6 – Social Studies | |

- Kindergarten through Grade 2
- Grades 3 through 5
- Grades 6 through 8
- Grades 9 through 12

The Updated NJ Student Learning Standards

URL: <https://www.nj.gov/education/standards/climate/learning/gradeband/index.shtml>

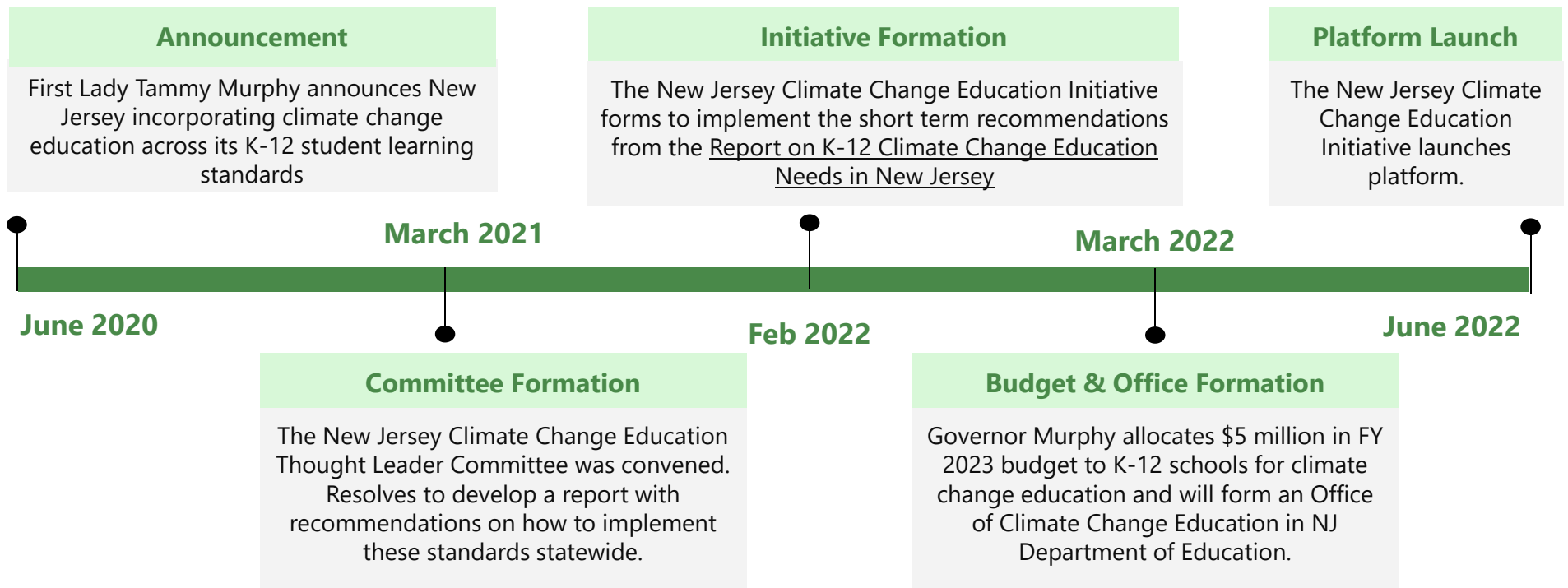
Below is an example of K-2, Visual and Performing Arts

Kindergarten through Grade 2

Visual and Performing Arts

Enduring Understandings	Performance Expectations
<ul style="list-style-type: none">As dance is experienced, all personal experiences, knowledge and contexts are integrated and synthesized to interpret meaning.	<ul style="list-style-type: none">1.1.2.Cn10b: Using an inquiry-based set of questions examine global issues, including climate change as a topic for dance.
<ul style="list-style-type: none">Artist's appreciation of media artworks is influenced by their interests, experiences, understandings, and purposes. Identifying the qualities and characteristics of media artworks improves the individual's aesthetic and empathetic awareness.	<ul style="list-style-type: none">1.2.2.Re7b: Identify, share and describe a variety of media artworks created from different experiences in response to global issues including climate change.
<ul style="list-style-type: none">As theater is created and experienced, personal experiences and knowledge are synthesized to interpret meaning and analyze the way in which the world may be understood.	<ul style="list-style-type: none">1.4.2.Cn11a: With prompting and support, identify similarities and differences in stories and various art forms from one's own community and from multiple cultures in a guided drama (e.g., process drama, story drama, creative drama) experience about global issues, including climate change.
<ul style="list-style-type: none">People develop ideas and understandings of society, culture and history through their interactions with and analysis of art.	<ul style="list-style-type: none">1.5.2.Cn11b: Describe why people from different places and times make art about different issues, including climate change.

Climate Change Education Initiative Timeline





Small Group Discussion

What steps has your district taken to address the new Climate Change Education Student Learning Standards?

IG: Sustainable_Jersey | Twitter: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey



Resources to Support Climate Change Education



IG: Sustainable_Jersey | Twitter: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey



Randall Solomon, Executive Director



Sustainable Jersey for Schools



- Identifies **actions** to become more sustainable
- Provides **tools, resources, and guidance** to make progress
- Provides access to **grants** for schools and school districts
- Recognizes **accomplishments**
- Awards certification to individual schools but requires School Board and district level support

Sustainability Framework: 100+ Actions for Sustainability



<https://www.sustainablejerseyschools.com/actions/>

2014
Program
Started

64%
Districts
Participating

1,058
Schools
Registered

150
SUSTAINABLE JERSEY
BRONZE

306
Certified

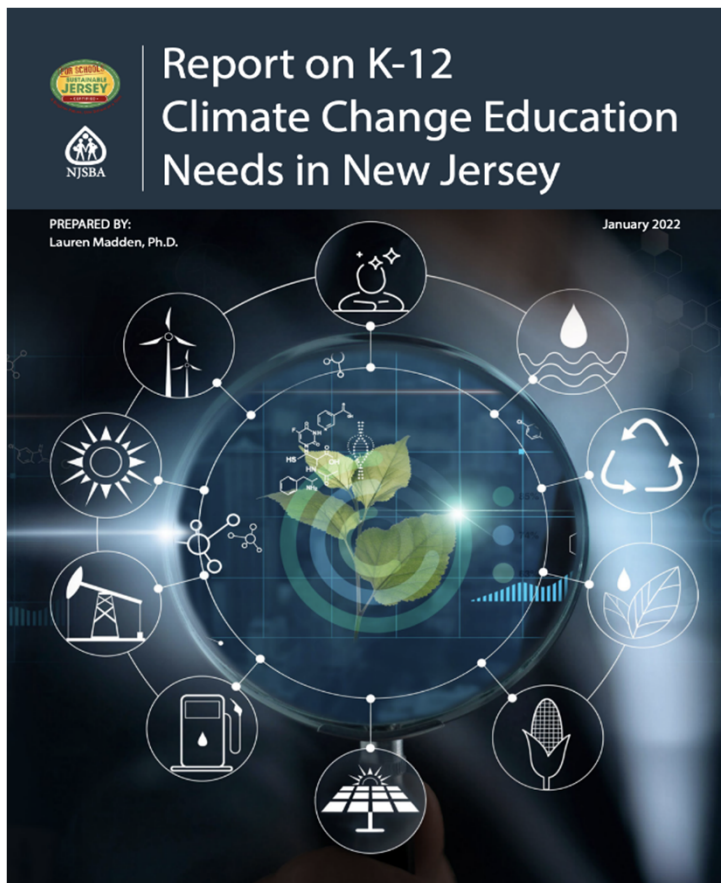
350
SUSTAINABLE JERSEY
SILVER

48
Certified

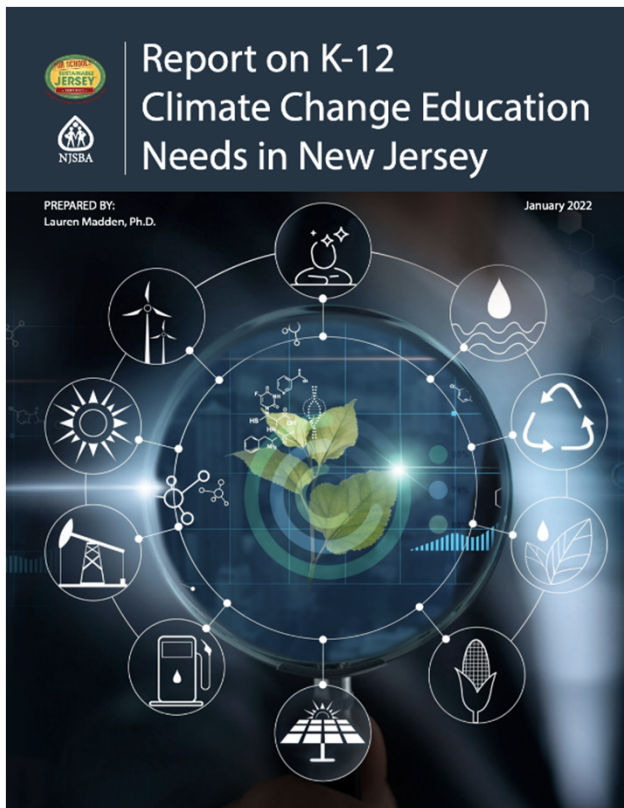
**43 Digital
Schools
Stars**

7,861
Actions
Implemented



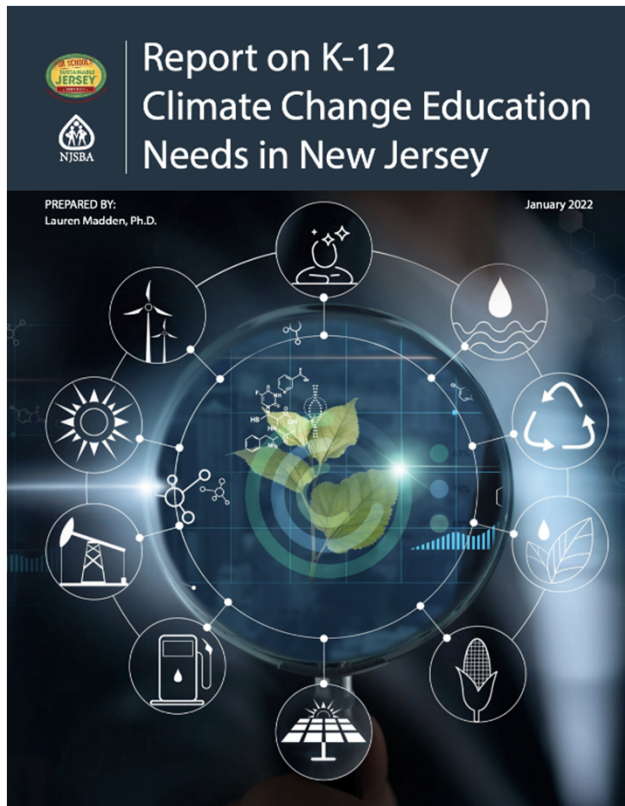


Encourage community-focused collaboration among stakeholders, including board members, students, families, teachers, facilities professionals, and administrators, to ensure that schools develop a comprehensive approach to climate change education.



Center climate change education and experiences on what is happening locally. Place-based approaches to education that emphasize the New Jersey-specific effects of climate change and the local actions that impact global trends are more likely to make a lasting impact on students and motivate communities to commit to solution-building.

Community-Based Climate Change Education



- Consider school specific context
- Connect global issues with those in local communities
- Place-based approaches with local and regional examples should be prioritized
- Solutions for mitigating climate change have the potential to yield considerable financial impacts on all systems, including schools, as well as students seeking career paths.

Collaborators



Cooperative Extension

RCE County Office Operating Status »

- Municipal Boards & Commissions
- Non-Profits
- State Agencies (DEP, DOT, BPU)
- Colleges & Universities
- Residents & Businesses





Project Based Learning

Engages students in learning

- Assess mastery of skills
- Long lasting experience
- Practical and memorable





Climate Change Education Connections

CLIMATE MITIGATION & RENEWABLE ENERGY
School Carbon Footprint
Onsite Solar
ENERGY EFFICIENCY
Energy Efficiency for School Facilities
Behavior-Based Energy Conservation Programs
Energy Tracking & Management
FOOD & NUTRITION
Promote Locally Grown Foods
School Gardens
GREEN PURCHASING
Recycled Paper Purchase
Sustainable Fleets
HEALTHY SCHOOL ENVIRONMENTS
Anti-Idling Education & Enforcement
iSTEAM
iSTEAM Planning & Implementation
iSTEAM Collaborative Units of Study
LEARNING ENVIRONMENT
Outdoor Classroom

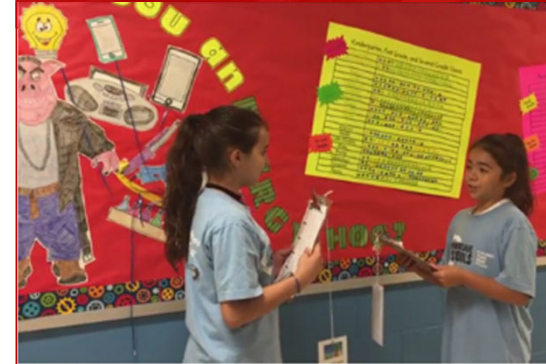


Climate Change Education Connections

SCHOOL GROUNDS
Biodiversity Audit & Management Plan
Biodiversity Project
Green Infrastructure Assessment & Plan
Green Infrastructure Installation
STUDENT & COMMUNITY OUTREACH
Community Education & Outreach
Civic & Stewardship Volunteer Initiatives
Enrichment Programs
Green Challenges
Green Fair
STUDENT SAFETY
Safe Routes to School District Policy
Pedestrian and Bicycle Safety and Promotion Initiatives
School Travel Plan for Walking and Biking
WASTE MANAGEMENT & RECYCLING
Waste Audit
Document Recycling Rates
Food Waste Management
Materials Reuse
Recycling Non-Mandated Materials

Behavior-Based Energy Conservation

- Students and staff learn about energy use in the school
 - Hands-on lessons
 - Classroom audits
 - School assembly presentations
- “Energy Campaign” to change behaviors
 - Morning announcements, posters, email blasts
 - “Energy Patrol” contests
 - Holiday-shutdown activities



GLC PowerSave Team 2017

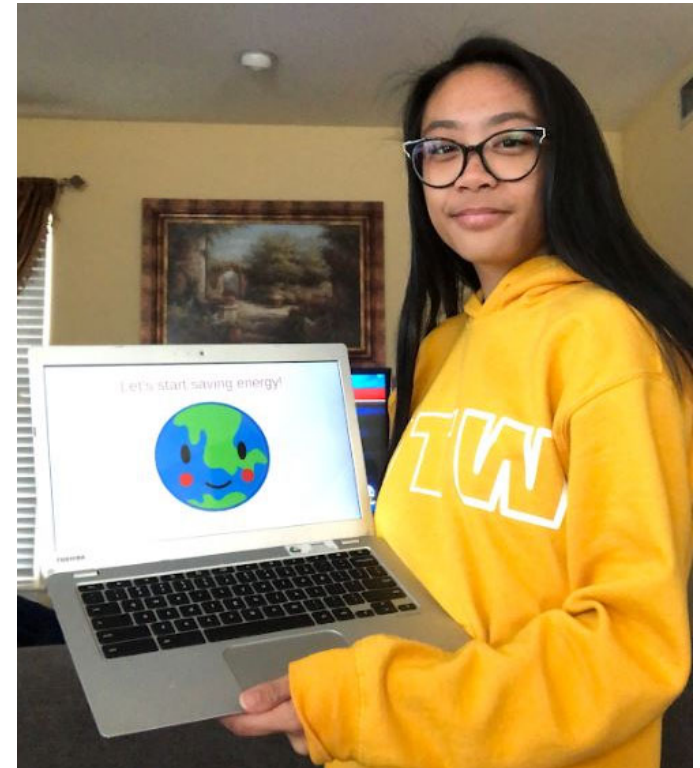
EmPowered Schools Goals

- Save energy & reduce costs
 - Instill simple behaviors
 - Better, more comfortable learning environment
- Educate students about energy
 - STEM lesson plans (flipped classroom)
 - Hands-on training
- Foster student leadership, teamwork, and community involvement
 - Public speaking and outreach training
- Build pathways to Green Jobs
 - Field trips, guest speakers, etc.

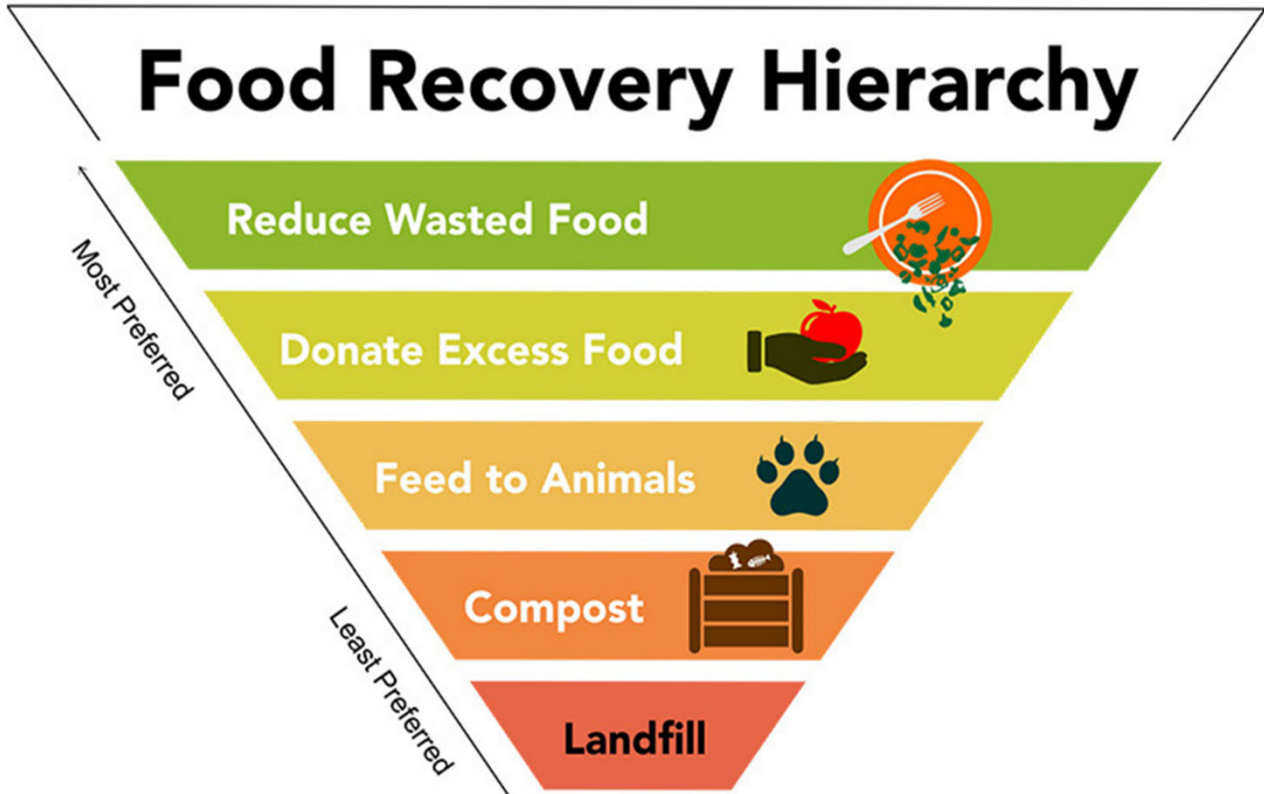


Staff Recognition

- **Winslow Middle School, Ross Cruz:** “This has been a great program to instruct in and out of school. My kids are really enjoying it and are implementing the practices.”
- **Middle School North, Kristin Raleigh:** “We are all definitely learning AND having fun with the program. Will be participating again next year for SURE!”
- **Winslow High School, Carolyn Tagmire:** "This was amazing! I didn't know if the kids would take to this or not, but they had a blast and so did their families...the message of saving energy was definitely heard.”



Food Waste



Strategies to Address Food Waste



Reduce Food Waste

Recover Uneaten Food



Recycle (Compost)

Delran Middle School

- **Team includes**


- Rutgers Cooperative Extension
- Sustainable Jersey for Schools
- Delran Schools Administration, Support Services, Teachers and Green Team
- Municipal Green Team
- County Recycling Coordinator

- **Objectives:**


- \$25K a food composter to reduce waste by $\frac{1}{3}$
- Training for staff and students
- New waste streaming
- Garden implementation



The State of New Jersey School Food Waste Guidelines



They are easy to use – compost removal



Stop the cycle and open the compost removal door.

Press the remove compost option on the touchscreen and material is gradually ejected.

Once ejected, the soil amendment is stored in a water-tight container for 21 days.



Food Waste Audit Results



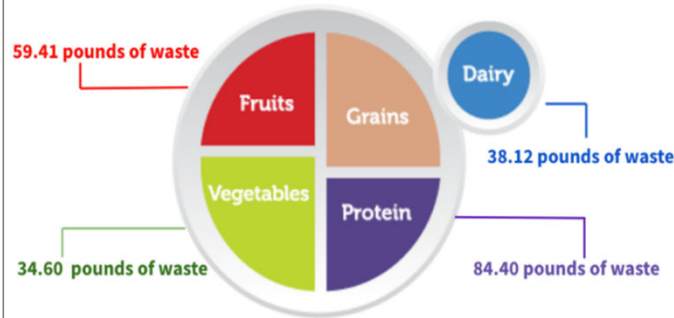
**2021-2022
SUSTAINABLE
AND SCALABLE
FOOD WASTE
SOLUTIONS FOR
SCHOOLS**

PREPARED BY

Sara Elmakih, Ph.D., MPH, RDN
NJAES Cooperative Extension
Amy Rose, Ph.D.
NJAES Cooperative Extension
Sabrina Sabhit, MPH
NJAES Cooperative Extension



PRE-TRAINING FOOD WASTE MEASURES



216.53 pounds

TOTAL FOOD WASTE IN 3 VISITS

FOOD WASTE TOTALS

In the initial food waste audit we found that Delran Middle School wasted a total of 216.53 pounds in 3 visits. That is approximately 72.18 pounds of waste per day and 12,991.80 pounds every school year.

RECOMMENDATIONS

Using the Smarter Lunchroom Movement, we suggest to implement a few changes or "nudges" to the food and beverage options being offered in the cafeteria. A "nudge" can be a small, simple modification that results in a big change in food waste. Below are a list of some of the "nudges" we suggest. All these nudges are low cost or no cost ways Delran Middle Schools can reduce food waste.

FRUIT

- Offer pre-cut or sliced fruits rather than whole fruits.
- Keep all juices at the appropriate temperature to remain liquid rather than frozen.

MILK

- Using a Milk Dispenser instead of individual milk cartons.
- Give students the option to not take milk.
- Have a designated milk cooler where student can return unwanted milk cartons.

VEGGIE

- Incorporate a serving of vegetables into an entrée item at least once a month
- Consider offering 1 cooked vegetable option instead of 2 options.
- Consider additional seasoning to improve taste.

ENTREE


- Take note of which hot entrée options are less popular amongst students and adjust offerings accordingly.
- Offer hot entrée options that are easy to eat.

Student Lessons & Engagement

- Destined for Trash/
[The Life of a Strawberry](#) activity for all students
- \$1,000 PTA gift card donation to promote the events and healthy eating!
- Food Waste Warriors and school trainings by Green Team

Destined for Trash and Life of a Strawberry

Win a \$25 gift card, to either Saladworks OR Smoothie King,



When you complete "Destined For Trash" in the Canvas Module and are chosen in the top 2 submissions for your team!

Destined For Trash

I am a _____ (name of fruit or vegetable)

The Facts:

How much water do you require per week? _____

How long does it take to get from planting to harvest? _____

What needs to be done to make sure you grow (fertilizer, pesticides, staking, pruning, etc)? _____

Thank you to the PTA for their generous support of our food waste efforts!

DELTRAN MIDDLE & HIGH SCHOOL PTA

DMS FOOD WASTE WARRIORS

- 1 Sign in on this QR code**

SCAN ME
- 2 Quickly eat your lunch**
In order to help other students dispose of their waste, please try to be first to the food waste stations
- 3 Help ALL students segregate their waste**
Food waste goes in the compost bin
Liquid waste goes in the liquid bin
Cans and bottles go into recycling bins
Napkins, plastic and styrofoam go into trash
- 4 Pull 30 gallon bins out if need be**
If a compost or liquid bin gets too full, pull it out and replace it with a fresh one. If not too heavy, you can dump it into the sink. Composted food bins can be pulled to the side and will be brought out to the composter.
- 5 Ask for help if you need it!**
Teachers are on cafeteria duty should you need help or cannot resolve a conflict. Just ask for help

LET'S MAKE A DIFFERENCE TOGETHER!

Pre-survey, Food Waste Training, Composting Training and the Food Warrior Project.

Tree Planting Programs

Trees planted in the district and throughout the community... together

Grant funding

- Education and planting grant
- Provides every student a tree to plant





STUDENT CLIMATE CHALLENGE





- Students in grades 6 – 12
- Teams of 2 – 12 students
- Complete a School or Community Project Addressing the Human Causes or Environmental Impacts of Climate Change
- Produce a Digital Story Video

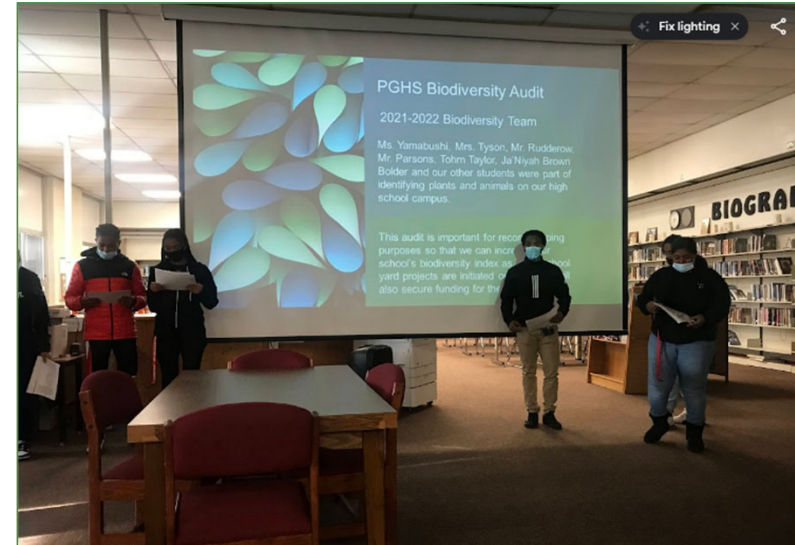


School finalists awarded grants ranging from \$2,500 to \$500



Connecting Climate Change to Curriculum Professional Development Day January 18 at TCNJ

- Climate Change Primer
- Unpacking the Standards
- Integrating Climate Change Education into Existing Curriculum
- Empowering Students to Act
- Planning with Content Area Peers
- Free Resources



Middle & High School Teachers, Supervisors & Administrators



Timeline

- Teacher Registration Open Now
- March 31 – Submissions are Due
- Early May – Finalists Announced
- Early June – Awards Ceremony hosted by First Lady Tammy Murphy





SUSTAINABLE JERSEY **GRANTS PROGRAM**



New Funding Cycle Announced!

- \$100,000 for schools participating in Sustainable Jersey for Schools
- \$2k and \$10k grants to fund sustainability projects and support your green team

Informational Webinar

3-4pm on
Thursday,
**December 15,
2022**

Application Deadline

By 11:59pm
on Friday,
**March 10,
2023**

Award Notifications

By **early May
2023** with an
event in **early
June 2023**

Performance Period

10k Grants:
18 months
2k Grants:
12 months

Learn More & Apply





Making New Jersey a better place for people & wildlife since 1897

New Jersey Audubon fosters environmental awareness and a conservation ethic among New Jersey's citizens; protects New Jersey's birds, mammals, other animals, and plants, especially endangered and threatened species; and promotes preservation of New Jersey's valuable natural habitats.

Allison Mulch, Director of Education

Our Nature Centers, Our Teachers



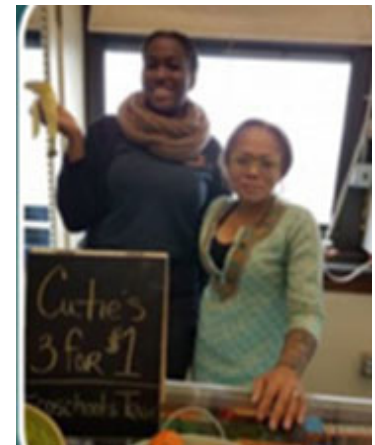
- Connecting nature, sustainability, and climate change to NJ's communities, landscapes & wildlife
- Outdoors learning no matter where your program is – urban, coastal, forest, farmland, anywhere!
- Opportunities for virtual experiences

- Small group learning
- In-School & Afterschool programming
- Weekend opportunities
- Summer/School break programs

www.njaudubon.org - education@njaudubon.org

Student Action with Eco-Schools USA

Project Based Learning in 330+ NJ Schools

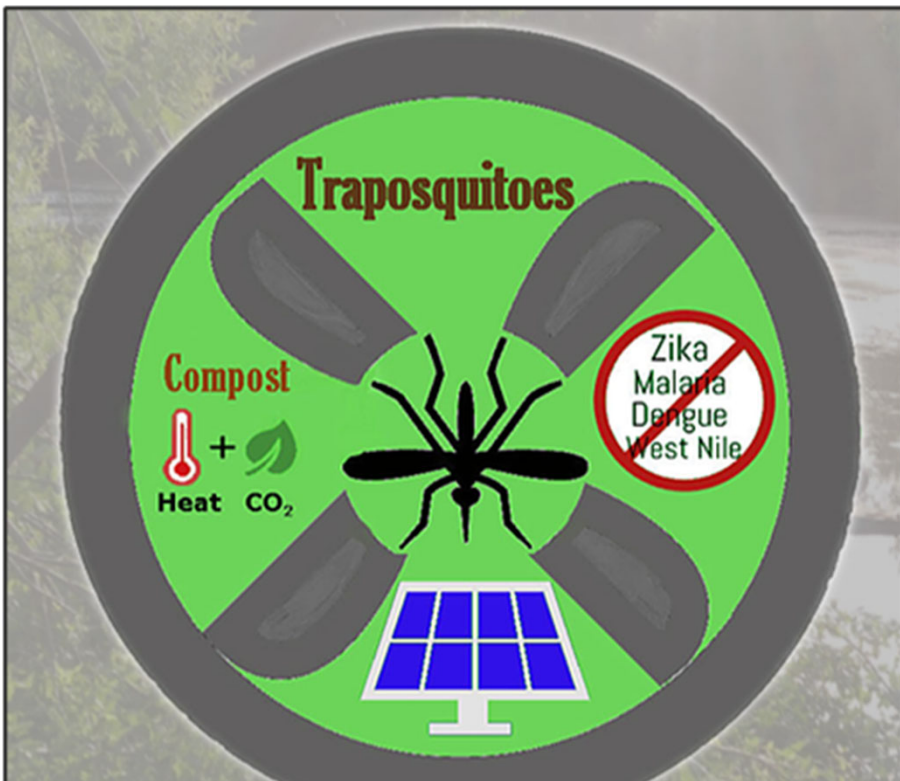


Local, National & Global Connections





Actions for Climate Change







BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)

City of Cape May Municipal Coastal Vulnerability Assessment December 2016

Prepared by Sustainable Jersey
for the City of Cape May
643 Washington Street
Cape May, NJ 08204



FUNDING FOR THIS PROJECT IS PROVIDED BY THE DEPARTMENT OF THE INTERIOR THROUGH A GRANT FROM THE NATIONAL FISH AND WILDLIFE FOUNDATION'S HURRICANE SANDY COASTAL RESILIENCY COMPETITIVE GRANT PROGRAM.



Establishing vegetated dunes is a more effective and lower carbon alternative to building temporary emergency dunes prior to storms.

PARTNERS



NFWF





Experiencing the effects of extreme weather events

Professional Development

- Teachers as Facilitators
- Building and Grounds as a classroom
- Connecting with scientists and local community
- Creating professional learning networks
- Year-Round Support





An Inspired Christa Changes the Course

Resilient Schools Consortium

Through the RiSC program and curriculum, students investigate climate science, climate impacts, climate justice, and the natural and built solutions that increase climate resiliency.

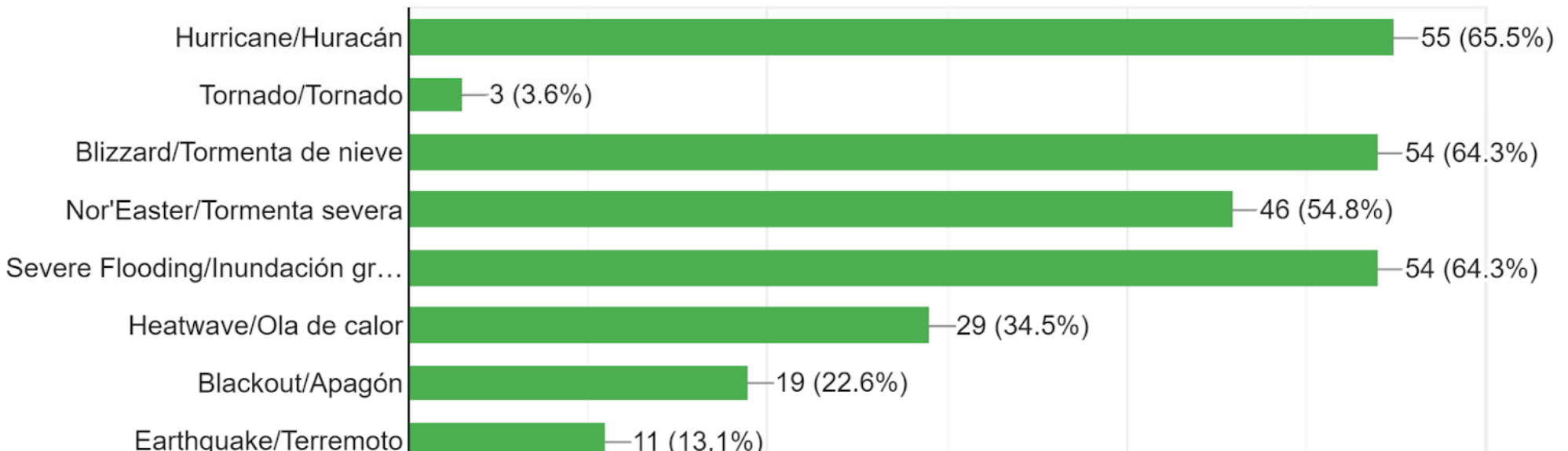


Student Research, Community Surveys, and Interviews



8. Have you experienced a natural disaster or weather-related hazard in the Wildwoods? ¿Ha pasado un desastre natural o un peligro relacionado con el clima en Wildwoods?

84 responses



Students Developed Emergency Preparedness Brochures

In English

PREPARING FOR STORMS

- In case of power outages people should have a portable fully charged phone with access to wifi.
- Families should have enough food & water (bottled) to last for 7 days, or anything that has a long shelf life, for the whole family.

MORE WAYS TO PREPARE

- Families should have a plan to leave the area if weather conditions are too bad to stay (flooding, dangerous winds, landslides, etc.)
- Families should keep a portable light with a long lasting battery life & changeable batteries.
- Families should have an inspection done on their home for any electrical wiring that could catch fire in case of any weather that manages to knock down electrical poles.
- Sign up with their local town or county alert system to receive alerts and notifications about possible events, shelter locations and instructions before or during the storm. Wildwood's Alert System Sign Up can be found through this QR code:
- In addition you can join or download a weather service app to your smart phone in order get alerts of where a storm is and what it's path is going to look like.

TAKE INTO THOUGHT
Make a plan with family and friends for any possible dangerous weather event.

REALIZING THE DANGERS
Being unprepared could have dire consequences.

TIME MANAGEMENT
Don't try and stay in the storm!
EARLY EVACUATION SAVES LIFE.

EMERGENCY PREPAREDNESS

New Jersey Red Cross 800-507-8058

Atlantic City Electric 800-645-3780

Department of Health Services 201-634-2600

Department of Public Safety 908-654-9816

Office of Homeland Security and Preparedness 609-584-4000

Wildwood Fire Department (Non-Emergency) 609-522-1110

Wildwood Police Department (non-emergency) 609-522-0222

Wildwood Emergency Management 609-522-0117

Wildwood Office of Human Resources 609-522-2444

Wildwood Water Utility 609-845-0600

Emergency Preparedness

THIS PAMPHLET DISCUSSES THE DANGEROUS STORMS THAT THE WILDWOODS HAVE FACED OVER THE YEARS AND HOW TO PREPARE FOR FUTURE EVENTS. YOU SHOULD FEEL INFORMED AND PREPARED FOR FUTURE STORMS.

"There's no harm in hoping for the best as long as you're prepared for the worst."
- Stephen King

For The Wildwoods

And Spanish

DESASTRES NATURALES Y PATRONES CLIMATICOS SEVEROS

HURACANES

INUNDACIONES

NORESTE

TORMENTA DE NIEVE

PELIGROS DE CADA UNO

Vientos peligrosamente fuertes
Frio Extremo
Escombros a través del agua y el aire
Mareas de Tormenta: aumento anormal del nivel del mar y de las olas causado por las tormentas.



Cómo Puedes Ayudar a Prevenir el Aumento del Nivel del Mar

Reciclar: Reciclar ayuda a mantener el medio ambiente seguro. La basura en el mar afecta el nivel del mar y la vida marina. El reciclaje asegura que se generen menos residuos(basura). También ayuda a que todo se vea bien.

Particpe: Sea voluntario en organizaciones conservacionistas como Oceana, Sierra Club, Audubon, American Liberal Society y más. También puedes visitar comunidades costeras y apoyar esos negocios.

Reducir: Puede intentar reducir el uso de plástico y reducir su huella de carbono. La huella de carbono es la emisión total de gases de efecto invernadero (GEI) que se producen. Esto provoca el agotamiento de la capa de ozono, lo que hace que aumente la temperatura y luego produce el aumento del nivel del mar. Puede compartir carro para ir a trabajar, comer saludablemente y usar menos cosas para ayudar a reducir los GEI.

COMO WILDWOOD ESTÁ PLANEANDO PARA EL FUTURO

Para aliviar las inundaciones locales durante los principales fenómenos meteorológicos y el futuro aumento del nivel del mar, la ciudad de Wildwood ha agregado bombas de agua en las áreas que se inundan que bombean el agua de las calles al océano. También han levantado calles que están en las partes bajas de Wildwood. Las severas inundaciones ubicadas en la avenida Pacific obligaron al municipio a consolidar las tuberías de desagüe en la playa en un gran sistema con una estación de bombeo en la avenida Learning para reducir o prevenir las inundaciones en esta calle. Por las bañías traseras, algunas de las playitas se reemplazaron los mamparos que comenzaban a deteriorarse y debilitarse. Los dueños de propiedades frente al mar también son responsables de reemplazar sus viejos mamparos

Tormenta de Nieve del 2010

Febrero 5 y 6 es cuando la tormenta de nieve del 2010 empezó en Wildwood. En el área de Wildwood el promedio de nieve fue de 21 pulgadas con una viento de 50 mph. La tormenta hizo que nuestro gobernador Chris Christie en ese momento declarara un estado de emergencia. La tormenta también llevó ráfagas de viento con fuerza de tormenta tropical que causaron cortes de energía en toda la isla que duraron más de una semana.

Super Tormenta Sandy 2012

La súper tormenta Sandy golpeó nuestras costas y causó miles de millones de dólares en daños. Alrededor de 37,000 propiedades en el condado de Cape May resultaron dañadas. Algunas personas en North Wildwood tenían hasta 3 pies de agua en sus apartamentos. La ciudad de Wildwood incurrió en daños por \$768,562.91 dólares. Los Wildwoods fueron un poco más afortunados que otros pueblos en el área del sur de Nueva Jersey.

Tormenta de Invierno Jonas 2016

En el área de Wildwood, la cantidad promedio de nieve fue de 4.5 pulgadas para esta tormenta. Sin embargo, la marea alta en el puerto de Cape May se fijó en 9.26 pies, un nuevo récord. Nadie realmente pensó que esto iba a ser un evento de inundación. La tormenta dejó sin electricidad a más de 100,000 hogares y negocios. La tormenta de invierno Jonas también causó daños estimados en 67 millones de dólares a hogares, negocios e infraestructura pública en el condado de Cape May. En Wildwood, la tormenta invernal Jonas ocasionó un costo



Climate Change Education

Amplifying Youth Voice




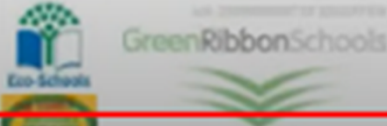
NJ Climate Education Summit
EARTH INSTITUTE | COLUMBIA UNIVERSITY









ECO AMBASSADOR
ENVIRONMENT IN ACTION

NJ Climate Change
Education Summit
February 3, 2022

**Students as Action Researchers:
Collaborative Action to
Curb Climate Change
and Food Waste
Across Schools
and Insight into "Greenwashing"**

 Jonathan Hart, PhD
Superintendent
Readington Public Schools
Whitehouse Station, NJ

 GreenRibbonSchools

 Callum Suggitt Readington Middle School EcoA Strategy Lead Grade 7	 Noah Bielen Readington Middle School EcoA Field Research Lead Grade 7	 Marcos Hernandez Readington Middle School EcoA Ops Team Lead Grade 7	 Philip Kazantsev Readington Middle School EcoA Scientific Research Lead Grade 8
 Sophia Berman Lower Moreland High School Huntingdon Valley, PA EcoA Youth Advisor School Partner GIS Storyteller	 Chris Serrao Phillips Exeter Academy Exeter, NH EcoA Youth Advisor School Partner GIS Storyteller	 Ashley Jun Millburn Middle School Millburn, NJ Community EcoAmbassador GIS Storyteller	 Betsy Freeman Readington Middle School EcoA Advisor Teacher Cool Schools Green Schools Eco Schools

Integrating Equity, Justice and Sustainability Principles



Layering DEIJ and climate change as a context for learning is a natural progression that deepens teaching and student learning.

History of Environmental Justice

Roots of Environmentalism



- Environmental movement historically rooted in preservation of encounters between "aristocratic men" and partially wild nature.
- Responsible for zoos, national parks, game refuges and other public lands- "saving" the land from Indigenous and poor.
- Myth of John James Audubon

Roots of Environmental Justice



- 1960's People of color disrupting environmental injustices like dumping of hazardous waste.
- 1990 POC Letter to Environmentalist
- 2018- Green 2.0 shows 73% White at 40 environmental NGOs 22% POC



LIFE IN AN INDUSTRIAL WASTELAND



"I CAN'T CALL IT ANYTHING OTHER THAN A SACRIFICE ZONE - A ZONE THAT'S BEEN DEEMED THESE LIVES DON'T MATTER AS MUCH."



MARIA LOPEZ-NUNEZ

Climate Change Education at The College of New Jersey



Lauren Madden, Ph.D.
Professor of Elementary Science Education
Coordinator, Environmental Sustainability Education Minor
Department of Elementary and Early Childhood Education

Environmental Sustainability Education at TCNJ



Coursework

- 5-course minor in ESE
- 4-course graduate certificate in ESE
- Alignment with other programs and requirements

Research & Outreach

- External funding from NSF, the US EPA, and NJ SeaGrant Consortium
- Cross-department collaboration
- Partnerships with public schools across the state



Environmental sustainability education minor receives national accreditation



Students tend to a vertical garden harvest in an introduction to environmental sustainability course.

The College of New Jersey's minor in Environmental Sustainability Education recently received accreditation by the North American Association for Environmental Education.

TCNJ is the only program in the state to earn this accreditation and is one of four

- Actually, it was **INTERNATIONAL** accreditation!
- The only program with this certification in NJ and one of only 12 in North America holding this distinction.

Scholarly Work and Research

Reflection in Action: Environmental Education Professional Development with Two Cohorts

by Lauren Madden, The College of New Jersey; Louise Ammentorp, The College of New Jersey; Eileen Heddy, The College of New Jersey; Nicole Stanton, The College of New Jersey; & Suzanne McCotter, The College of New Jersey

Categories: [Early Childhood Education](#), [Earth/Space Science](#), [Elementary Education](#), [Environmental Science](#), [Inservice Teacher Preparation](#), and [Middle School](#)

Tags: [elementary science](#), [environmental education](#), [practicing teachers](#), and [Professional Development](#)

Publication: [Issue 2](#) and [Volume 6](#)

Show Abstract

Using Photojournals to Develop Ecoliteracy in a Blended Environmental Science Course

By Lauren Madden and Tabitha Dell'Angelo

Developing innovative tools for ensuring that students understand the ways in which science content

More and more, science instruction at the college level is expanding

(DCIs) taken from the *Next Generation Science Standards* (NGSS Lead States, 2013):

Green Teacher
Education for Planet Earth

Magazine - Subscribe - Books - Webinars/Videos - Podcast - Advertise - Contribute - Espo

Thinking Outside the Bin

by Green Teacher on October 10, 2018



To view the photo-rich magazine version, [click here](#).

Originally appears in the [Fall 2018 issue](#).

FOR THE AVERAGE young adult, recycling can seem boring and like a chore. What if we saw recycling as a critical life skill, and thought "outside the bin" with creative ways to repurpose items? In this article we provide suggestions on framing upcycling¹ and recycling as life skills with a group of young adults who have developmental disabilities. The activities herein required the participating individuals to think carefully about their prior experiences with recycling, and to put their creativity to the test in building new items. These activities could also be used in a multitude of settings, ranging from traditional or special education K-12 classrooms to group home residential facilities.

The Journal of
Sustainability Education

ARCHIVES EDUCATION SETTINGS GEOGRAPHY TOPICS ABOUT US

FEBRUARY 2019


Environmental Sustainability Education at Three Elementary Schools

By Lauren Madden and Rachel DiVanno



Growing Environmental Hope Amid a Pandemic

Tips and Insights for Teachers and Families

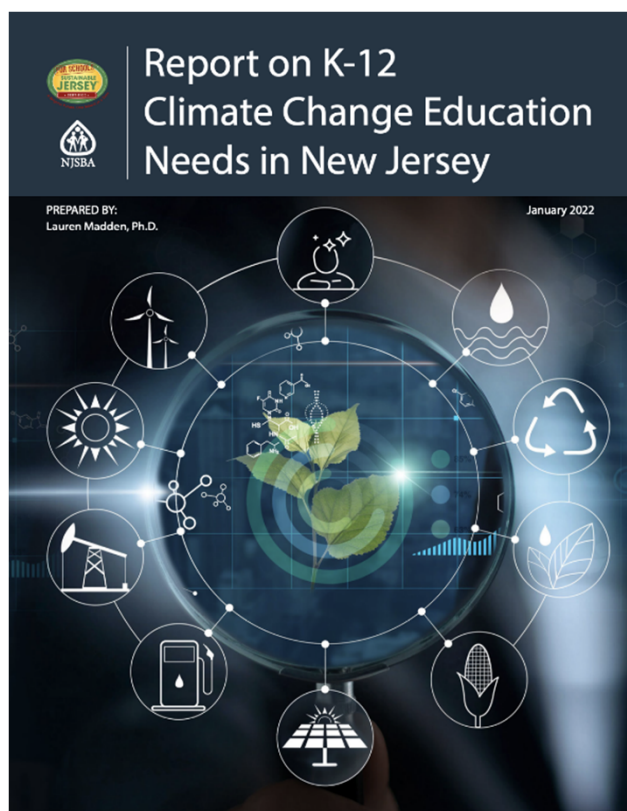


By Helen Corvellyn, Lauren Madden, and Louise Ammentorp

time to reflect on the good, however, in searching for "silver linings" we see a new ecological and educational creativity blossoming in our communities. In just seven short weeks, we have seen changes at the household level such as fewer trips to the supermarket, cutting gas usage, decreasing waste,

O, WE'VE BEEN QUARANTINED, our lives have

Thinking back to our initial recommendations



We launched a statewide survey to better understand parents' perspectives on implementing Climate Change education.

[please share!]



Survey Questions/ Data Collection

We asked parents:

- *What questions or concerns do you have about climate change instruction in the upcoming school year?"*

We had a lot of interesting responses, which suggest that supporting community-based Climate Education requires a keen focus on parents.



Example Responses

- *“Why take MORE time away from actual curriculum you already take so much time away for other irrelevant topics”*
- *“Climate change is so polarizing that it's difficult to have an honest conversation.”*
- *“I hope I understand it enough to help my children”*
- *“I worry that students will not see enough examples of people working hard in their communities to bring about change.”*



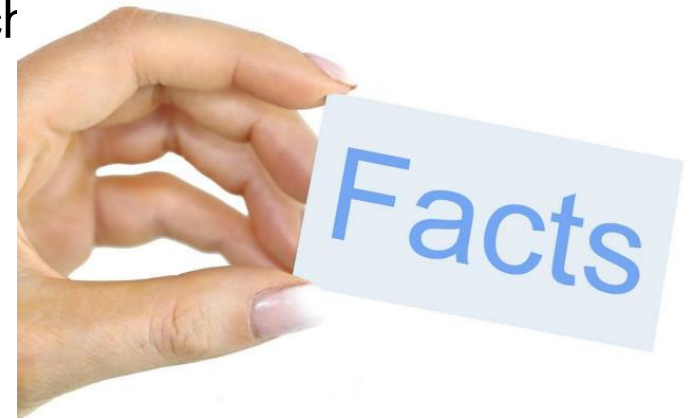
Preparing for Board Meetings

Zorb & Friedman (2010) published a piece in *School Leader* with some recommendations for preparing for difficult board meetings. Their suggestions:

- Be prepared for a difficult meeting
- Empathize with the crowd
- Maintain a calm demeanor
- Make expectations (i.e. wrt public comment) clear from the beginning
- Clarify that public comment is not a question and answer period
- Provide opportunities for attendees to comment (survey, written comments, extended Q&A at another date)
- Ensure that board members know the standards

Stick to the facts (and only the facts)!

- The scientific community has agreed on climate change's causes for decades. There is no reason to entertain those who wish to deny the facts.
- The climate change education standards are the law. Whether they should or shouldn't be taught is NOT up for debate.
- Things like appropriate ways to engage families and communities, developmentally appropriate ways to discuss these topics with children, and providing strong instructional tools for teachers ARE appropriate topics for discussion under the larger umbrella of climate change education.



The New Jersey Climate Change Education Hub



Photos from Dale Rosselet, Allison Mulch, Dalton Farms, and NJ Audubon



SUBJECT
to**CLIMATE**



The NJ Climate Change Education Hub

URL: www.njclimateeducation.org

Home Resources About Us Login

New Jersey Climate Change Education Hub

The resources you and your school need to effectively teach climate change. These comprehensive resources are built around the official [NJ Student Learning Standards](#) and expand on the work of the New Jersey Department of Education.

Photos from Dale Rossetti, Allison Mulch, Dalton Farms, and ND Audubon

Resources

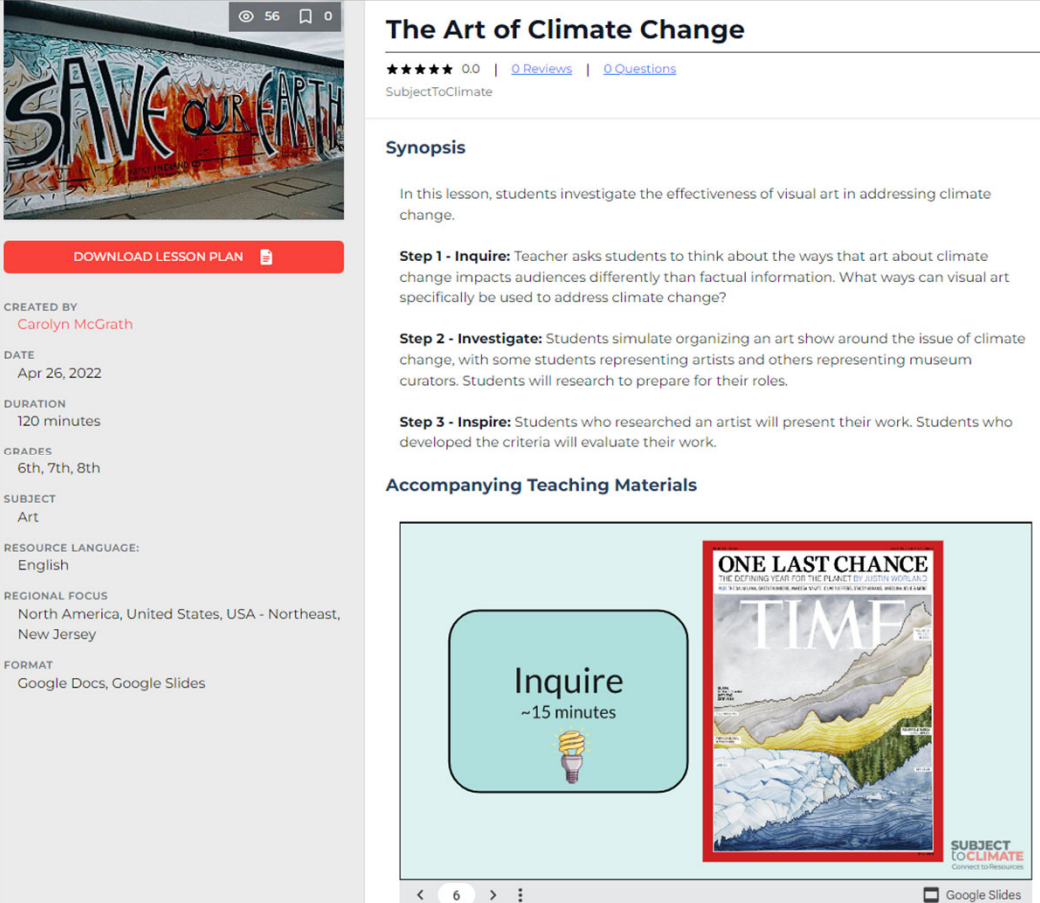
- Teaching Resources
- Exemplar Lesson Plans
- Professional Learning
- Guidance for School Boards

Resource Database

The screenshot shows a search results page for the keyword 'writing'. The page features a sidebar on the left with filters for Subjects, Grades, Standards, Resource Types, Resource Languages, Regions, and Provider. The main content area displays three resource cards. The first card, titled 'Writing Persuasively About Climate Change', includes a synopsis about civic engagement, a list of subjects (Social Studies, Civics, English Language Arts, Social-Emotional Learning, Climate Action), and grades (9th, 10th, 11th, 12th). The second card, 'Writing Cli-Fi', describes a creative writing activity about climate fiction, listing subjects (English Language Arts, Climate Action) and grades (9th, 10th, 11th, 12th). The third card, 'Craft a Climate Op-ed', describes an activity where students write an op-ed, listing the subject (English Language Arts). The page also shows a search bar with 'writing' entered, a search tip, and a pagination indicator showing 'Showing 1 to 21 of 123 results'.

- The resource selection rubric criteria include pedagogic effectiveness, ease of use, accessibility, reflection of historically marginalized communities, etc.
- Each resource has a synopsis, teaching tips, and scientist notes.
- Educators can search for resources through keywords, subjects, grade levels, regions, resource language, types, and NJ Student Learning Standards.

Exemplar Lesson Plans



The Art of Climate Change

★★★★ 0.0 | [0 Reviews](#) | [0 Questions](#)
SubjectToClimate

Synopsis

In this lesson, students investigate the effectiveness of visual art in addressing climate change.

Step 1 - Inquire: Teacher asks students to think about the ways that art about climate change impacts audiences differently than factual information. What ways can visual art specifically be used to address climate change?

Step 2 - Investigate: Students simulate organizing an art show around the issue of climate change, with some students representing artists and others representing museum curators. Students will research to prepare for their roles.

Step 3 - Inspire: Students who researched an artist will present their work. Students who developed the criteria will evaluate their work.

Accompanying Teaching Materials

Inquire
~15 minutes

ONE LAST CHANCE
THE DOPPING YEAR FOR THE PLANET BY JUSTIN WILSON
ALL 50 STATES GOVERNORS MEET TO CONSIDER CLIMATE CHANGE LEGISLATION

TIME

SUBJECT TO CLIMATE
Connect to Resources

56 0

DOWNLOAD LESSON PLAN

CREATED BY
Carolyn McGrath

DATE
Apr 26, 2022

DURATION
120 minutes

GRADES
6th, 7th, 8th

SUBJECT
Art

RESOURCE LANGUAGE:
English

REGIONAL FOCUS
North America, United States, USA - Northeast, New Jersey

FORMAT
Google Docs, Google Slides

6 Google Slides


- The same rubric revision workshop also established the rubric for exemplar lesson plans.
- Criteria includes alignment to NJ standards, student action, ease of use, depth, justice, socio-emotional learning, and other key components of learning.
- Dr. Lauren Madden conducted an inter-rater reliability study to validate the rubric. This study was published in Green Teachers Magazine (white paper accessible here).
- In March 2022, NJ teachers were accepted as NJ Climate Change Education Teaching Fellows to create the exemplar lesson plans. More Teaching Fellows will be accepted throughout the following school year to produce additional exemplar lesson plans.

News Articles for Students

< Back to the News Get News Updates

Flash Floods Rush Through Kentucky, Taking Lives and Homes

Aug 1, 2022
thejuice



[f](#) [t](#) [e](#) [r](#)

Grades 5-6 ▾

This story was last updated July 31 at 8:15 PM EST.


Dozens of people in Kentucky remain unaccounted for. At least 28 are **confirmed** dead after a series of flash floods swept through the state late last week and over the weekend. To worsen matters, more rainstorms are expected today. Even more flooding is **predicted** in parts of the state.

Kentucky Governor Andy Beshear told NBC that it likely would take weeks to find all the victims. More than 37 people were unaccounted for on Sunday, according to officials.


The continuing rain has made the search harder, Beshear said. Streets, yards, and **rural** roads were filled with rushing waters. Others were left caked in heavy mud. Water and mud rushed off hillsides with such force that they bent street signs, the Associated Press (AP) reported.

- Through a partnership from The Juice, educators can share student-friendly news articles that can be adjusted to specific grade levels so that students can stay up-to-date with the latest climate news.
- Users can...
 - Adjust the news article to different grade levels.
 - Click into specific vocabulary words for the definition and pronunciation.
 - Test for understanding through a simple reading comprehension quiz.
 - Subscribe to receive the most recent news articles in their inbox everyday


Professional Learning Opportunities



Climate Change Primer



Professional Development



Guides

Filter by

Format & Location ▼

In Person (1)

Online: Asynchronous (5)


Online: Synchronous (8)

Audiences ▶

Subjects ▶

Grades ▶

Dates ▶




Presidio Graduate School

Teaching Climate Justice

This 4-week course gives K-12 educators the opportunity to explore the important topics of climate change and envir...

Format: Online: Asynchronous
Target Audiences: Curriculum Specialists, Teachers
Target Grade Levels: K-2, 3-5, 6-8, 9-12
Subjects: Career Readiness, Life Literacies, and Key Skill, Comprehensive Health and Physical Education, Computer Science & Design Thinking,




Children's Environmental Literacy Foundation

Engaging Students in Civic Science and Action

CELF's Civic Science: Inquiry to Action professional development program equips educators with a standards-aligned...

Format: Online: Synchronous
Target Audience: Teachers
Target Grade Levels: 6-8, 9-12
Subjects: Career Readiness, Life Literacies, and Key Skill, Comprehensive Health and Physical Education, Computer Science & Design Thinking,



Green Teacher, Natural Curiosity, and Springbay Studio

Local, Inquiry-Based Climate Change Education: Using Storytelling, Gamification, and Environmental Inquiry with an Indigenous Lens to Inspire Climate Action

Three leading Canadian environmental education organizations are collaborating on a two-part virtual, interactive P...

Formats: Online: Asynchronous, Online: Synchronous

68

Guidance for School Boards

- The initiative is leveraging subject matter knowledge from the New Jersey School Boards Association to create guidance for school boards and administrations.
- Resources include:
 - Climate Change Education Standards FAQ
 - Climate Change Primer
 - Report on K-12 Climate Change Education Need in New Jersey
 - K-12 Climate Action Plan for Districts
 - Example Sustainability Policies
 - Green Careers Pathway Maps

Guidance For School Boards
Access guiding documents recommended by the NJ Thought Leadership Report as you support schools implementing the Climate Change Education Student Learning Standards.

- Climate Change Education Standards FAQ**
Look over this FAQ document for a basic overview of the climate change education standards.
- Climate Change Primer**
Here is a video introduction to the New Jersey climate change learning standards and what they mean for school boards in NJ. You can always navigate to "Resources > Professional Learning" for more materials on climate change basics.
- Report on K-12 Climate Change Education Needs in New Jersey**
Review recommendations on how to implement the climate change education standards.
- K-12 Climate Action Plan for Districts**
Ask the right questions to determine opportunities for your district to develop local K-12 climate action plans.
- Example Sustainability Policies**
Adapt these sample sustainability policies to support climate change education.
- Green Careers Pathway Maps**
Support green workforce and career development with these pathway maps.

New Jersey Climate Change Education Hub Customizable Professional Development

Teaching Climate Change in the Updated NJ Student Learning Standards

- Host an interactive staff professional development program
- Review it during professional learning community meetings
- Assign it as an individual professional development activity



SUBJECT
to **CLIMATE**



NEW JERSEY AUDUBON





Small Group Discussion

- Share two things you learned about today that you would like to explore in your district or school?
- What obstacles might you encounter?
- How can we help?

IG: Sustainable_Jersey | Twitter: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey

Sustainable Jersey for Schools Underwriters and Sponsors

Program Underwriters



Grant Program Underwriters



Corporate Sponsors



*Digital Schools Underwriters and Sponsors

IG: Sustainable_Jersey | Twitter: @SJ_Program and @SJ_Schools | FB: @SustainableJersey | LinkedIn: sustainable-jersey