<table>
<thead>
<tr>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>Ms. Audrey Bellovin</td>
<td>Principal, Hemlock Primary</td>
</tr>
<tr>
<td>Dr. Ted Cannone</td>
<td>Assistant Superintendent for Curriculum &amp; Instruction</td>
</tr>
<tr>
<td>Dr. Elena Cascio</td>
<td>6-12 Coordinator of Science</td>
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<tr>
<td>Mr. Christopher Hartigan</td>
<td>Assistant Principal, Stratford Elementary</td>
</tr>
<tr>
<td>Ms. Linda Norton</td>
<td>Principal, Stewart Elementary</td>
</tr>
<tr>
<td>Dr. Jean Ricotta</td>
<td>Principal, Locust Primary</td>
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</tbody>
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What is our overall intent?

• Raise faculty and community awareness
• Provide sustained professional development
• Develop curriculum maps
  • Develop initial units, decide on what to keep, move, abandon
• Repurpose and acquire materials
• Integrate technology
What are the new science standards?

• The Next Generation Science Standards (NGSS) are actually the basis for the **NYS P-12 Science Learning Standards** (NYSP-12SLS)
• 1996 standards did not reflect 21st Century skills, technology & research, so revision was needed
• Rumored. Debated. Discussed. Promised...and finally approved by NYSED for initial transition in 2017-2018
• Changes in society & the economy require changes in science education for deeper critical thinking and communication
• Shift from receiving content to participation, inquiry, & making relevant, personal connections to science...while still developing rigorous content knowledge
What are NYSP-12SLS?

• Systems thinking & modeling to explain phenomena or solve problems

• 3-Dimensional Mindset:
  • Science & Engineering Practices (SEP)
  • Disciplinary Core Ideas (DCI)
  • Crosscutting concepts (CCC)

• 4 Cs: Communication, Collaboration, Critical thinking, Creativity
Implementation Guidelines from NYSED

• NYSED is still developing an implementation timeline
• Deliberately slower rollout and lots more local control
• 2017-18 school year: Initial examination and transition to the new **NYSP-12SLS**
• Focus on raising awareness and building capacity of educators and stakeholders across the state
• Curricular and instructional decisions are left to districts and schools
• New resources will be developed and made available by the State to assist and support the educators
• No immediate changes to State Assessments
Explaining Phenomena or Designing Solutions

<table>
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<tr>
<th>NYSP-12SLS designed lessons will look more like this:</th>
<th>NYSP-12SLS designed lessons will look less like this:</th>
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<tr>
<td>Supporting students in making sense of phenomena and/or designing solutions to solve problems. Entire lesson drives toward this goal.</td>
<td>Explaining phenomena and designing solutions are used only as a “hook” or engagement tool; used only for enrichment or reward after learning.</td>
</tr>
<tr>
<td>Student sense-making of phenomena or designing of solutions used as a window into student understanding of all three dimensions of the NYSP-12SLS.</td>
<td>The focus is only on getting the “right” answer to explain the phenomenon.</td>
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<tr>
<td>Lessons are linked in a coherent sequence to help students make sense of phenomena.</td>
<td>A different, new, or unrelated phenomenon is used to start every lesson.</td>
</tr>
<tr>
<td>Students get direct (preferably firsthand, or through media representations) experience with a phenomenon or problem that is relevant to them and is developmentally appropriate.</td>
<td>Teachers tell students about an interesting phenomenon or problem in the world.</td>
</tr>
<tr>
<td>Development of science ideas anchored in explaining phenomena or designing solutions to problems.</td>
<td>Phenomena are brought into the lesson after students develop the science ideas so students can apply what they learned.</td>
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Real-Life Phenomena & Solutions

Garden City Public Schools
Three Dimensional Mindset

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<tr>
<td>Instruction integrates all three dimensions giving equal emphasis to Disciplinary Core Ideas, Science and Engineering Practices and Crosscutting Concepts</td>
<td>The instructional focus is on Disciplinary Core Ideas (content)</td>
</tr>
<tr>
<td>Students are actively engaged with the Scientific and Engineering Practices to make sense of the real life phenomena or design solutions to problems</td>
<td>Teacher distributes information while students listen. Students then recall facts, repeat the demonstrations and summarize the phenomena they saw.</td>
</tr>
<tr>
<td>Crosscutting Concepts are made explicit for students</td>
<td>Subject core ideas are taught in isolation</td>
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Real-Life 3-Dimensional Mindset

Garden City Public Schools
# Integrating Instruction & Assessment

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| ● Designed to build **student proficiency** in at least one grade-appropriate element from each of the three dimensions.  
   ● **Three dimensions intentionally work together** to help students explain a phenomenon or solve a problem.  
   ● **All three dimensions are necessary** for sense-making and problem-solving. | Students learn the three dimensions in isolation from each other (e.g., a separate lesson or activity on science methods followed by a later lesson on science knowledge). |
| Teachers deliberately seek out **student artifacts** that show direct, observable evidence of learning, building toward all three dimensions of the NYSP-12SLS at a grade-appropriate level. | Teachers assume that correct answers indicate student proficiency without the student providing evidence or reasoning. |
| Teachers use tasks that ask students to explain phenomena or design solutions to problems, and that reveal the level of student proficiency in all three dimensions. | Teachers measure only one dimension at at time (e.g., separate items for measuring SEPs, DCIs, and CCCs). |
Integrating Real-Life Instruction & Assessment
NYSP-12SLS in Garden City School District

• Standards are organized by grade for P-5
• Standards are grade-banded at the 6–8 and 9–12 levels:
  • Do not specify performance expectations for individual grades or courses
  • Do not suggest a specific sequencing related to instruction
• Four domains: physical sciences; life sciences; earth and space sciences; and engineering, technology and applications of science
• No changes in the four High School Regents courses (Earth Science, Living Environment, Chemistry, Physics)
• State science assessments haven’t changed yet
• No known timeline for new assessments and implementation
Implementation of the NYSP-12SLS

As part of implementation of new standards the teachers have been:

• comparing our MS and HS curricula with the standards to identify gaps and overlaps
• responding to public surveys regarding proposed changes
• attending workshops and conferences
• investigating available instructional materials/meeting with vendors
• analyzing the required instructional shifts
• exploring the 3D mindset
• introducing phenomena-based explorations
• aligning existing and designing new lessons and units
Next Steps

• Comparing our K-5 curricula with the standards to identify gaps and overlaps
• Additional PD and curriculum development
• Possible new textbook adoption
• Funding and resources to support science and engineering practices required by new NYS science standards
If you’d like to learn more...


- [www.nextgenscience.org](http://www.nextgenscience.org)


- [https://www.youtube.com/watch?v=Jyiv1Lc0dng&feature=youtu.be](https://www.youtube.com/watch?v=Jyiv1Lc0dng&feature=youtu.be)
Thank you.

Questions?