

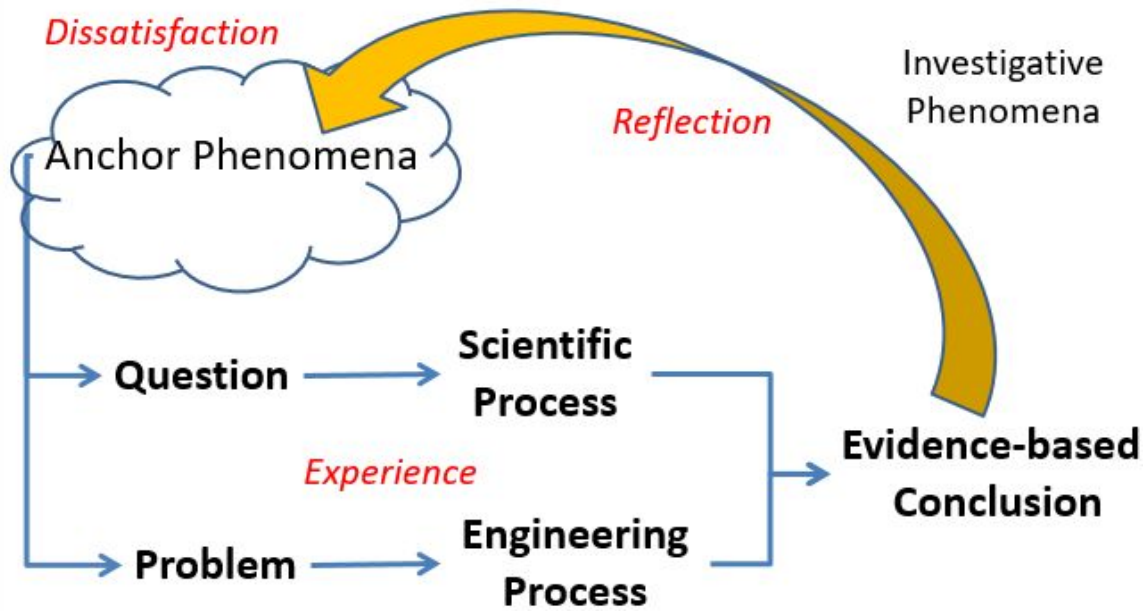
Three Village CSD

Marnie Kula, Science Chairperson WMHS

Christine DiFede, Science Chairperson RCM

Peter Schuchman, Science Chairperson PJG

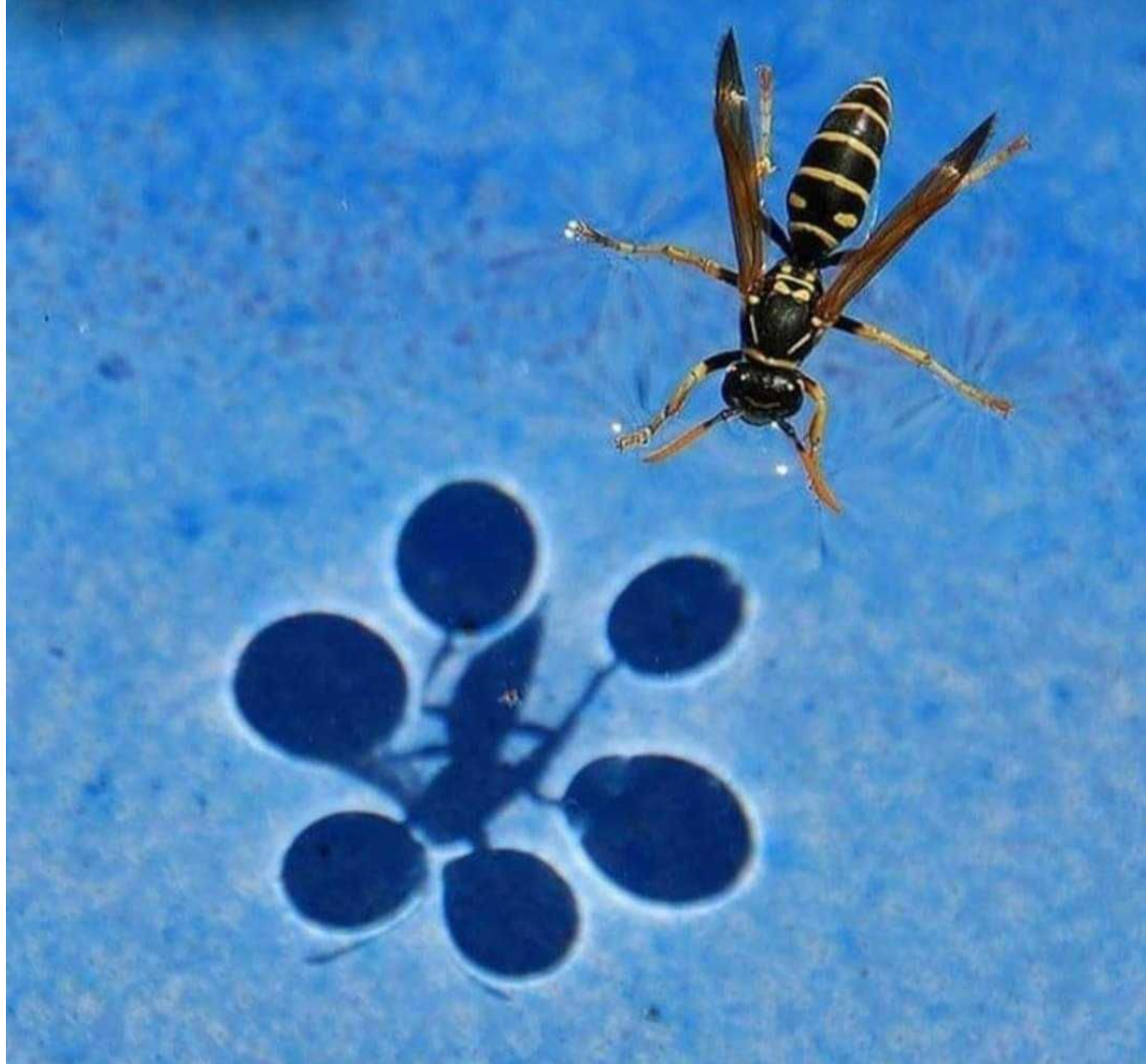
What does this look like in NGSS?



Using Phenomenon In Science

- ✓ Anchoring Phenomenon
- ✓ Investigative Phenomenon
- ✓ Everyday Phenomenon







NYSED



New York State P-12 Science Learning Standards

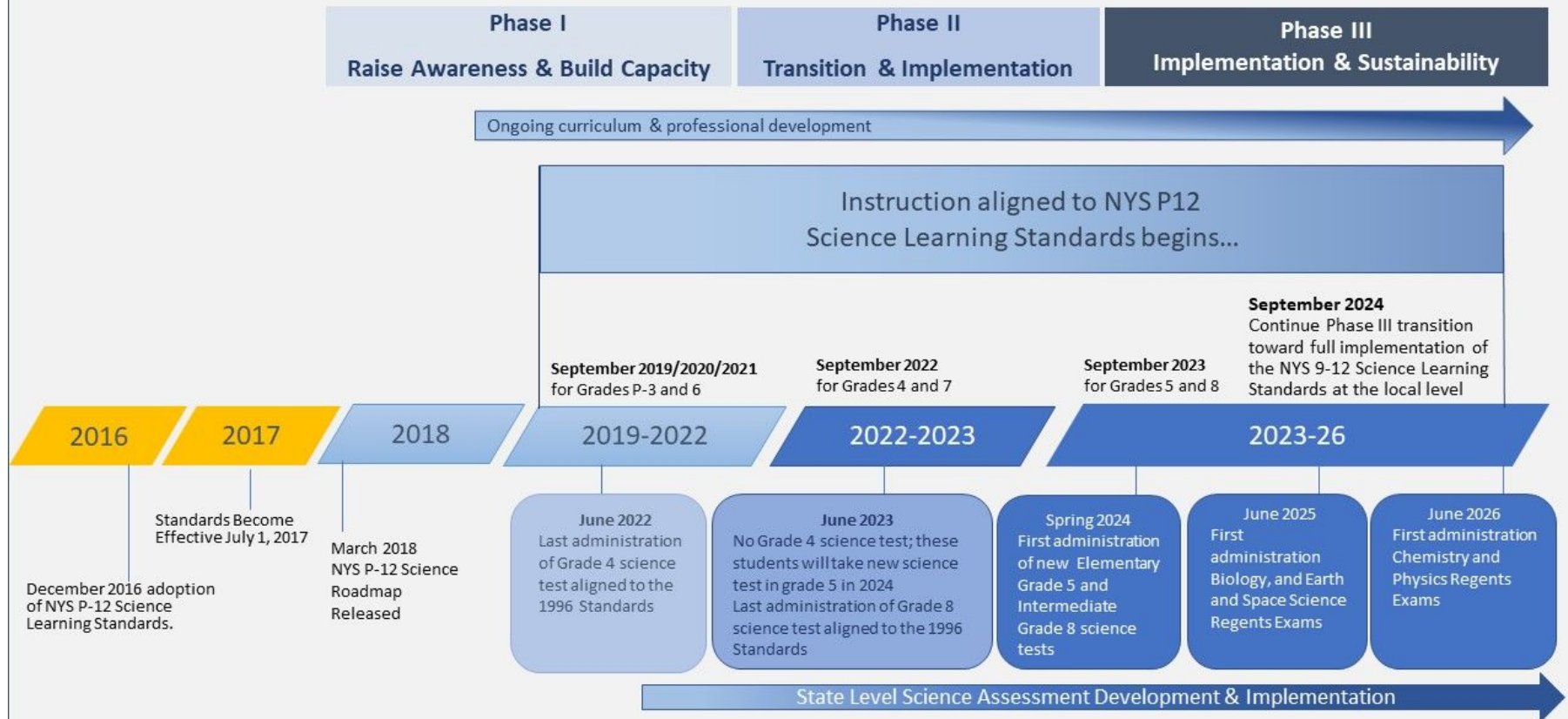


MS. Structure and Properties of Matter	
Students who demonstrate understanding can:	
MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures. [Clarification Statement: Emphasis is on developing models of molecules that vary in complexity. Examples of simple molecules could include ammonia and methanol. Examples of extended structures could include sodium chloride or diamonds. Examples of particulate-level models could include drawings, 3D ball and stick structures, or computer representations showing different substances with different types of atoms.] [Assessment Boundary: Assessment does not include valence electrons and bonding energy, discussing the individual ions composing complex structures, or a complete depiction of all individual atoms in a complex molecule or extended structure.]	
MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. [Clarification Statement: Emphasis is on natural resources that undergo a chemical process to form the synthetic material. Examples of new materials could include new medicine, foods, and alternative fuels.] [Assessment Boundary: Assessment is limited to the qualitative interpretation of evidence provided.]	
MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and phase (state) of a substance when thermal energy is added or removed. [Clarification Statement: Emphasis is on qualitative particulate-level models of solids, liquids, and gases to show that adding or removing thermal energy increases or decreases kinetic energy of the particles until a change of phase occurs. Examples of models could include drawings and diagrams. Examples of particles could include ions, molecules, or atoms. Examples of substances could include sodium chloride, water, carbon dioxide, and helium.]	
MS-PS1-7. Use evidence to illustrate that density is a property that can be used to identify samples of matter. [Clarification Statement: Emphasis should be on students measuring the masses and volumes of regular and irregular shaped objects, calculating their densities, and identifying the samples of matter.]	
MS-PS1-8. Plan and conduct an investigation to demonstrate that mixtures are combinations of substances. [Clarification Statement: Emphasis should be on analyzing the physical changes that occur as mixtures are formed and/or separated. Examples of common mixtures could include salt water, oil and vinegar, and air.] [Assessment boundary: Assessment is limited to separation by evaporation, filtration and magnetism.]	
The performance expectations above were developed using the following elements from the NBC document <i>A Framework for K-12 Science Education</i> .	

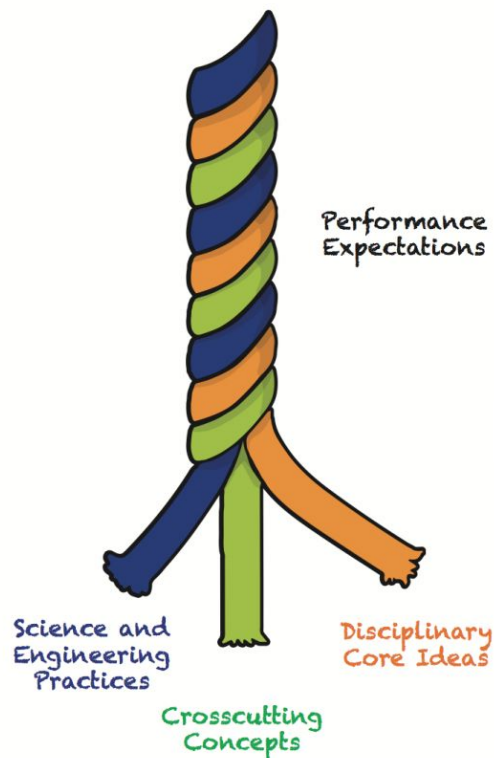
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models Modeling in 6–8 builds on K–5 and progresses to developing, using and revising models to describe, test, and predict more abstract phenomena and design systems. <ul style="list-style-type: none"> Develop a model to predict and/or describe phenomena. (MS-PS1-1)(MS-PS1-4) Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or design solutions. <ul style="list-style-type: none"> Plan an investigation individually and collaboratively, and in the design, identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim. (MS-PS1-8) Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions. (MS-PS1-8) Engaging in Argument from Evidence Engaging in argument from evidence in 6–8 builds from K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world. <ul style="list-style-type: none"> Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-PS1-7) Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 6–8 builds on K–5 and progresses to evaluating the merit and validity of ideas and methods. <ul style="list-style-type: none"> Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-PS1-3) 	PS1.A: Structure and Properties of Matter <ul style="list-style-type: none"> (NYSE) Substances are made of one type of atom or combinations of different types of atoms. Individual atoms are particles and can combine to form larger particles that range in size from two to thousands of atoms. (MS-PS1-1) (NYSE) Each substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. (MS-PS1-3),(MS-PS1-7) (Note: This Disciplinary Core Idea is also addressed by MS-PS1.2.) (NYSE) In a solid, the particles are closely spaced and vibrate in position but do not change their relative locations. In a liquid, the particles are closely spaced but are able to change their relative locations. In a gas, the particles are widely spaced except when they happen to collide and constantly change their relative locations. (MS-PS1-4) Solids may be formed from molecules, or they may be extended structures with repeating subunits (e.g., crystals). (MS-PS1-1) (NYSE) The changes of state that occur with variations in temperature and/or pressure can be described and predicted using these models of matter. (MS-PS1-4) (NYSE) Mixtures are physical combinations of one or more samples of matter and can be separated by physical means. (MS-PS1-8) PS1.B: Chemical Reactions <ul style="list-style-type: none"> (NYSE) Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different particles, and these new substances have different properties from those of the reactants. (MS-PS1-3) (Note: This Disciplinary Core Idea is also addressed by MS-PS1.2 and MS-PS1.5.) PS3.A: Definitions of Energy <ul style="list-style-type: none"> (NYSE) The term “heat” as used in everyday language refers both to thermal energy (the motion of particles within a substance) and the transfer of that thermal energy from one object to another. In science, heat is used only for this second meaning; it refers to the energy transferred due to the temperature difference between two objects. (secondary to MS-PS1-4) (NYSE) Temperature is not a form of energy. Temperature is a measurement of the average kinetic energy of the particles in a sample of matter. (secondary to MS-PS1-4) 	Patterns <ul style="list-style-type: none"> Macroscopic patterns are related to the nature of microscopic and atomic-level structure. (MS-PS1-1),(MS-PS1-7),(MS-PS1-8) Graphs, charts, and images can be used to identify patterns in data. (MS-PS1-1),(MS-PS1-4) Cause and Effect <ul style="list-style-type: none"> Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-PS1-4) Scale, Proportion, and Quantity <ul style="list-style-type: none"> Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-PS1-1) Structure and Function <ul style="list-style-type: none"> Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. (MS-PS1-3) Connections to Engineering, Technology, and Applications of Science Interdependence of Science, Engineering, and Technology <ul style="list-style-type: none"> Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-PS1-3) Influence of Science, Engineering and Technology on Society and the Natural World <ul style="list-style-type: none"> The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus, technology use varies from region to region and over time. (MS-PS1-3)
<i>Connections to other DCIs in this grade-band: MS.LS2.A (MS-PS1-3); MS.LS4.D (MS-PS1-3); MS.ESS2.C (MS-PS1-1)(MS-PS1-4); MS.ESS3.A (MS-PS1-3); MS.ESS3.C (MS-PS1-3); MS.ESS3.D (MS-PS1-3); MS.ESS3.E (MS-PS1-3); MS.ESS3.F (MS-PS1-3); MS.ESS3.G (MS-PS1-3); MS.ESS3.H (MS-PS1-3); MS.ESS3.I (MS-PS1-3); MS.ESS3.J (MS-PS1-3); MS.ESS3.K (MS-PS1-3); MS.ESS3.L (MS-PS1-3); MS.ESS3.M (MS-PS1-3); MS.ESS3.N (MS-PS1-3); MS.ESS3.O (MS-PS1-3); MS.ESS3.P (MS-PS1-3); MS.ESS3.Q (MS-PS1-3); MS.ESS3.R (MS-PS1-3); MS.ESS3.S (MS-PS1-3); MS.ESS3.T (MS-PS1-3); MS.ESS3.U (MS-PS1-3); MS.ESS3.V (MS-PS1-3); MS.ESS3.W (MS-PS1-3); MS.ESS3.X (MS-PS1-3); MS.ESS3.Y (MS-PS1-3); MS.ESS3.Z (MS-PS1-3).</i>		

New York State P-12 Science Standards Development, Adoption, and Implementation

Revised April 2021



Three-Dimensional Learning



Blending of Three Dimensions

- Science and engineering practices
- Crosscutting concepts
- Disciplinary core ideas

Science and Engineering Practices

Developing and Using Models

Modeling in 6–8 builds on K–5 and progresses to developing, using and revising models to describe, test, and predict more abstract phenomena and design systems.

- Develop a model to predict and/or describe phenomena. (MS-PS1-1),(MS-PS1-4)

Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 6–8 builds on

K–5 experiences and progresses to include investigations that use **multiple variables** and provide evidence to support explanations or design solutions.

- Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim. (MS-PS1-8)
- Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions. (MS-PS1-8)

Engaging in Argument from Evidence Engaging in argument from evidence in 6–8 builds from K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world.

- Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-PS1-7)

Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 6–8 builds on K–5 and progresses to evaluating the merit and validity of ideas and methods.

- Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-PS1-3)

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter

- (NYSED) Substances are made of one type of atom or combinations of different types of atoms. Individual atoms are particles and can combine to form larger particles that range in size from two to thousands of atoms. (MS-PS1-1)
- (NYSED) Each substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. (MS-PS1-3),(MS-PS1-7) (Note: This Disciplinary Core Idea is also addressed by MS-PS1-2.)
- (NYSED) In a solid, the particles are closely spaced and vibrate in position but do not change their relative locations. In a liquid, the particles are closely spaced but are able to change their relative locations. In a gas, the particles are widely spaced except when they happen to collide and constantly change their relative locations. (MS-PS1-4)
- Solids may be formed from molecules, or they may be extended structures with repeating subunits (e.g., crystals). (MS-PS1-1)
- (NYSED) The changes of state that occur with variations in temperature and/or pressure can be described and predicted using these models of matter. (MS-PS1-4)
- (NYSED) Mixtures are physical combinations of one or more samples of matter and can be separated by physical means. (MS-PS1-8)

PS1.B: Chemical Reactions

- (NYSED) Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different particles, and these new substances have different properties from those of the reactants. (MS-PS1-3) (Note: This Disciplinary Core Idea is also addressed by MS-PS1-2 and MS-PS1-5.)

PS3.A: Definitions of Energy

- (NYSED) The term "heat" as used in everyday language refers both to thermal energy (the motion of particles within a substance) and the transfer of that thermal energy from one object to another. In science, heat is used only for this second meaning; it refers to the energy transferred due to the temperature difference between two objects. (secondary to MS-PS1-4)
- (NYSED) Temperature is not a form of energy. Temperature is a measurement of the average kinetic energy of the particles in a sample of matter. (secondary to MS-PS1-4)

Crosscutting Concepts

Patterns

- Macroscopic patterns are related to the nature of microscopic and atomic-level structure. (MS-PS1-1),(MS-PS1-7),(MS-PS1-8)
- Graphs, charts, and images can be used to identify patterns in data. (MS-PS1-1),(MS-PS1-4)

Cause and Effect

- Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-PS1-4)

Scale, Proportion, and Quantity

- Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-PS1-1)

Structure and Function

- Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. (MS-PS1-3)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

- Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-PS1-3)

Influence of Science, Engineering and Technology on Society and the Natural World

- The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-PS1-3)

Performance Expectations



New York State P-12 Science Learning Standards

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MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. (Clarification Statement: Emphasis is on natural resources that undergo a chemical process to form the synthetic material. Examples of raw materials could include new molecules, fuels, and alternative fuels.) (Assessment Boundary: Assessment is limited to the qualitative interpretation of evidence provided.)		
MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and phase (state) of a substance when thermal energy is added or removed. (Clarification Statement: Emphasis is on qualitative particulate-level models of solids, liquids, and gases to show that adding or removing thermal energy increases or decreases kinetic energy of the particles until a change of phase occurs. Examples of models could include drawings and diagrams. Examples of particles could include ions, molecules, or atoms. Examples of substances could include sodium chloride, water, carbon dioxide, and helium.)		
MS-PS1-5. Use evidence to illustrate that density is a property that can be used to identify samples of matter. (Clarification Statement: Emphasis should be on students measuring the masses and volumes of regular and irregular shaped objects, calculating their densities, and identifying the samples of matter.)		
MS-PS1-8. Plan and conduct an investigation to demonstrate that mixtures are combinations of substances. (Clarification Statement: Emphasis should be on students describing the physical changes that occur when mixtures are formed and/or separated. Examples of common mixtures could include salt water, oil and vinegar, and air.) (Assessment Boundary: Assessment is limited to separation by evaporation, filtration and magnetism.)		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K-12 Science Education</i> :		
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	Connections to Engineering, Technology, and Applications of Science Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-PS1-3)	Interdependence of Science, Engineering, and Technology Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-PS1-3)
	PS1.B: Chemical Reactions (NYSED) Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different particles, and these new substances have different properties from those of the reactants. (MS-PS1-3) (Note: This Disciplinary Core Idea is also addressed by MS-PS1-2 and MS-PS1-5.)	Influence of Science, Engineering and Technology on Society and the Natural World The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-PS1-3)
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Connections to other DCIs in the grade-band: MS-LS2.A (MS-PS1-3), MS-LS2.B (MS-PS1-3), MS-LS2.C (MS-PS1-3), MS-LS2.D (MS-PS1-3), MS-LS2.E (MS-PS1-3), MS-LS2.F (MS-PS1-3), MS-LS2.G (MS-PS1-3), MS-LS2.H (MS-PS1-3), MS-LS2.I (MS-PS1-3), MS-LS2.J (MS-PS1-3), MS-LS2.K (MS-PS1-3), MS-LS2.L (MS-PS1-3), MS-LS2.M (MS-PS1-3), MS-LS2.N (MS-PS1-3), MS-LS2.O (MS-PS1-3), MS-LS2.P (MS-PS1-3), MS-LS2.Q (MS-PS1-3), MS-LS2.R (MS-PS1-3), MS-LS2.S (MS-PS1-3), MS-LS2.T (MS-PS1-3), MS-LS2.U (MS-PS1-3), MS-LS2.V (MS-PS1-3), MS-LS2.W (MS-PS1-3), MS-LS2.X (MS-PS1-3), MS-LS2.Y (MS-PS1-3), MS-LS2.Z (MS-PS1-3), MS-LS2.AA (MS-PS1-3), MS-LS2.AB (MS-PS1-3), MS-LS2.AC (MS-PS1-3), MS-LS2.AD (MS-PS1-3), MS-LS2.AE (MS-PS1-3), MS-LS2.AF (MS-PS1-3), MS-LS2.AG (MS-PS1-3), MS-LS2.AH (MS-PS1-3), MS-LS2.AI (MS-PS1-3), MS-LS2.AJ (MS-PS1-3), MS-LS2.AK (MS-PS1-3), MS-LS2.AL (MS-PS1-3), MS-LS2.AM (MS-PS1-3), MS-LS2.AN (MS-PS1-3), MS-LS2.AO (MS-PS1-3), MS-LS2.AP (MS-PS1-3), MS-LS2.AQ (MS-PS1-3), MS-LS2.AR (MS-PS1-3), MS-LS2.AS 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(MS-PS1-3), MS-LS2.CM (MS-PS1-3), MS-LS2.CN (MS-PS1-3), MS-LS2.CO (MS-PS1-3), MS-LS2.CP (MS-PS1-3), MS-LS2.CQ (MS-PS1-3), MS-LS2.CR (MS-PS1-3), MS-LS2.CS (MS-PS1-3), MS-LS2.CT (MS-PS1-3), MS-LS2.CU (MS-PS1-3), MS-LS2.CV (MS-PS1-3), MS-LS2.CW (MS-PS1-3), MS-LS2.CX (MS-PS1-3), MS-LS2.CY (MS-PS1-3), MS-LS2.CZ (MS-PS1-3), MS-LS2.DA (MS-PS1-3), MS-LS2.DB (MS-PS1-3), MS-LS2.DC (MS-PS1-3), MS-LS2.DD (MS-PS1-3), MS-LS2.DE (MS-PS1-3), MS-LS2.DF (MS-PS1-3), MS-LS2.DG (MS-PS1-3), MS-LS2.DH (MS-PS1-3), MS-LS2.DI (MS-PS1-3), MS-LS2.DJ (MS-PS1-3), MS-LS2.DK (MS-PS1-3), MS-LS2.DL (MS-PS1-3), MS-LS2.DM (MS-PS1-3), MS-LS2.DN (MS-PS1-3), MS-LS2.DO (MS-PS1-3), MS-LS2.DP (MS-PS1-3), MS-LS2.DQ (MS-PS1-3), MS-LS2.DR (MS-PS1-3), MS-LS2.DS (MS-PS1-3), MS-LS2.DT (MS-PS1-3), MS-LS2.DU (MS-PS1-3), MS-LS2.DV (MS-PS1-3), MS-LS2.DW (MS-PS1-3), MS-LS2.DX (MS-PS1-3), MS-LS2.DY (MS-PS1-3), MS-LS2.DZ (MS-PS1-3), MS-LS2.EA (MS-PS1-3), MS-LS2.EB (MS-PS1-3), MS-LS2.EC (MS-PS1-3), MS-LS2.ED (MS-PS1-3), MS-LS2.EE 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Instruction aligned to NYS P12 Science Learning Standards begins...

September 2019/2020/2021
for Grades P-3 and 6

2019-2022

June 2022
Last administration
of Grade 4 science
test aligned to the
1996 Standards

September 2022
for Grades 4 and 7

2022-2023

June 2023
No Grade 4 science test; these
students will take new science
test in grade 5 in 2024
Last administration of Grade 8
science test aligned to the 1996
Standards

September 2023
for Grades 5 and 8

2023-26

Spring 2024
First administration
of new Elementary
Grade 5 and
Intermediate
Grade 8 science
tests

September 2024
Continue Phase III transition
toward full implementation of
the NYS 9-12 Science Learning
Standards at the local level

June 2025
First
administration
Biology, and Earth
and Space Science
Regents Exams

June 2026
First administration
Chemistry and
Physics Regents
Exams

State Level Science Assessment Development & Implementation

First and Last Administration of New Regents Examinations

Exam Title	First Administration of New Exam	Last Administration of Current Exam
Algebra I	June 2024	January 2024
Geometry	June 2025	January 2025
Earth & Space Sciences*	June 2025	June 2026
Life Science: Biology*	June 2025	June 2026
Algebra II	June 2026	January 2026
Chemistry*	June 2026	June 2027
Physics*	June 2026	June 2027
English Language Arts	June 2026	January 2026

* For science, the new learning standards are not as strongly aligned to the prior standards. As a result, there will be an overlap period of the old and new exams for four administrations. This will ensure that students can complete the exam that matches the instruction they received.



NYSSLS Exam Timeline @ 3V

Intermediate Level Science (grades 6-7-8)

- **May 1, 2024** administration of NYSSLS ILS Assessment
- Computer based exam (chromebook)
- NYS Sample questions
- ILS Investigations (4 completed in grades 6-8 prior to exam)

Earth and Space Sciences / Life Science Biology

- Continue with current core through June 2025
- Formally instruct NYSSLS 2025-2026
- NYSSLS Regents administered June 2026
- Permits more exams, more time on curriculum, more resources published

NYSSLS Exam Timeline @ 3V

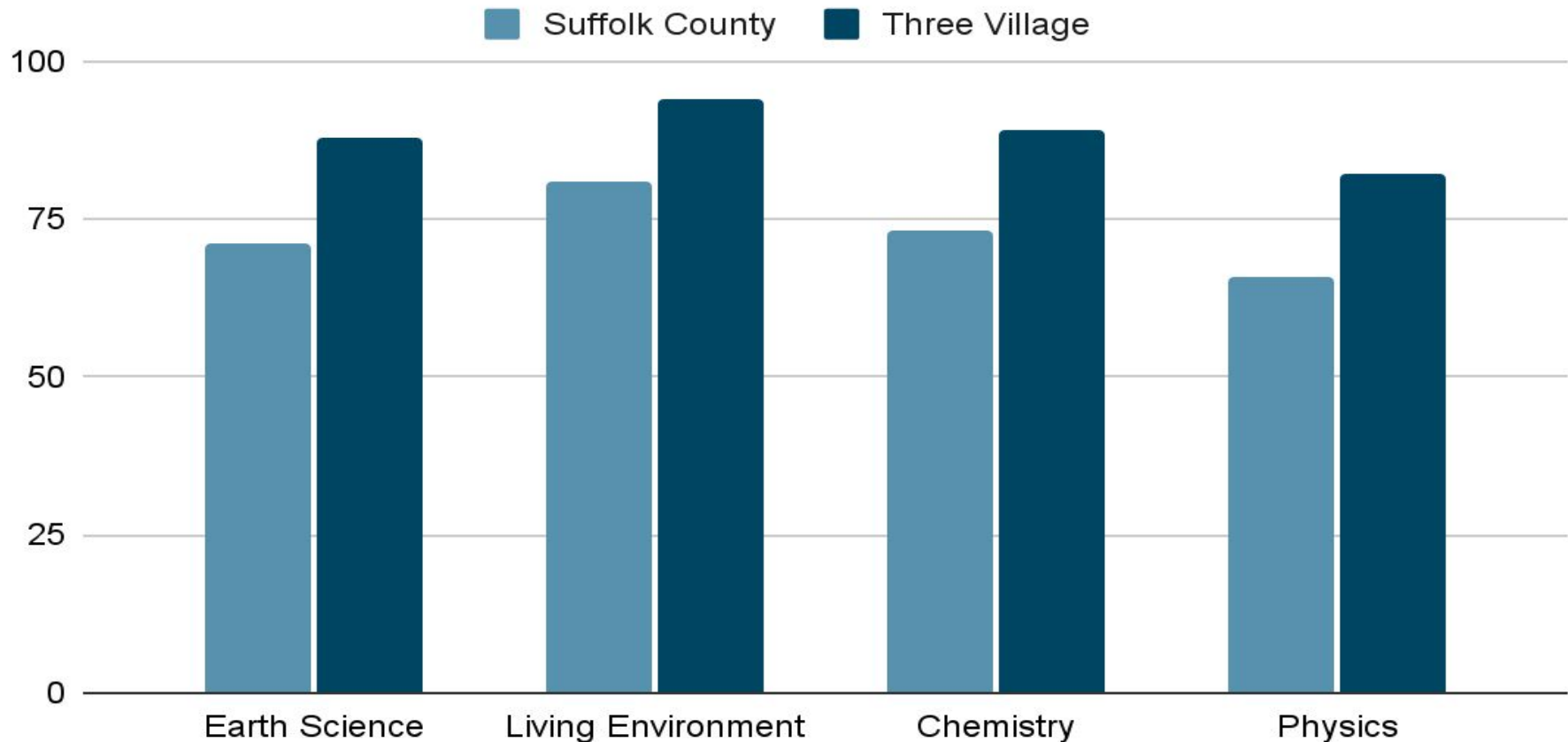


Chemistry / Physics

- Continue with current core through June 2026
- Formally instruct NYSSLS 2026-2027
- NYSSLS Regents administered June 2027
- Permits more exams, more time on curriculum, more resources published



2021-2022 Regents Passing Scores



Reasons why Three Village Science has success:

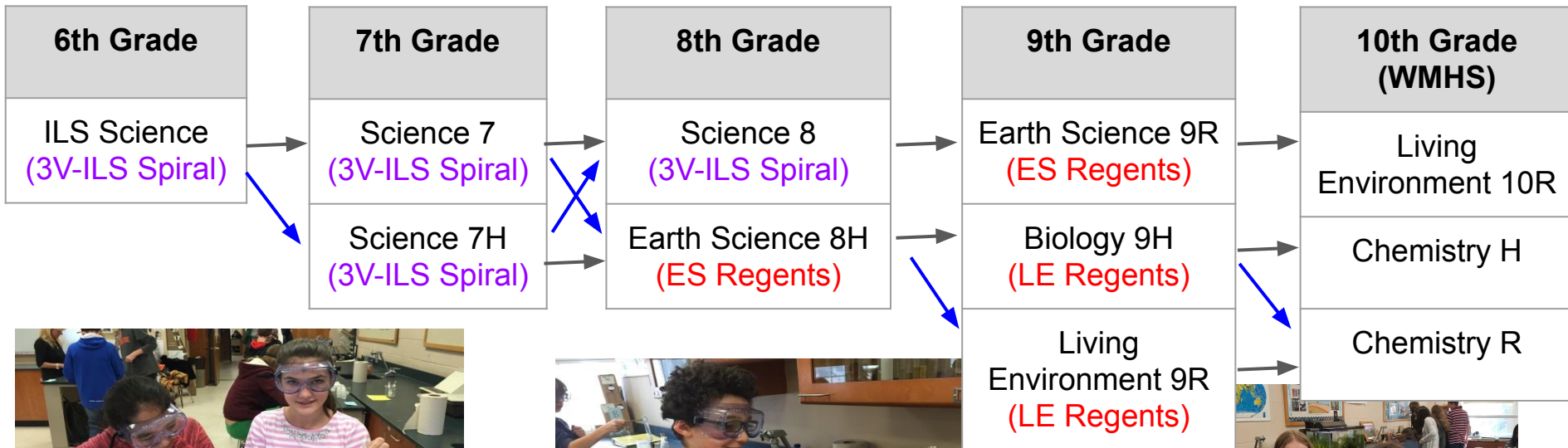
- Open communication
- Shared decision-making with all stakeholders
- Motivated teachers and ambitious students
- High expectations
- Professional Learning Communities (PLCs)
- Extra help during lunch periods, before and after school
- Early identification of struggling students
- Academic Intervention Services (AIS)
- Collaboration





JHS Science

Current Course Sequence





JHS Science

Elective Course Offerings

7th Grade

Science Research I

8th Grade

Science Research I

Farm to School

Natural Disasters

9th Grade

Science Research II



JHS Science Clubs



Competitive:

Science Olympiad
Science Bowl



Non-Competitive:

Ecology Club
Greenhouse Club



Typical Sophomore Science Program

LIVING ENVIRONMENT or CHEMISTRY

Elective Options:

Animal Science, Microbiology, The Biology of Being Human: Molecular / Systems Approach, Long Island Ecology

Enrichment Programs:

Academic Challenges Team (“The Bowlers”)
Robotics - HOSA Science Olympiad
Environmental Club Greenhouse Club
Ethical Care of Animals Club
InSTAR pre-college research program



Courses of Study - **WARD MELVILLE HIGH SCHOOL**

NY STATE / CORE	AP / COLLEGE LEVEL	LOCAL ELECTIVES
<p>LIVING ENVIRONMENT[^]</p> <p>CHEMISTRY R</p> <p>CHEMISTRY H</p> <p>PHYSICS R</p> <p>PHYSICS H</p> <p>“The Cycle”</p> <p>~60% of graduating seniors have taken Physics</p> <p>[^]graduation requirement</p>	<p>PHYSICS 1</p> <p>PHYSICS 2*</p> <p>PHYSICS C*</p> <p>BIOLOGY*</p> <p>CHEMISTRY*</p> <p>ENVIRONMENTAL SCI. (APES)</p> <p>*second-year course</p> <p>HUMAN ANATOMY (Adelphi)</p> <p>HUMAN PHYSIOLOGY (Adelphi)</p> <p>FORENSICS H (Syracuse)</p>	<p>ANIMAL SCIENCE</p> <p>APPLIED SCIENCE</p> <p>ASTRONOMY</p> <p>Biology of Being Human</p> <p>-SYSTEMS / -MOLECULAR</p> <p>CONSUMER CHEMISTRY</p> <p>ENVIRO. CHEMISTRY</p> <p>CURRENT ISSUES</p> <p>FORENSICS</p> <p>LONG ISLAND ECOLOGY</p> <p>MICROBIOLOGY</p>

InSTAR®

Independent Science Technology And Research



3 year program; by application only

InSTAR-I: Sophomores

Full year – alternating single period

InSTAR-II: Juniors

Full year – single period every day

InSTAR-III: Seniors

Fall – single; Spring – after school

2½ vs. 4

Science Achievements

Student Competitions - Sophomores & Juniors

LONG ISLAND SCIENCE CONGRESS

NSTA TOSHIBA ExploraVision



2018 NATIONAL WINNERS
1st Place



Regeneron Science Talent Search (STS)

TOP STORIES

Regeneron winner

Ward Melville senior earns \$150G award for placing 3rd

BY JOEY TRIBELL
jtribell@regeneron.com

Another Leo, a senior at Ward Melville High School in East Setauket, placed third in the Regeneron Science Talent Search on Tuesday night, earning a \$150,000 prize, contest organizers said.

Leo, 18, of Stony Brook, was the top finisher of the seven finalists from Long Island in the nation's oldest and most prestigious science competition. They were among the 400 seniors who had been competing for prize money since Thursday in Washington, D.C.

Another Long Island finalist, Hadas Vozni, 17, of Roslyn High School, was named the Science Award winner and given the opportunity to speak to students of the Regeneron Class of 2023.

Leo was honored for her development of a software called Ribobayes, a computational tool used to reveal how ribosomes move along a cell's mRNA transcript to produce proteins, according to contest officials. Her work, she said, can enable researchers to gain a better view of underlying health conditions in a range of diseases, such as Alzheimer's.

Leo told Newsday earlier that she is "fascinated" with the intersection of math and biology. Her project represented the "first dive into the world of computational biology." She conducted her research at Drexel University's School of Biomedical Engineering in Philadelphia.

Top 10 finalists revealed

The top 10 finalists were announced at a gala awards 9:30 p.m. Tuesday. The finalists were chosen from 1,284 applications received from 609 high schools across 46 states, D.C., Puerto Rico and eight countries. Finalists were selected from among 300 semifinalists chosen earlier this year. Each finalist automatically received \$25,000.

Regeneron selections are based on research skills, academic innovation and presentation as scientists. Long Island students projects covered a variety of topics, including studies on the island's salt marsh ecosystems, eye cancer, nesting habits and COVID-19-induced stress.

Leo herself selected her college yet, but said she would like to become a research professor and continue pursuing her interests in math and science. She heads the math team and Science Olympiad at her high school, and founded an educational STEM nonprofit called Ultrama Learning that provides free online courses in biology, research and competing from accomplished high school scientists to aspiring young students.

Lucy: 'Dancing is an outlet'

For fun, Leo said she often assembles dance covers around, when she posts videos of herself covering various K-pop dances, ranging from hip-hop ballad songs to cute girl-group bubbly pop.

"Dancing is an outlet of creativity for me, and it's so relaxing to coordinate outfits, learn dances, and do my own thing after a long day of research," she told Newsday earlier.

First place in the competition went to Christine Yu of Sammamish, Washington, who won \$250,000 for her project, which analyzed the gravitational waves emitted from collisions between neutron stars collapsed super-dense stars and black holes.

Roelyn student also honored

The finalists chose Yvan, of Roelyn, as the student who most exemplifies their class and the extraordinary contributions of student chemist Glenn T. Seaborg, who won the Nobel Prize for Chemistry in 1951 and served on the Society's Board of Trustees for 30 years. No additional money came with the honor.

Yvan's project examined the psychology behind voting habits.

Long Island's other finalists were Ethan Chiu and Nolan Grotto, both of Spout Hill School, Robert Lopez of Breeseport High School, and Christopher Laidi and Dorian Bilgash, both of John F. Kennedy High School in the Bellmore-Merrick Central High School District.



FINALIST NAME:
AMBER LUO

HIGH SCHOOL:
WARD MELVILLE HIGH SCHOOL

HIGH SCHOOL LOCATION:
EAST SETAUKET, NY

PROJECT NAME:
RIBOBAYES: A WAVELET TRANSFORM COMPUTATIONAL PLATFORM TO ANALYZE TRANSCRIPTOMIC DISTRIBUTION AND REGULATION OF RIBOSOME PAUSE SIGNALS FROM RIBOSOME PROFILING DATA



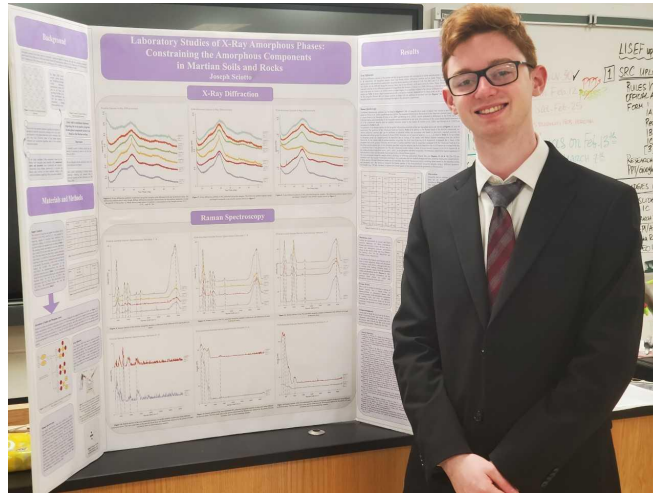
PRESENTATION COMPETITIONS...Taking the show on the road

In-person competitions...

Long Island Science & Engineering Fair (LISEF)
New York State Science & Engineering Fair (NYSSEF)



Junior Science & Humanities Symposium



Science Clubs

Academic Challenges
"The Bowlers"

NAQT

National Academic Quiz Tournaments, LLC



Science Olympiad

Science Goals

- Adopt NYSSLS in Regents courses
- Adjust ILS curriculum based on new Assessment & ILS Investigations
- Reinstate robustness of InSTAR program
- Create Science Centers at the secondary buildings
- Increase Academic Intervention Services
- Examine Secondary Science courses with Strategic Planning goals

