Considerations for Implementing the Illinois Learning Standards for Science (Next Generation Science Standards)

Intended Audience: Teachers, Administrators, Professional Development Coordinators

Description: This rubric helps teachers and school districts determine the level of implementation of the Illinois Learning Standards for Science. Based on 23 specific components, this document can be used as a guide to drive the shifts necessary to achieve full implementation of the new science standards adopted statewide in 2014. The tool has been developed in two main categories—Teacher Implementation Components describing what the phases of implementation look like in the classroom and District Implementation Components describing what the phases of implementation should look like at the school/district level. Please note that in this document Illinois Learning Standards for Science refers to the Next Generation Science Standards, as Illinois adopted the NGSS verbatim.

This document includes:

- How to read and use the implementation guide
- Danielson Framework for Teaching
- Classroom Implementation Components
- District Implementation Components
- Classroom and District Full Implementation Condensed Guides

Suggested Use for these Documents:

- to serve as a reflective tool for teachers to determine what classroom and curricular changes need to occur for alignment to the new standards
- to communicate to stakeholders the characteristics of a fully aligned classroom, school or district
- to direct professional learning considerations for teachers and school districts
- to help develop materials for workshops/professional learning by Professional Learning Coordinator

Send Questions and Comments to: ilclassrooms@gmail.com

Reading the Implementation Guide

Identifies the component of implementation described by that row of the tool

Identifies which implementation tool you are currently viewing (the classroom implementation tool or the district implementation tool)

Illustrates the connection to a particular domain of the Danielson Framework

Illinois Learning Standards for Science: Classroom Implementation Components			
Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
1. Primary Resources Resources: NGSS Source Documentation Framework for K-12 Science Education	The teacher has read, references when appropriate, and bases their instruction on the Next Generation Science Standards (NGSS) and appendices, A Framework for K-12 Science Education, Evidence Statements and other associated official documentation.	The teacher is familiar with the NGSS standards for their grade level, but not familiar with how their piece fits in the big picture, or does not understand the goals and architecture of the standards.	The teacher is aware that these documents are there to support the transition to full implementation, but has not had the opportunity to fully examine their contents.

Live links to resources that support that component of implementation

Descriptions of what this component of implementation could look like at the different levels of implementation

Charlotte Danielson's FRAMEWORK FOR TEACHING

DOMAIN 1: Planning and Preparation

1a Demonstrating Knowledge of Content and Pedagogy
- Content knowledge • Prerequisite relationships • Content pedagogy

1b Demonstrating Knowledge of Students
- Child development • Learning process • Special needs
- Student skills, knowledge, and proficiency
- Interests and cultural heritage

1c Setting Instructional Outcomes
- Value, sequence, and alignment • Clarity • Balance
- Suitability for diverse learners

1d Demonstrating Knowledge of Resources
- For classroom • To extend content knowledge • For students

1e Designing Coherent Instruction
- Learning activities • Instructional materials and resources
- Instructional groups • Lesson and unit structure

1f Designing Student Assessments
- Congruence with outcomes • Criteria and standards
- Formative assessments • Use for planning

DOMAIN 2: The Classroom Environment

2a Creating an Environment of Respect and Rapport
- Teacher interaction with students • Student interaction with students

2b Establishing a Culture for Learning
- Importance of content • Expectations for learning and behavior
- Student pride in work

2c Managing Classroom Procedures
- Instructional groups • Transitions
- Materials and supplies • Non-instructional duties
- Supervision of volunteers and paraprofessionals

2d Managing Student Behavior
- Expectations • Monitoring behavior • Response to misbehavior

2e Organizing Physical Space
- Safety and accessibility • Arrangement of furniture and resources

DOMAIN 4: Professional Responsibilities

4a Reflecting on Teaching
- Accuracy • Use in future teaching

4b Maintaining Accurate Records
- Student completion of assignments
- Student progress in learning • Non-instructional records

4c Communicating with Families
- About instructional program • About individual students
- Engagement of families in instructional program

4d Participating in a Professional Community
- Relationships with colleagues • Participation in school projects
- Involvement in culture of professional inquiry • Service to school

4e Growing and Developing Professionally
- Enhancement of content knowledge and pedagogical skill
- Service to the profession

4f Showing Professionalism
- Integrity/ethical conduct • Service to students • Advocacy
- Decision-making • Compliance with school/district regulations

DOMAIN 3: Instruction

3a Communicating With Students
- Expectations for learning • Directions and procedures
- Explanations of content • Use of oral and written language

3b Using Questioning and Discussion Techniques
- Quality of questions • Discussion techniques • Student participation

3c Engaging Students in Learning
- Activities and assignments • Student groups
- Instructional materials and resources • Structure and pacing

3d Using Assessment in Instruction
- Assessment criteria • Monitoring of student learning
- Feedback to students • Student self-assessment and monitoring

3e Demonstrating Flexibility and Responsiveness
- Lesson adjustment • Response to students • Persistence

Illinois Learning Standards for Science: Classroom Implementation Components			
Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
1. Primary Resources  Resources: NGSS Source Documentation Framework for K-12 Science Education NGSS Evidence Statements	The teacher has read, references when appropriate, and bases their instruction on the Next Generation Science Standards (NGSS) and appendices, *A Framework for K-12 Science Education*, Evidence Statements and other associated official documentation.	The teacher is familiar with the NGSS standards for their grade level, but not familiar with how their piece fits in the big picture, or does not understand the goals and architecture of the standards.	The teacher is aware that these documents are there to support the transition to full implementation, but has not had the opportunity to fully examine their contents.
2. Scientific and Engineering Practices  Resources: NGSS Science and Engineering Practices NGSS Nature of Science	Students are using the Scientific and Engineering Practices (SEPs) daily to learn content, solve problems and explain phenomena, and in the process are reflecting the true nature of scientific inquiry.	Students engage in the SEPs occasionally during coursework, or may not use them to explain phenomena. Student activity may or may not reflect the true nature of scientific inquiry.	Students mainly engage in SEPs during laboratory activities. Labs are predetermined by the teacher; everyone follows the same procedure and arrives at the same destination. Labs are not student-led investigations, and do not reflect the true nature of scientific inquiry.
3. Crosscutting Concepts  Resources: NGSS Cross Cutting Concepts	Students regularly use the lens of the Crosscutting Concepts (CCCs) to tie together the content and practices of what they are learning, observing and Investigating in the classroom.	Efforts are made to link to the CCC in most coursework, although some activities lack explicit connections or don't use the CCCs as a unifying strand to tie content and practices together.	CCCs are not explicitly connected to instruction or aren't used to tie together content and practices.

Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
4. Disciplinary Core Ideas  Resources: NGSS Architecture NGSS DCI Progressions	The teacher uses the Illinois Learning Standards for Science's Disciplinary Core Ideas (DCIs) as a guide for developing instruction in all courses, accommodating DCI progressions for increasing sophistication of student thinking.	The teacher uses the Illinois Learning Standards for Science's DCIs as a guide for developing instruction in most courses, though they may not all be aligned to a DCI or accommodate progressions for increasing sophistication of student thinking.	The teacher does not use the Illinois Learning Standards for Science's DCIs as a guide for developing instruction, and does not accommodate progressions for increasing sophistication of student thinking.
5. Performance Expectations  Resources: NGSS Architecture NGSS PE Bundles	All students are responsible for showing mastery of all the Performance Expectations (PEs), which form the assessable component of the standards. Students are interacting with the SEPs, DCIs and CCCs of the performance expectations as a sign of three-dimensional learning. PEs are used to guide the assessment of what students should be able to do by the end of that class or grade level. The educator may take the liberty of using more than one unit to fully address a PE as deemed necessary, or address multiple PEs in a unit through "bundling".	Students are sometimes required to show mastery of the PEs while engaging in the SEPs, CCCs, and DCIs, or may not show mastery of all performance expectations as advised by the "all students all standards" criteria of the Illinois Learning Standards for Science. Teachers may structure coursework to complete a performance expectation in a single lesson, rather than the broader context for which they are intended.	Performance expectations are used as a guide for instruction in the classroom, but not as an assessable component. By the end of instruction, students have not met the minimum competency of the standard, nor have they engaged in the three-dimensional attributes of the performance expectation.

Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
6. Students engage in explaining phenomena and designing solutions.  Resources: NGSS Phenomena	The science curriculum focuses on engaging students with meaningful phenomena or problems that can be explained or solved through the application of SEPs, CCCs, and DCIs. The teacher uses anchoring phenomena as a tool to drive student questioning, and investigative phenomena to build evidence for explanation of the anchoring phenomena.	Science instruction makes use of phenomena to drive learning in some, but not all units. Students do not consistently use SEP's, DCI's and CCC's to explain phenomena, or phenomena may be used as a discrepant event without further explanation.	The science curriculum focuses on disconnected topics, with content treated as an end unto itself. No effort is made to place content within the context of phenomena.
7. Equity  Resources: NGSS All Standards for All Students	The teacher ensures that the "all standards for all students" vision of the NGSS is implemented in their classroom and at the forefront of curricular decisions. Course sequence and content are organized with the diversity of student groups in mind, and efforts are made to differentiate instruction to accommodate all students using appropriate researched methods. The teacher uses three-dimensional learning and engaging phenomena creating shared experiences and discussions which promote equity in science education.	The teacher considers student background when selecting course sequence and content, but may not facilitate the learning of diverse student groups, or may not be knowledgeable of effective differentiation methods. Classes may or may not meet the "all standards for all students" vision of the NGSS. The teacher is inconsistent in their use of three-dimensional learning and engaging phenomena to address inequity in their classroom.	The teacher does not consider the diverse background of the student population when planning instruction, or has no methods for differentiation. The "all standards for all students" vision of the NGSS is unfulfilled.

Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
8. K–12 science education reflects three-dimensional learning  Resources: NGSS Three Dimensional Learning	The teacher provides learning experiences that promote student use of SEPs, CCCs, and DCIs with the goal that students are actively engaged in explaining phenomena or solving problems.	The teacher sometimes provides learning experiences that promote student use of SEPs, CCCs, and DCIs with the goal that students are actively engaged in explaining phenomena or solving problems. The learning experiences may include SEP and DCIs, but lack explicit connections to CCCs.	The science learning environment provides discrete facts and concepts in science disciplines, with limited application of practices or the interconnected nature of the disciplines. Where crosscutting themes were included, they were implicit and not noticed or used by the student.
9. Assessment  Resources: Developing Assessments for NGSS	The teacher consistently selects and designs assessments that are congruent with how learning occurs in the classroom. Students engage in all three dimensions of science as they demonstrate their level of mastery. The teacher consistently provides constructive feedback based on assessment data to guide students to meet the goals of the PEs.	The teacher sometimes selects and designs assessments that are congruent with how learning occurs in the classroom, although students may not consistently engage in all three dimensions of science as they demonstrate their level of mastery. The teacher provides constructive feedback based assessment data to guide students to meet the goals of the PEs, though not on a consistent basis.	The teacher infrequently selects and designs assessments that are congruent with how learning occurs in the classroom, and students aren't always engaged in all three dimensions of science as they demonstrate their level of mastery. The teacher seldom provides constructive feedback based assessment data to guide students to meet the goals of the PEs.

Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
10. Instructional Materials  Resources: EQuIP Rubric PEEC Document	The teacher has reviewed alignment of all coursework material to the appropriate DCI progression of the Illinois Learning Standards for Science, consistently evaluates their own materials for alignment and has sought out aligned materials from reputable sources. In addition, the teacher has utilized the PEEC and/or NGSS EQuIP Rubric to evaluate new or current instructional materials for alignment the Illinois Learning Standards for Science.	The teacher has reviewed coursework material for alignment and may have integrated some aligned materials from reputable sources, but hasn't fully modified their own materials and hasn't consistently utilized the PEEC and/or NGSS EQuIP Rubric to evaluate new or current instructional materials for alignment the Illinois Learning Standards for Science.	The teacher has not reviewed their own coursework material, nor have they sought out or implemented aligned materials from reputable sources. The teacher hasn't utilized the PEEC and/or NGSS EQuIP Rubric to evaluate new or current instructional materials for alignment the Illinois Learning Standards for Science.
11. The NGSS incorporate engineering design and the nature of science as SEPs and CCCs.  Resources: NGSS Engineering Design NGSS Nature of Science	The science learning environment incorporates learning experiences that include the DCIs of engineering design as well as the SEPs and CCCs of both engineering and the nature of science, with both included in assessments. Both engineering design and the nature of science are taught in an integrated manner with science disciplines.	Efforts have been made to integrate engineering design and the nature of science into classwork in a supporting role to the content. Some activities still present them as stand-alone concepts.	The science learning environment includes engineering design and the nature of science as supplemental or as disconnected from science learning (e.g., design projects that do not require science knowledge to complete successfully), with neither included in assessments.

Component and Supporting Resources	Full Implementation	Partial Implementation	Beginning Implementation
12. College, Career, and Citizenship Preparation  Resources: NGSS College and Career Readiness	Lessons and units are designed to develop scientific literacy in students, explicitly connecting science instruction to college and career readiness. The curriculum prepares students for post-secondary education and careers through a combination of rigorous content and application of practices.	Instruction is designed to reinforce scientific literacy outside the classroom, but it does not occur in every unit, nor does it always explicitly connect to college and career readiness. Courses and their content do not fully prepare students for post-secondary education or careers.	Few connections between science and college, occupations and citizenship are made in instruction. The application of scientific literacy outside the classroom is not reinforced.
13. Connections to English Language Arts and Mathematics  Resources: NGSS Architecture	The curriculum provides science learning experiences for students that explicitly connect to mathematics and ELA learning in meaningful and substantive ways and that provide broad and deep conceptual understanding in all three subject areas.	Attempts are made at connecting science to other disciplines explicitly, but not in every unit or activity.	The curriculum provides siloed science knowledge that students learn in isolation from reading, writing, and arithmetic.
14. Vertical Articulation: SEPs, DCIs, and CCCs build coherent learning progressions from kindergarten to grade 12.  Resources: ILLINOIS LEARNING STANDARDS FOR SCIENCE DCI Progression Framework for K-12 Science Education	The science curriculum provides learning experiences for students that develop a coherent progression of knowledge and skills from elementary through high school. The teacher uses the foundational documents to check for coherence between their own courses and the courses before and after to ensure the content builds towards increasing sophistication of student thinking as presented in the Illinois Learning Standards for Science.	The science curriculum provides learning experiences for students that develop a coherent progression of knowledge and skills in most courses, but may not be fully aligned in each content area.	The science curriculum lacks coherence in knowledge and experiences; provides repetitive, discrete knowledge that students memorize at each grade level; the courses often miss essential knowledge that has to be filled at later grade-levels.

New Illinois Learning Standards for Science: District Implementation Components			
Component	Full Implementation	Partial Implementation	Beginning Implementation
1. Equity and Access	District administration ensures that all K-12 students experience quality science instruction by allocating adequate time and resources to students of all backgrounds and abilities. The district provides and monitors appropriate course sequence and content to support the needs of diverse learners.	District leaders have established a course sequence and content to support diverse learners, but does not monitor its effectiveness, nor support continued refinement with allocation of time and resources.	The district leaves course content selection to teachers, and plays no part in ensuring equity in instruction beyond teacher evaluation.
2. Management	District leadership effectively manages Illinois Learning Standards for Science implementation through explicit planning, timelines and creation of a district wide implementation team that includes teachers. The district assesses course materials, develops course sequences and seeks out quality professional learning for teachers.	District leaders have created an implementation plan with input from teachers. The implementation plan suggests course sequence or course materials, but doesn't include professional development considerations.	District leaders have no implementation plan to transition to Illinois Learning Standards for Science. Teachers are left to implement the standards in their classrooms as they see fit, with no district wide guidance.

Component	Full Implementation	Partial Implementation	Beginning Implementation
3. Professional Learning for Teachers	School leaders understand the shifts of the Illinois Learning Standards for Science, and select appropriate ongoing professional learning for their teachers. Quality professional learning is aligned to the district science plan, supports instructional changes, illustrates Illinois Learning Standards for Science in the classroom and provides opportunity for active reflection.	School leaders are familiar with the Illinois Learning Standards for Science and its shifts, but may lack in-depth understanding. Professional learning is aligned to the district science plan, but may not meet the implementation needs of specific classrooms, and may not address the shifts.	School leaders are not familiar with the shifts in the Illinois Learning Standards for Science. Professional learning is selected on the recommendation of outside agencies, or left to the teacher to seek out. Professional learning is not aligned to the district science plan, and may not support the specific implementation needs of the teachers.
4. Instructional Materials	District leaders recognize the need for high quality Illinois Learning Standards for Science aligned instructional materials, while realizing that they are not well supported by current textbooks. District leaders use criterion-based tools (EQuIP/PEEC) to evaluate curricular materials alongside teachers, and support educators as they modify their own materials.	District leaders recognize the need for high quality Illinois Learning Standards for Science aligned materials, but rely on teachers to make those determination in their individual classrooms. Criterion based tools are recommended to teachers, but not implemented on a district wide basis.	District leaders rely on educational publishers to choose their instructional materials, and may adopt them system-wide. Alignment beyond publisher recommendation is not evaluated using criterion-based tools. The lack of quality resources is not recognized, and teachers are not supported in efforts to modify their own materials.
5. Assessments	The district has implemented common rigorous, aligned, three-dimensional assessments for each grade level to accurately measure student performance of the Illinois Learning Standards for Science.	The district is developing or in the process of implementing common rigorous, aligned, three-dimensional assessments for each grade level to accurately measure student performance of the Illinois Learning Standards for Science.	The district is considering the development and implementation of common rigorous, aligned, three-dimensional assessments for each grade level to accurately measure student performance of the Illinois Learning Standards for Science.

Component	Full Implementation	Partial Implementation	Beginning Implementation
6. School Structures	District leaders, in tandem with teachers, develop course scope and sequence based on the Illinois Learning Standards for Science. The scope and sequence aligns to the pathways of the Illinois Learning Standards for Science, and provides developmentally appropriate coursework that builds coherently K-12, engaging all students in all standards.	District leaders develop a scope and sequence, but may or may not involve teachers in the process. Courses may or may not be developmentally appropriate and coherent, and some performance expectations may not be covered.	District leaders are not involved in the development of scope and sequence. Teachers incorporate standards into their current course sequence where possible, but the Illinois Learning Standards for Science learning pathways and coherency are not considered. Significant performance expectations are missed.
7. Communication	District leaders make a concerted effort to communicate the shifts of the Illinois Learning Standards for Science and the plan for transition to both district and community stakeholders. Implementation timelines are developed and shared, and changes to instruction and assessment are communicated clearly and consistently. Avenues for feedback from in-district personnel and community members are created and maintained.	District leaders communicate the shifts of the Illinois Learning Standards for Science and the transition plan to stakeholders, but only passively through methods like newsletters or emails. No avenues for feedback are created or maintained, and communication is not consistent.	District leaders make no specific effort to communicate the shifts of the Illinois Learning Standards for Science or the plan to transition. District communication only occurs within departments rather than across grades/buildings, and may only happen on school improvement days or faculty meetings. Community members are made aware by teachers, or when changes in assessment occur.

Component	Full Implementation	Partial Implementation	Beginning Implementation
8. Collaboration	Districts encourage and facilitate communication and collaboration between educators within their district as well as educators in other districts, and partners with external organizations where appropriate to support implementation. Districts provide time and structure to plan and coordinate instruction and implementation, and seek out input from outside voices.	Districts support collaboration by providing time for departments to meet, but does not provide structure or guidance. Departments are not encouraged to collaborate outside the district.	District leaders leave implementation decisions to individual classrooms, and do not promote or facilitate intra or inter-district communication or collaboration. Partnerships with external organizations are not investigated or acted on.
9. Student Outcomes	District leaders identify and implement effective methods and indicators to measure student performance and three dimensional learning. Student data is used as a source to evaluate Illinois Learning Standards for Science implementation, College and Career Readiness and underserved subgroup performance.	Student performance in science is measured district wide and evaluated within departments, though conclusions may not be drawn and applied to the entire district. Three dimensional learning is assessed, however the data is not used to reflect on Illinois Learning Standards for Science implementation.	Student performance in science is not evaluated consistently and systematically across the district. Individual classrooms assess science content knowledge, but not necessarily in a three-dimensional context. No connection to the Illinois Learning Standards for Science implementation is evaluated, and data from assessments is not used to modify district-wide instruction.

Foundational Documents for the Implementation Guide:

The Classrooms in Action implementation guide was developed from a wide range of resources, and draws on the expertise of teachers, educators and researchers who have worked to create standards and accompanying documentation from the *Framework for K-12 Science Education*. Of particular use for this document were the *Guide to Implementing NGSS* from the National Research Council and the *NGSS District Implementation Indicators* from Achieve, as well as the NGSS standards themselves. The Classrooms in Action Implementation guide has tried to reflect the strategies, ideas and indicators for implementing the new standards found in these documents, while condensing them and creating a more user friendly rubric format that ties to the Danielson Framework. For a more in depth look at the foundation documentation, follow the links below.

Framework for K-12 Science Education: https://www.nap.edu/catalog/13165/a-framework-for-k-12-science-education-practices-crosscutting-concepts

The Next Generation Science Standards: https://www.nextgenscience.org/

Conceptual Shifts in NGSS: https://www.nextgenscience.org/sites/default/files/Appendix%20A%20-%204.11.13%20Conceptual%20Shifts%20in%20the%20Next%20Generation%20Science%20Standards.pdf

Guide to Implementing the Next Generation Science Standards: https://www.nap.edu/catalog/18802/guide-to-implementing-the-next-generation-science-standards

NGSS District Implementation Indicators:
http://www.nextgenscience.org/sites/default/files/NGSS%20District%20Implementation%20Indicators%20-%20FINAL.pdf

EQuIP Rubric: https://www.nextgenscience.org/sites/default/files/EQuIP%20Rubric%20for%20Science%20v2.pdf

PEEC Rubric: https://www.nextgenscience.org/sites/default/files/Draft_PEEC-Alignment%20May%202015.pdf

Full Implementation Components for Teachers-Condensed Guide

A fully implemented classroom has the following characteristics for each component:

1. **Primary Resources:** The teacher has read, references when appropriate, and bases their instruction on the Next Generation Science Standards (NGSS) and appendices, A Framework for K-12 Science Education, Evidence Statements and other associated official documentation.
2. **Science and Engineering Practices:** Students are using the Scientific and Engineering Practices (SEPs) daily to learn content, solve problems and explain phenomena, and in the process are reflecting the true nature of scientific inquiry.
3. **Crosscutting Concepts:** Students regularly use the lens of the Crosscutting Concepts (CCCs) to tie together the content and practices of what they are learning, observing and Investigating in the classroom.
4. **Disciplinary Core Ideas:** The teacher uses the Illinois Learning Standards for Science's Disciplinary Core Ideas (DCIs) as a guide for developing instruction in all courses, accommodating DCI progressions for increasing sophistication of student thinking.
5. **Performance Expectations:** All students are responsible for showing mastery of all the Performance Expectations (PEs), which form the assessable component of the standards. Students are interacting with the SEPs, DCIs and CCCs of the performance expectations as a sign of three-dimensional learning. PEs are used to guide the assessment of what students should be able to do by the end of that class or grade level. The educator may take the liberty of using more than one unit to fully address a PE as deemed necessary, or address multiple PEs in a unit through "bundling".
6. **Students Engage in Explaining Phenomena and Designing Solutions:** The science curriculum focuses on engaging students with meaningful phenomena or problems that can be explained or solved through the application of SEPs, CCCs, and DCIs. The teacher uses anchoring phenomena as a tool to drive student questioning, and investigative phenomena to build evidence for explanation of the anchoring phenomena.
7. **Equity:** The teacher ensures that the "all standards for all students" vision of the NGSS is implemented in their classroom and at the forefront of curricular decisions. Course sequence and content are organized with the diversity of student groups in mind, and efforts are made to differentiate instruction to accommodate all students using appropriate researched methods. The teacher uses three-dimensional learning and engaging phenomena creating shared experiences and discussions which promote equity in science education.
8. **Three Dimensional Learning:** The teacher provides learning experiences that promote student use of SEPs, CCCs, and DCIs with the goal that students are actively engaged in explaining phenomena or solving problems.

9. **Instructional Materials:** The teacher has reviewed alignment of all coursework material to the appropriate DCI progression of the Illinois Learning Standards for Science, consistently evaluates their own materials for alignment and has sought out aligned materials from reputable sources. In addition, the teacher has utilized the PEEC and/or NGSS EQuIP Rubric to evaluate new or current instructional materials for alignment the Illinois Learning Standards for Science.
10. **Engineering Design and the Nature of Science:** The science learning environment incorporates learning experiences that include the DCIs of engineering design as well as the SEPs and CCCs of both engineering and the nature of science, with both included in assessments. Both engineering design and the nature of science are taught in an integrated manner with science disciplines.
11. **College and Career Readiness:** Lessons and units are designed to develop scientific literacy in students, explicitly connecting science instruction to college and career readiness. The curriculum prepares students for post-secondary education and careers through a combination of rigorous content and application of practices.
12. **Connections to Math and ELA:** The curriculum provides science learning experiences for students that explicitly connect to mathematics and ELA learning in meaningful and substantive ways and that provide broad and deep conceptual understanding in all three subject areas.
13. **Vertical Articulation:** The science curriculum provides learning experiences for students that develop a coherent progression of knowledge and skills from elementary through high school. The teacher uses the foundational documents to check for coherence between their own courses and the courses before and after to ensure the content builds towards increasing sophistication of student thinking as presented in the Illinois Learning Standards for Science.

Full Implementation Components for Districts-Condensed Guide

A fully implemented school district has the following characteristics for each component:

1. **Equity and Access:** District administration ensures that all K-12 students experience quality science instruction by allocating adequate time and resources to students of all backgrounds and abilities. The district provides and monitors appropriate course sequence and content to support the needs of diverse learners.
2. **Management:** District leadership effectively manages Illinois Learning Standards for Science implementation through explicit planning, timelines and creation of a district wide implementation team that includes teachers. The district assesses course materials, develops course sequences and seeks out quality professional learning for teachers.
3. **Professional Learning for Teachers:** School leaders understand the shifts of the Illinois Learning Standards for Science, and select appropriate ongoing professional learning for their teachers. Quality professional learning is aligned to the district science plan, supports instructional changes, illustrates Illinois Learning Standards for Science in the classroom and provides opportunity for active reflection.
4. **Instructional Materials:** District leaders recognize the need for high quality Illinois Learning Standards for Science aligned instructional materials, while realizing that they are not well supported by current textbooks. District leaders use criterion-based tools (EQuIP/PEEC) to evaluate curricular materials alongside teachers, and support educators as they modify their own materials.
5. **Assessments:** The district has implemented common rigorous, aligned, three-dimensional assessments for each grade level to accurately measure student performance of the Illinois Learning Standards for Science.
6. **School Structures:** District leaders, in tandem with teachers, develop course scope and sequence based on the Illinois Learning Standards for Science. The scope and sequence aligns to the pathways of the Illinois Learning Standards for Science, and provides developmentally appropriate coursework that builds coherently K-12, engaging all students in all standards.
7. **Communication:** District leaders make a concerted effort to communicate the shifts of the Illinois Learning Standards for Science and the plan for transition to both district and community stakeholders. Implementation timelines are developed and shared, and changes to instruction and assessment are communicated clearly and consistently. Avenues for feedback from in-district personnel and community members are created and maintained.
8. **Collaboration:** Districts encourage and facilitate communication and collaboration between educators within their district as well as educators in other districts, and partners with external organizations where appropriate to support implementation. Districts provide time and structure to plan and coordinate instruction and implementation, and seek out input from outside voices
9. **Student Outcomes:** District leaders identify and implement effective methods and indicators to measure student performance and three dimensional learning. Student data is used as a source to evaluate Illinois Learning Standards for Science implementation, College and Career Readiness and underserved subgroup performance.