



WHERE THE JOY OF LEARNING MEETS THE SCIENCE OF SUSTAINABILITY

NAAEE: Inspiring Climate Education and Action



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ABOUT NY SUN WORKS



NY Sun Works, a non-profit organization that builds **hydroponic farm classrooms** in NYC K-12 public schools for the teaching of:

- Sustainability Science +
- Climate Education

We envision a generation of **environmental innovators** empowered to create solutions to global climate challenges.

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13 YEARS EDUCATING STUDENTS ABOUT SCIENCE THROUGH URBAN AGRICULTURE



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GREENHOUSE MODEL



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HYDROPONIC CLASSROOMS



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HYDROPONIC CLASSROOMS



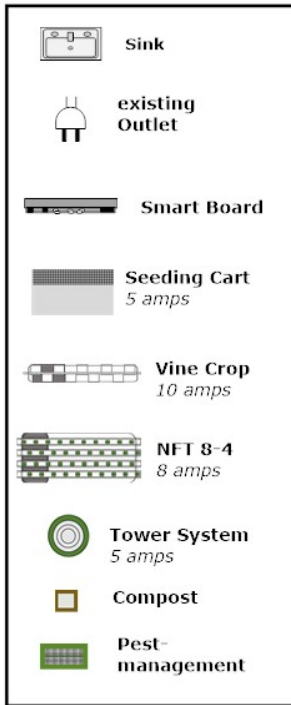
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HYDROPONIC CLASSROOMS

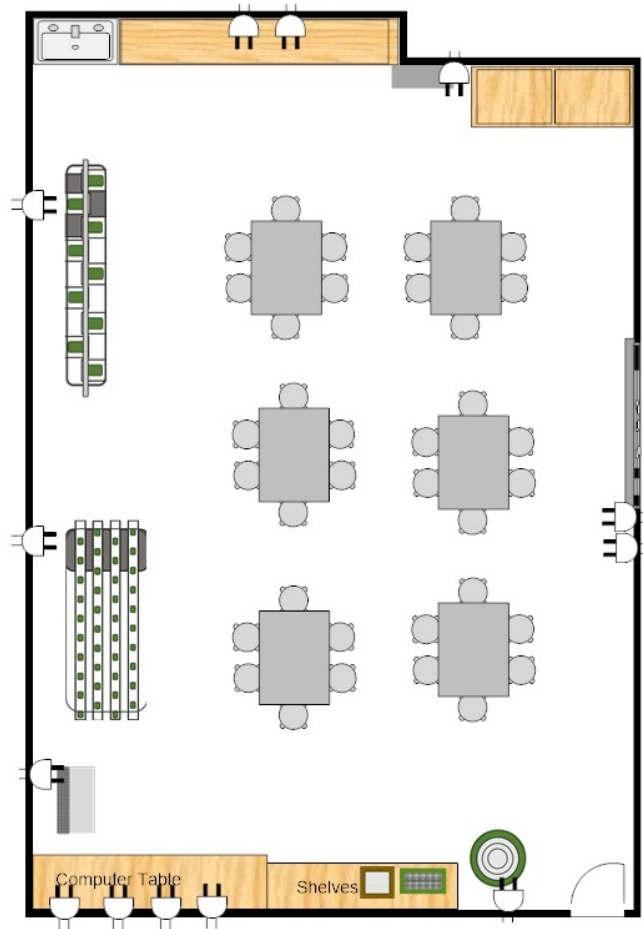


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**Keys
and Electrical Needs:**



Scale: 3/16" = 1'-0"	M000 NYC School SAMPLE ROOM
11/18/2021	Created by NY Sun Works, Inc.



- Design Lab
- Build Hydroponic Equipment
- Technical + Curriculum Training
- Lab Maintenance Visits
- Ongoing Support

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HYDROPONIC CLASSROOMS



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A photograph showing several black trays filled with various fresh vegetables. In the foreground, there are trays of bright green leafy greens, including what appears to be lettuce and spinach. To the left, a tray contains several small, round red radishes with their green leafy tops. The background shows more trays with different types of leafy greens, all appearing healthy and vibrant. The lighting is bright, highlighting the textures and colors of the produce.

CONNECT HARVEST PROGRAM

Sharing the harvest from Hydroponic Classrooms with students and their families creates community connections and values the contributions of families to the knowledge shared in the classroom.

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NY SUNWORKS
HYDROPONIC CLASSROOMS



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TEACINY SUN WORKS CURRICULUM



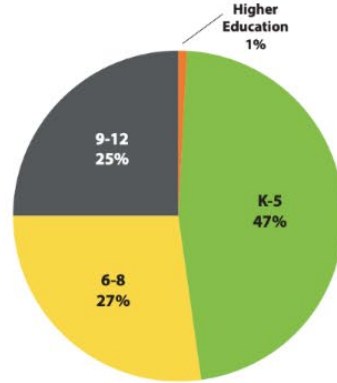
- Integrated Into Existing Classroom Science Lessons
- Connecting to Science Standards
- Comprehensive Teacher Training/PL Opportunities
- Year-round weekly maintenance support

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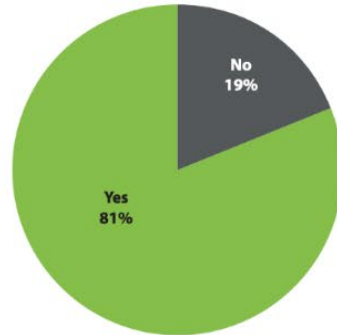
PEOPLE WE SERVE



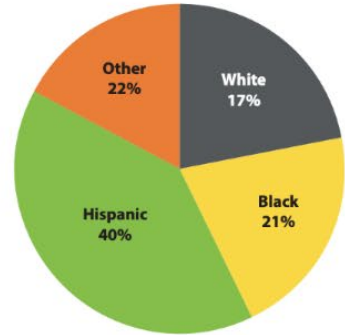
SCHOOLS BY GRADE BAND



TITLE I STATUS



STUDENTS' ETHNICITY



The Students' Ethnicity chart was created using data from the NYC Department of Education Demographic Snapshot (SY 2021-2022), and our Title I status chart was created using data from the National Center for Education Statistics school search database (SY 2021-2022).

FOREMOST COMPREHENSIVE
CLIMATE EDUCATION PROGRAM

REACHING 120,000
STUDENTS ANNUALLY

300+ PARTNER SCHOOLS



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SUPPORTING TEACHERS: WHAT WORKS FOR US



EDUCATION AT NYSW



Standards based Curriculum and Pedagogy

- Inquiry-based
- Collaborative
- Hands-on, experiential learning
- Data analysis
- Multimedia resources
- Differentiation
- Assessment

CLIMATE CONNECTIONS

EXAMPLES: GERMINATION LAB, JOURNEY OF PRODUCE, EUTROPHICATION, INTEGRATED PEST MANAGEMENT

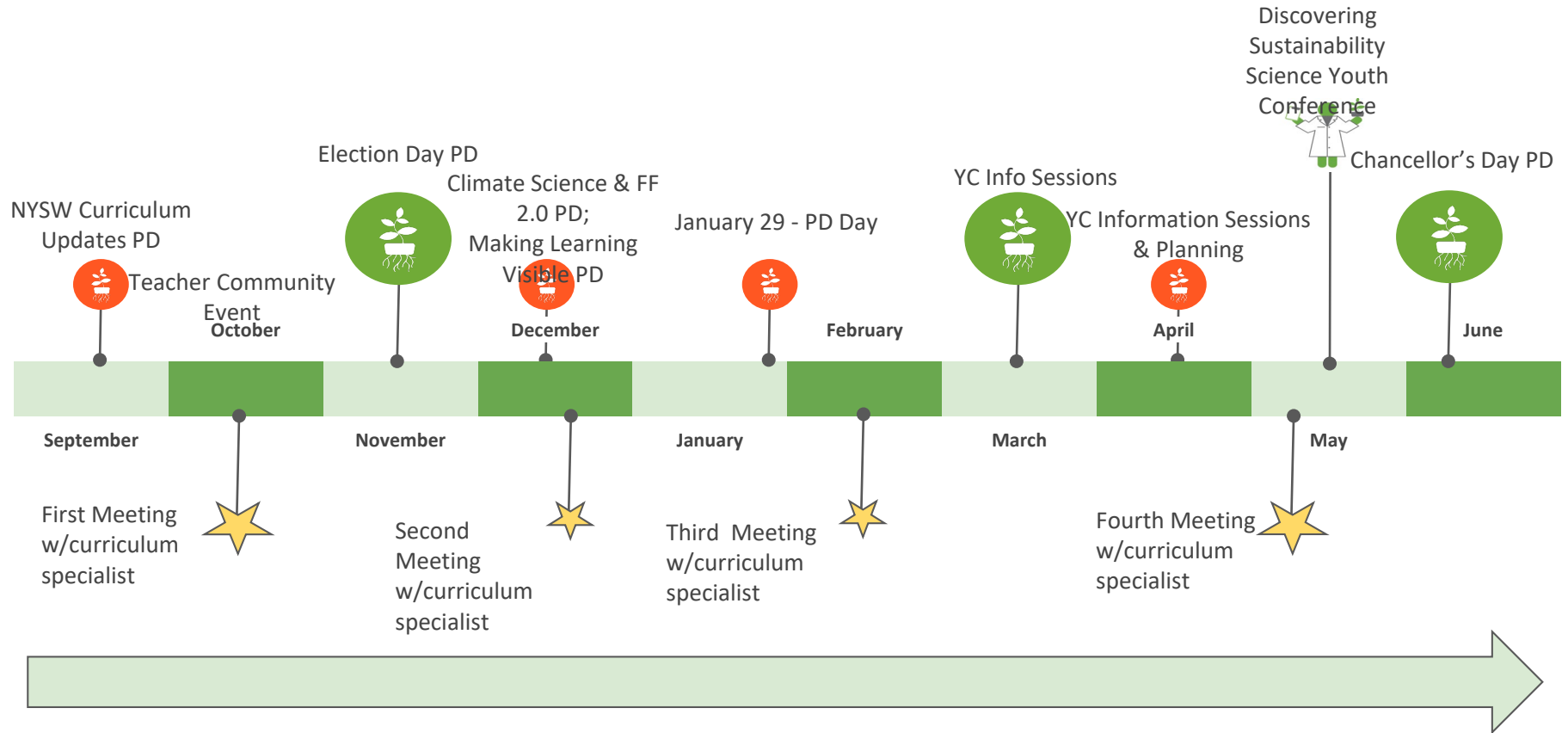
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LEARNING CENTER



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Supporting Teachers: Curriculum Support & Professional Learning



SUPPORTING TEACHERS: TEACHER COLLABORATION



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CONNECT TO WHAT TEACHERS ARE ALREA

	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	
KINDERGARTEN	AMPLIFY UNIT 1: NEEDS OF PLANTS AND ANIMALS			AMPLIFY UNIT 2: PUSHES AND PULLS			AMPLIFY UNIT 3: SUNLIGHT AND WEATHER				
	PLANT NEEDS & PERSONAL PLANTERS GHC Connect: Plant and Animal Needs (Lessons 1-2) SE: Upcycling (Lessons 1-2)			WATER MOVEMENT GHC Connect: Water Movement (Lessons 1-2)							
GRADE 1	AMPLIFY UNIT 1: ANIMAL AND PLANT DEFENSES			AMPLIFY UNIT 2: LIGHT AND SOUND							
	PLANT ADAPTATIONS & IPM GHC Connect: Plant Adaptations (Lessons 1-4)			AGENTS FOR CHANGE SE: Planting Promises (Lesson 1)							
GRADE 2	AMPLIFY UNIT 1: PLANT AND ANIMAL RELATIONSHIPS			AMPLIFY UNIT 2: PROPERTIES OF MATERIALS							
	PLANT, ANIMAL, & INSECT RELATIONSHIPS GHC Connect: Plant and Animal Connections (Lessons 1-3)			WATER PROPERTIES GHC Connect: Water in the GHC (Lessons 1-3)							
KINDERGARTEN	NYC S&S: WEATHER STUDY (YEAR LONG)										
	WEATHER INSIDE AND OUT: GHC Connect: Weather Research (Lessons 1-3)										
	NYC S&S: SOLIDS AND LIQUIDS (9 WKS)			NYC S&S: PUSH ME, PULL ME (9 WKS)			NYC S&S: OUR ENVIRONMENT (9 WKS)			NYC S&S: OUR WEATHER (9 WKS)	
GRADE 1	RECYCLING OPTIONS SE: Recycling in the GHC (Lessons 1-3)			WATER MOVEMENT GHC Connect: Water Movement (Lessons 1-2)			PLANTS NEEDS & PERSONAL PLANTERS GHC Connect: Plant and Animal Needs (Lessons 1-2) SE: Upcycling (Lessons 1-2)				
GRADE 2	NYC S&S: EXPLORING LIGHT AND SOLAR PATTERNS (2 WKS)			NYC S&S: LIGHT, SOUND, AND WAVES (2 WKS)			NYC S&S: STRUCTURES AND BEHAVIORS IN LIVING THINGS (2 WKS)				
	SEASONAL LIGHT VARIATION GHC Connect: Light in the GHC (Lessons 1-3)			AGENTS FOR CHANGE SE: Planting Promises (Lesson 1)			PLANT ADAPTATIONS & IPM GHC Connect: Plant Adaptation (Lessons 1-4) SE: Bug Battles in the GHC (Lessons 1-4)				
GRADE 2	NYC S&S: PROPERTIES AND PATTERNS OF WATER (2 WKS)			NYC S&S: THE CHANGES TO LAND OVER TIME (2 WKS)			NYC S&S: PLANT AND ANIMAL INTERACTIONS (2 WKS)				
	WATER PROPERTIES GHC Connect: Water in the GHC (Lessons 1-3)			THE GREENHOUSE CLASSROOM SE: GHC and What Might Be Next (Lessons 1-3)			PLANT, ANIMAL, & INSECT RELATIONSHIPS GHC Connect: Plant and Animal Connections (Lessons 1-3) SE: Bee Parts, Pollination, and Possibilities (Lessons 1-3)				

Curriculum complements both NGSS (green) and Amplify Science (orange)

BUILDING STUDENTS' PROFICIENCY IN SCIENCE

An independent quantitative assessment of the NYSun Works program indicates that it may not only meet core science requirements, but also integrates climate change and sustainability education in a way that improves students' understanding of science as a whole. As many states have adopted the Next Generation Science Standards as core curriculum and may be looking to integrate climate change and sustainability content into their courses, the NYSun Works program could serve as an ideal model that meets their needs.

The NYSun Works Curriculum and Science Achievement Report* concludes that students who receive the NYSun Works curriculum are more likely to score higher on the 4th grade science achievement test than students who do not receive the NYSun Works curriculum.

Actual Results (mean scaled science score)



*2016 NY Sun Works Curriculum and Science Achievement Report, Kate Gardner Burt, PhD, RD, Teachers College, Columbia University.

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**MODIFY AND ADAPT TO NEEDS
OF STUDENTS, TEACHERS,
AND SCHOOL COMMUNITY**



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SUSTAINED TEACHER SUPPORT



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SOCIAL AND EMOTIONAL LEARNING



Our program supports students' social-emotional well-being: data show working with plants builds self-confidence and decreases stress and anxiety

Gupta, R., LaMarca, N., Attaway, E., & Flinner, K. (2021). Impacts of NY Sun Works' Discovering Sustainability Science. Knology Publication #NPO.173.531.01. Knology.

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IMPROVED ATTENDANCE



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MEETING THE MOMENT: CLIMATE EDUCATION



AT NY SUN WORKS WE ARE HELPING TO BUILD A GENERATION OF ENVIRONMENTAL INNOVATORS EMPOWERED TO CREATE SOLUTIONS TO GLOBAL CLIMATE CHALLENGES.

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CONTACT US



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THANK YOU

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NY SUN WORKS STEM HYDROPONIC KITS



Kits are designed to provide scientific tools that would normally be used in classroom labs.

Students can take and measure pH, compare different seeds species and substrates with supportive materials.

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