

INSTRUCTION

Statement of Philosophy on Teaching and Learning

Language unlocks every content area door" is a statement that substantiates the importance of **listening**, speaking, reading, writing, and critical thinking in the curriculum of our classrooms and schools. Expressive and receptive language development and higher-order thinking are the core academic skills linked to academic and life success. Enhancing language development is a matter of particular concern to educators who work in poor urban school districts where a disproportionate number of students come to school with unearned social and economic disadvantages. Such disadvantages are primarily due to poverty and the historical factors that have limited the education of **caste groups** and assigned the children of the poor and marginalized to spaces deprived of life's necessities. Under such circumstances, children learn a first language different from the academic language in classrooms. **This distinction becomes more challenging as students move up in grade levels and across various content in the school curriculum. English language learners may be at a disadvantage in the school environment if they are poor and speak a home language different from the language used to transmit academic content in schools and classrooms. This disadvantage is true, to some extent, if the student's first language is a dialectical variation of English. However, language difference is not synonymous with deficiency. Effective teaching builds on students' strengths and makes no assumptions about student potential based on race, class, gender, or any individual or group characteristic that individuals and institutions have used to stereotype and label categories of human beings.**

Since our student population is predominantly poor and multilingual, the school district must develop and implement a linguistically rich curriculum based on students' strengths across classrooms and schools. The curriculum should be performance and outcomes-based, with student work products as evidence for the quality and quantity of instruction and student motivation and effort. Schools alone cannot do the heavy lifting necessary for students born behind in the race of life to excel. Students must be willing to match the commitment of their teachers and mentors. We must not abdicate our responsibility to students from all socio-economic backgrounds and continue to provide differentiated learning options for all the students we serve.

When school leaders create evidence-based policies, goals, administrative procedures, and instructional methodologies by working collaboratively with teachers, parents, and students, teaching and learning outcomes are improved. In addition, building relationships with parents and other community stakeholders provides the web of support that reinforces students' learning in schools and classrooms. Therefore, the scope of this policy is to institutionalize best administrative, instructional, and parenting practices across all content areas to provide students with the skills, knowledge, and dispositions to achieve in school and life.

DEVELOPMENTAL PATHWAYS AND THE WHOLE CHILD

Comer, Joyner, and Haynes (1999) have identified six pathways that should serve both as a framework for analysis when assessing child and adolescent growth and development and as focal points for activities and programs designed to facilitate such development.

The emphasis on the developmental pathways is at the heart of the School Development Program, which distinguishes it from other school reforms. The six pathways include:

- ***The Physical Pathway.*** The environment must meet the child's basic physical needs to grow and develop at the most basic level. These needs include food, rest, shelter, and freedom from pain or illness. If these needs are not met, the physical distress that results will affect the child's functioning in all the other areas of development.
- ***The Cognitive-Intellectual Pathway.*** All children are born with the potential to reason and solve problems. This pathway allows children to make sense of the world and to absorb the knowledge and skills (through experiences with other human beings) that will enable them to gain a measure of control over how they develop in the other five areas.
- ***The Psycho-Emotional Pathway.*** Children need to develop a sense of self-regard, an attitude that tells them that they "count," that they have talents and attributes which will allow them to contribute to the world in meaningful, socially approved ways. This developing self is primarily determined by the quality of human interactions experienced first by children in the family and later in other social networks such as the school and other social institutions. When significant adults do not esteem children, their ability to function well in the different pathways is impaired.
- ***The Social-Interactive Pathway.*** Children must develop the ability to interact in a wide range of social settings because their development in other areas is dependent on the transmission of the values, knowledge, and skills necessary to live successfully in a particular place and time. Adults are more likely to engage in productive relationships with children and adolescents who respond to them in ways they deem to be "acceptable." On the other hand, children are dependent on these same adults to model and teach them what is socially acceptable. Early in the child's development, the home and community provide the child with the knowledge of interpersonal interaction patterns or prescriptions for the appropriate attitudes, verbal responses, and gestures acceptable in particular social contexts. A win/win environment is created when behaviors learned in the home are congruent with those learned in school. Sharing common values allows for a bond among parent, child, and teacher that helps the child gain the favored status most children need

to learn in school and at home. When significant adults negatively view the child's social skills, a lose/lose relationship ensues, and neither party benefits. When influential adults label students as social outcasts, they create conditions that threaten growth and development in all areas.

- ***The Speech and Language Pathway.*** Language has two primary functions in human development: communication and knowledge representation. Early in life, children learn that language can convey messages to the self and others. They understand the oral and behavioral cues for imparting messages and simultaneously learn to interpret the statements of others. These acquired words and symbols also become the categories through which children express reasoning ability.
- ***The Moral-Ethical Pathway.*** Crucial to all human interactions is the child's understanding and possession of sound and moral and ethical standards, as well as the inclination to act upon these values. Such behavior is based on socially transmitted principles by significant others in the lives of young people that delineate the acts for which the individual is held morally responsible and prescribe just and fair consequences for moral transgression. Typically, developing children acquire ethical standards from the family, religious institutions, and schools. However, the norms and values reflected in popular culture and mass media have become, in some instances, increasingly influential in the lives of children and adolescents.

In an age of significant influence by mass media, children may also be motivated by individuals that they deem to be substantial because of popularity and achievement in sports, entertainment, and other high-profile areas. When role models behave in ways consistent with such values, and when social institutions concur, children can function across such institutions and exhibit the behaviors that reflect the collective wisdom of significant adults. However, when one or more of these institutions fail to instill shared values or impart values that conflict with primary caregivers, the child becomes confused and may make wrong choices.

Learning is mediated through relationships between oral and written responses to text and rigorous discourse characterized by exciting and meaningful content. Providing teachers with the resources, support, and freedom to teach creatively and effectively using research-based principles and findings is additive. Developing instrumentation and protocols to monitor, evaluate, and provide constructive feedback provides helpful mechanisms for continuous improvement.

Language development across the curriculum provides the volume of **listening, speaking, reading, writing, and critical thinking** that will likely improve student achievement as measured by criterion and standardized assessments. **Since each content domain has a specialized vocabulary, by necessity, we must establish instruction across all content areas emphasizing word knowledge, comprehension of written and oral text, critical thinking, and the skill to communicate what one has learned.** Critical thinking and receptive and expressive language development should be the core of our instructional programming across all content areas. This effort is broad in scope and requires a robust commitment by every stakeholder—students, parents, educators, community members—in the education enterprise. We must mobilize the village to educate the hearts and minds of our students.

The New Haven Public Schools Board will develop teaching and learning policies to "establish direction for the district, set goals, and assign authority." Concerning effective teaching, curriculum content, assessment, program evaluation, professional development, and other areas of schooling, school boards must create policies that establish criteria for practices associated with evidence-based education reform at all levels of the system. District administrative procedures further define the policy and provide guidelines for its implementation. To avoid role confusion, the school board establishes policies, and the Superintendent and professional staff execute the administrative procedures and teaching protocols to implement policy. Policy development is the product of collaboration between experienced educators and the school board with participation structures that engage parents and members of the broader community. We must create policies on teaching and learning based on the best evidence and collective wisdom at the time of policy formulation with a process for revision to accommodate new knowledge in the specific policy domain. The School Board must hear the voice of teachers, support staff, students, parents, and school administrators at every step of the policy-making process.

Teaching and Learning Elements to Incorporate into District Policy

The following practices serve to organize and provide direction for teaching and learning initiatives throughout New Haven Public Schools:

Need a glossary and citations for specific terms, including those listed below

- Models of teaching
- Instructional materials
- Authentic formative and summative assessment of student learning
- Instructional grouping and scheduling
- Efficient use of instructional time
- High expectations
- Student effort (independent reading, writing, research)
- Professional learning and development
- Administrative practices and procedures
- Affective education

Parent and community support

District staff will use the following principles for choosing content and teaching methodologies to maximize students learning opportunities:

Student achievement increases when students set their own goals. In collaboration with peers, the classroom teacher conducts a baseline inventory of cognitive and affective skills to develop the systematic instruction designed for students to meet grade-level expectations. Teachers assist students in setting goals, picking strategies to meet those goals, monitoring their progress, and providing feedback and correctives. Research and conventional wisdom have documented a strong, positive correlation between students setting their own achievement goals and student achievement. (Chung, Chen, & Olson, 2021)

Students engage more fully with learning when they see real-world connections and relevance to their own lives. Students' understanding of these connections happens when they engage in real-world applications of knowledge. Teachers must use culturally relevant pedagogy to establish high expectations for all students, engage students in a critical analysis of their learning, and prepare them to advocate for a socially just world. There should also be purposeful attempts to make learning relevant to students' interests, cultures, and communities. The more teachers get to know individual students, the more this is possible; however, teachers need not have in-depth knowledge of every aspect of the students to create relevant lessons. It is essential that teachers create a space for students to express their perspectives, make their connections to the learning, and appreciate that their classmates might think differently.

Students learn by interacting with subject-specific texts. The term “text” includes fiction and non-fiction texts as well as directions, forms, and all types of information visually displayed in graphs, charts, or maps, music, art, and digital sources on a range of topics. Students must interact with subject-specific texts, process the information included, make conclusions, and communicate their ideas with others to develop their learning. These interactions will also require the development of appropriate academic vocabulary in each subject area.

Language mediates student learning. Receptive and expressive language contribute to the vital process of making thinking visible, listening to others, and revising meanings and understandings through critical thinking. Students learn subject concepts, ideas, and issues by explaining, critiquing, and building shared knowledge through discourse. Discourse is one of the most effective ways for students to practice sense-making and decision-making and justify their conclusions with facts pertinent to the issue.

Students learn when provided with appropriate materials, rubrics, and clear directions for the learning task(s).

Students learn when provided with sufficient time, feedback, and correctives.

Students learn when given tasks at the appropriate level of difficulty and when the teacher sets a standard for mastery.

Social and emotional growth and development are the underpinnings of academic learning.

Effective teaching depends on parental and administrative support.

Guidance on Instruction

The New Haven Public Schools shall publish and revise bi-annually instructional frameworks based on effective teaching and learning practices to support educators planning effective instruction. The instructional frameworks will describe instructional arrangements across content areas to help students graduate from each successive grade level with the knowledge, literacy, and critical skills necessary to succeed. The New Haven Public Schools instructional frameworks, aligned to standard principles of instruction, will emphasize independent reading, vocabulary development, writing, project learning, oral discourse across the disciplines, and critical thinking.

References

Chung, H.Q., Chen, V., & Booth Olson, C. (2021) The impact of self-assessment, planning and goal setting, and reflection before and after revision on student self-efficacy and writing performance. *Reading and Writing*, 34, 1885-1913.



Elementary Science Program Adoption 2022

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STRATEGIC PLAN : SY 2020-2024



Core Values

We believe...

1 Equitable opportunities create the foundation necessary for every child to succeed

2 A culture of continuous improvement will ensure that all staff are learners and reflective practitioners

3 High expectations and standards are necessary to prepare students for college and career

4 Collaboration and partnerships with families and the New Haven community will enhance learning and achievement



Mission

To provide all students in New Haven Public Schools with personalized, authentic, and engaging learning experiences through creativity, exploration, innovation, critical thinking, problem-solving, and high quality instruction. To foster a culture of continuous improvement through collaborative partnerships with staff, families, and the New Haven community. To support students' growth and development by utilizing the Whole Child Framework.

Vision

Our vision is to be a premier urban school district that ensures access to equitable opportunities and successful outcomes for all students as they prepare for college, career, and life.

Priority Areas for 2020-2024

- 1 Academic Learning**
- 3 Youth & Family Engagement**
- 5 Operational Efficiencies**

- 2 Culture & Climate**
- 4 Talented Educators**

Pilot Material Selection

Criteria:

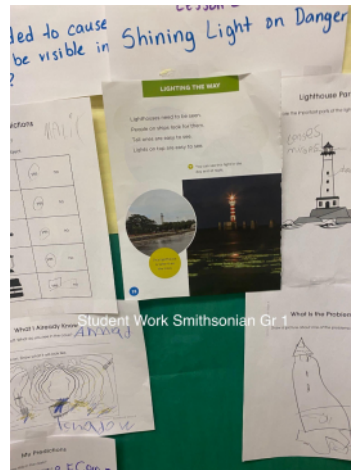
- Comprehensive - completely replace current materials in K-5.
- 100-120 min/week
- Fully aligned to NGSS (5Es, etc..)
- Inquiry
- Strong supports for multilingual learners, SPED, literacy, math, teachers

Top Three Programs:

- [Amplify](#) (Lawrence Hall of Science)
- [Smithsonian](#)
- [FOSS](#)

Two Programs Selected for Pilot:

- [Amplify](#) (Lawrence Hall of Science)
- [Smithsonian](#)



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Program Selection Research

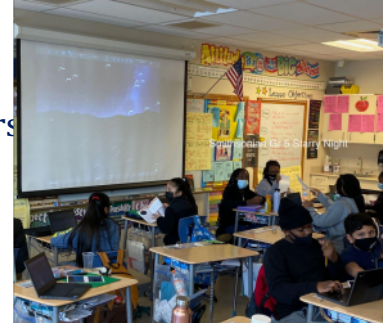
The following studies informed how we set criteria.

- **Science Kits** - Annotated research bibliography, includes peer reviewed research studies on elementary science, kit programs, ELLs, other topics:
https://docs.google.com/document/d/1rBxZz6vQjVdzkgHbmuC7tZ_pfdDmBcsk/edit
- **Inquiry Model** - Research base on types of science programs most successful in elementary, including extensive LASER i3 study, (Accepted into USED WW Clearinghouse <https://ssec.si.edu/laser-i3>)
- **Adoptions in other States** - EDREPORTS
<https://edreports.org/reports?s=science> plus reviews from statewide adoptions in California, Louisiana, Oregon (Amplify strongly rated, FOSS moderate, new Smithsonian not reviewed yet, others all weak on NGSS implementation.)

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Pilot Details: Amplify/Smithsonian

- Mid Nov to end of Jan.
- 6 Schools :
 - FAME 1S, 3A, 3S, 5A,
 - Clemente 1A, 1S, 3S, 5S,
 - Celentano 1S, 3A, 5A,
 - Beecher 5A, 5S,
 - Barnard 1A, 1A,
 - Bishop Woods, 3A, 3S, 5S
- 18 teachers: Half Used Each Program
 - Grade 1 Light, Grade 3 Motion, Grade 5 Stars
- 5 bilingual/Spanish classes
- 5 teachers of color participated in the pilot



Also *Elementary Science Committee*: variety of stakeholders, developed criteria, listened to presentations, reviewed/discussed materials, observed. 6 meetings Nov-Feb

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Teacher Feedback (Survey and Discussion)

| | Amplify | Smithsonian |
|-------------------------------|---------|-------------|
| Pedagogy | | Higher |
| Student Support | | Higher |
| Relevance & Equity | Higher | |
| Assessments | | Higher |
| Teacher Support | | Higher |



Summary of Comments by Teachers:

- Smithsonian was scored higher by teachers in 4 of the 5 categories, but only slightly.
- Pacing was discussed as a concern with Smithsonian being stronger.
- Literacy materials in Smithsonian were discussed as an important element.
- Amplify's online simulator was discussed as a plus by 5th grade teachers.
- Smithsonian's discussion questions were discussed as helpful.
- Inquiry model embedded in both.
- Assessments easier in Smithsonian.



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More Findings



NEW HAVEN PUBLIC SCHOOLS

| Smithsonian | Amplify |
|--|---|
| <ul style="list-style-type: none"> Adopted by several CT districts (CREC, Orange, Brookfield). CREC says “easy to use, nice at home component”, Brookfield says “teachers can integrate standards, professional development second to none, students build on their learning through collaboration with others,” Claims, evidence & reasoning prominent, scoring rubrics for multiple assessments. Company more responsive, adjustments for district needs. Includes NGSS training. Perpetual technology. Video training, at home resources. Includes links to multicultural Smithsonian resources. Supports for low level readers. Reading level more appropriate for students, including in Spanish. Pacing matches NHPS guidelines (100 - 120 min/week) 15-17 30-40 min lessons/unit. | <ul style="list-style-type: none"> Adopted by NYC, “Through readings, digital simulations, promoted discussions, and its own hands-on activities, Amplify’s curriculum emphasizes “evidence-based learning’ and making students “investigators” of science,” Some pushback on screen dependency Has some clearer teacher organizers. (pacing, assessments, powerpoints). Lots of support materials. Includes optional teacher power points. Unique phenomena/engaging unit questions. Technology dependent Easy to switch to Spanish. More literacy (but at higher levels). Longer units/lessons (20 lessons @ 60 min each gr 2-5 per unit) |

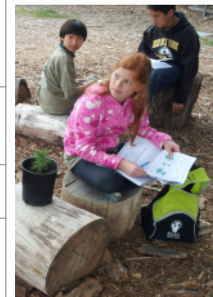
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Itemized Costs



NEW HAVEN PUBLIC SCHOOLS

| | Amplify | Smithsonian | FOSS |
|---|-----------------------|-----------------------|-----------------------|
| 450 grade sets of kits (single use) plus extras | \$2,787,632.79 | \$2,580,173.65 | \$2,552,157.00 |
| 3-use kit set | | \$3,006,550.17 | |
| 1 yr refurbish | \$354,648.00 | \$250,724.98 | \$204,970.00 |
| 1yr license renewal (after 7/8 yrs) | \$39,300.00 | unlimited license | \$43,200.00 |
| Training | | 134 equivalent days | |
| Total 2022 | \$3,142,280.79 | \$2,830,898.63 | \$2,757,127.00 |



Note: Smithsonian kits come with student readers, investigation notebooks/activity guides. Quotes include extra student readers, extra activity/investigation books, low level readers (Smithsonian only), Spanish components/cards, Spanish readers, Spanish activity books, extra teacher guides, training for teachers.

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Academic Office Recommendation

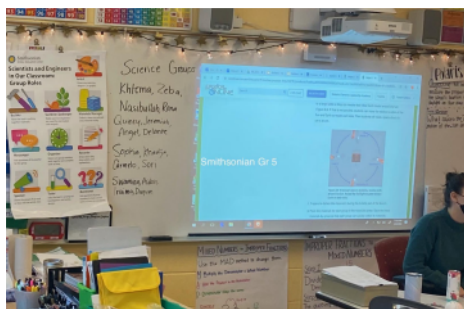
| | Smithsonian |
|--------------------------|-----------------------------|
| K5 Program (4X450 kits) | \$1,905,590 |
| Extra Literacy Materials | \$507,140.25 |
| Extra Spanish Components | \$20,648.89 |
| Technology License | unlimited no renewal needed |
| Training | 147 Equivalent Days |
| 1 yr refurbish | \$236,533.00 |
| Shipping | \$160,986.58 |
| Total 2022 | \$2,830,898.63 |



Note: Smithsonian kits come with student readers, investigation notebooks/activity guides. Quotes include extra student readers, extra activity/investigation books, low level readers, Spanish components/cards, Spanish readers, Spanish activity books, extra teacher guides, training for teachers.



QUESTIONS?





Life Science

Earth and Space Science

Physical Science

Engineering Design

Kindergarten

How Do Living Things Get What They Need From the Environment?*

K-LS1-1 • K-ESS3-1 • K-ESS2-2 • K-ESS3-3

How Can We Prepare for the Weather?*

K-ESS2-1 • K-ESS3-2 • K-PS3-1

How Can We Change an Object's Motion?*

K-PS2-1 • K-PS2-2 • K-2-ETS1-3

How Can We Stay Cool in the Sun?*

K-PS3-1 • K-PS3-2 • K-2-ETS1-1 • K-2-ETS1-2 • K-2-ETS1-3

Grade 1

How Do Living Things Stay Safe and Grow?

1-LS1-1 • 1-LS1-2 • 1-LS3-1 • K-2-ETS1-1

How Can We Predict When the Sky Will Be Dark?

1-ESS1-1 • 1-ESS1-2 • 1-PS4-2

How Can We Light Our Way in the Dark?

1-PS4-2 • 1-PS4-3 • 1-LS1-1 • K-2-ETS1-1

How Can We Send a Message Using Sound?

K-2-ETS1-1 • K-2-ETS1-2 • K-2-ETS1-3 • 1-PS4-1 • 1-PS4-4

Grade 2

How Can We Find the Best Place for a Plant to Grow?

2-LS2-1 • 2-LS2-2 • 2-LS4-1 • K-2-ETS1-1

What Can Maps Tell Us About Land and Water on Earth?

2-ESS2-2 • 2-ESS2-3 • 2-PS1-1

How Can We Change Solids and Liquids?

2-PS1-1 • 2-PS1-2 • 2-PS1-3 • 2-PS1-4 • K-2-ETS1-1

How Can We Stop Soil From Washing Away?

K-2-ETS1-1 • K-2-ETS1-2 • K-2-ETS1-3 • 2-ESS1-1 • 2-ESS2-1

Grade 3

What Explains Similarities and Differences Between Organisms?

3-LS1-1 • 3-LS3-1 • 3-LS3-2 • 3-LS4-2 • 3-ESS2-2

How Do Weather and Climate Affect Our Lives?

3-ESS2-1 • 3-ESS2-2 • 3-ESS3-1 • 3-5-ETS1-1

How Can We Predict Patterns of Motion?

3-PS2-1 • 3-PS2-2 • 3-PS2-3 • 3-PS2-4 • 3-5-ETS1-1

How Can We Protect Animals When Their Habitat Changes?

3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3 • 3-LS2-1 • 3-LS4-1 • 3-LS4-3 • 3-LS4-4

Grade 4

How Can Animals Use Their Senses to Communicate?

4-LS1-1 • 4-LS1-2 • 4-PS4-2 • 4-PS4-3 • 3-5-ETS1-1

What Is Our Evidence That We Live on a Changing Earth?

4-ESS1-1 • 4-ESS2-1 • 4-ESS2-2 • 4-ESS3-2 • 4-PS4-1 • 3-5-ETS1-1

How Does Motion Energy Change in a Collision?

4-PS3-1 • 4-PS3-2 • 4-PS3-3 • 4-LS1-1 • 3-5-ETS1-1

How Can We Provide Energy to People's Homes?

3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3 • 4-PS3-2 • 4-PS3-4 • 4-ESS3-1

Grade 5

How Can We Predict Change in Ecosystems?

5-LS1-1 • 5-LS2-1 • 5-PS1-1 • 5-PS3-1

How Can We Use the Sky to Navigate?

5-ESS1-1 • 5-ESS1-2 • 5-PS2-1 • 3-5-ETS1-1

How Can We Identify Materials Based on Their Properties?

5-PS1-1 • 5-PS1-2 • 5-PS1-3 • 5-PS1-4 • 5-LS1-1

How Can We Provide Freshwater to Those in Need?

3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3 • 5-ESS2-1 • 5-ESS2-2 • 5-ESS3-1

*Working titles. Final modules available 2021.



Menu of Professional Development Opportunities

The chart below lists available professional development sessions. During your partnership planning meeting, select from these options to customize your professional development progression.

| Implementation | Advancing | Sustaining |
|--|--|--|
| Trainer of Trainers: Program Components, Philosophy, 5E Model, Pedagogy, and Teaching Strategies | Trainer of Trainers: NGSS, Engineering Design, and Authentic Assessments | Trainer of Trainers: Seminars by Experts (attend a workshop at a state or regional conference) |
| Science and Literacy Strategies—Using Informational Text | Implementing—Self-Assessment | NGSS 3-Dimensional Learning Model Lessons: Beginning & Intermediate |
| Content-Specific Background and Misconceptions | Engineering Design | Advanced Content Knowledge |
| Authentic Notebooking | Interactive Notebooking | Assessing Through Notebooks |
| Inquiry and Argument (CER) | Evidence-Based Conclusions | Engineering Projects |
| Differentiation Strategies | Meeting the Needs of All Students | How to Assess Projects |
| Science and Mathematics Integration Strategies | Use of Informational Text to Assess Learning | Use of Informational Text to Assess Learning |
| Materials Management Strategies | Cooperative Grouping | Classroom Management Strategies |
| Seamless Technology—Using CarolinaScienceOnline.com | Technology Updates | Technology Updates |
| Curriculum Mapping—Unit Pacing and Lesson Planning | Lesson Planning—Integrating Science Instruction with Math and Literacy | Lesson Planning with Additional Resources |
| Administrator Training—Program Implementation, Best Practices in Inquiry-Based Science Instruction | Administrator Training—Assessing NGSS Science | Administrator Training—Time Management and Inquiry-Based Science Instruction |

For more information about professional development, contact us at curriculum@carolina.com