

Iowa City Community School District

SCIENCE SELF STUDY

May 12, 2025

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**IOWA CITY COMMUNITY
SCHOOL DISTRICT**

All In for All Kids

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CURRICULUM REVIEW PROCESS

The Iowa City Community School District curriculum review process provides a systematic procedure to study existing curriculum areas and programs relative to internal and external standards as well as data from the curricular program.

Each year, at the district-wide level, a self-study committee is appointed for the areas under study for that particular school year. A curriculum review self-study committee has three primary tasks:

1. Review and affirm or modify the program's mission statement.
2. Analyze relevant data related to the program.
3. Use the data analysis to determine program strengths and limitations, and develop a recommended action plan based on that analysis.

External standards utilized extensively by the self-study committee included state and national curriculum standards such as the K-12 Iowa Academic Standards for Science. The Iowa City Community School District's Comprehensive Diversity, Equity, and Inclusion Plan was also used as an internal standard for the work of the team.

Science Self-Study Committee: Over sixty people have served on the Science Self-Study Committee. Committee members included community members, a member of the ICCSD Board of Directors, professors from the University of Iowa Science Education Department, elementary and secondary science teachers, teacher librarians, ELL teachers, members of the Equity team, and administrators from the central office, elementary schools, middle schools, and high schools.

Applications to participate on the self-study team were sent to district families in Spring of 2024 and were reviewed in Fall of 2024. The application process followed ICCSD School Board policy by including an item on the application process that read: "According to board policy, 'to the extent possible, advisory committee membership shall have balanced representation with regard to race, color, national origin, sex, disability, religion, creed, age, marital status, sexual orientation, gender identity, and socioeconomic status.'"

The self-study committee met in person on three separate occasions. Committee members were also given opportunities to provide feedback or ask questions outside of those meetings.

In addition to the tasks enumerated above, the self-study team analyzed and revised the survey questions that were used to gather input about the science program. The analysis of the data was used to create the Science Improvement Plan.

PROGRAM MISSION, BELIEFS, AND GOALS

As a result of the curriculum review process, the self-study team reviewed the ICCSD Science Mission statement, belief statements, and goals that had been adopted in the previous program review. They were revised and they will serve as a reference for all programming.

Mission Statement

The mission of elementary science education in the ICCSD is to empower students to collaborate and gather evidence about science phenomena in the world, by using scientific inquiry, in order to help solve the evolving challenges of our local and global communities.

The mission of science education in the Iowa City Community School District is to empower students to think critically, collaborate with others, and actively explore the world through scientific inquiry to investigate real-world phenomena. By gathering and analyzing evidence, students will be equipped to understand complex scientific concepts and contribute to solving the evolving challenges facing both our local and global communities.

Belief Statements

- We believe all students are capable of developing deep scientific understanding through active engagement and NGSS-style three-dimensional learning through real-world phenomena.
- We believe critical thinking and evidence-based reasoning are essential skills for all learners in preparing to solve real-world challenges.
- We believe collaboration and communication are foundational to meaningful scientific exploration and problem-solving.
- We believe diverse perspectives and inclusive practices enrich scientific inquiry and foster equitable learning environments.
- We believe students learn science best by doing science—through questioning, investigating, analyzing, and reflecting.

Academic Achievement Goals

- Students will demonstrate the ability to think critically and use scientific reasoning to analyze data, draw conclusions, and construct explanations grounded in evidence across all science content areas.
- Students will collaboratively engage in scientific investigations by asking questions, designing experiments, gathering and interpreting data, and communicating their findings effectively.
- Students will apply scientific knowledge to real-world problems, making connections between classroom learning and both local and global issues, demonstrating civic and

environmental responsibility.

- Students will achieve proficiency in the use of science and engineering practices as outlined in the Iowa Academic Standards for Science, preparing them for postsecondary opportunities and STEM careers.
- Students will engage in learning environments where everyone's participation and ideas are valuable

OVERVIEW OF PROGRAM ANCHOR STANDARDS

Anchor standards refer to fundamental learning objectives or benchmarks that provide a foundation for curriculum development and educational assessment across grade levels and subjects. These standards, articulated in the Iowa Academic Standards for Science educational frameworks, outline essential skills, knowledge, and abilities that students are expected to acquire and demonstrate as they progress through their education.

Iowa Academic Standards For Science (Released In Early May 2025)

- [Iowa Academic Standards for Science](#)
- Priority standards for ICCSD will be posted on the district website and other district resources.

PROGRAM SURVEY DATA

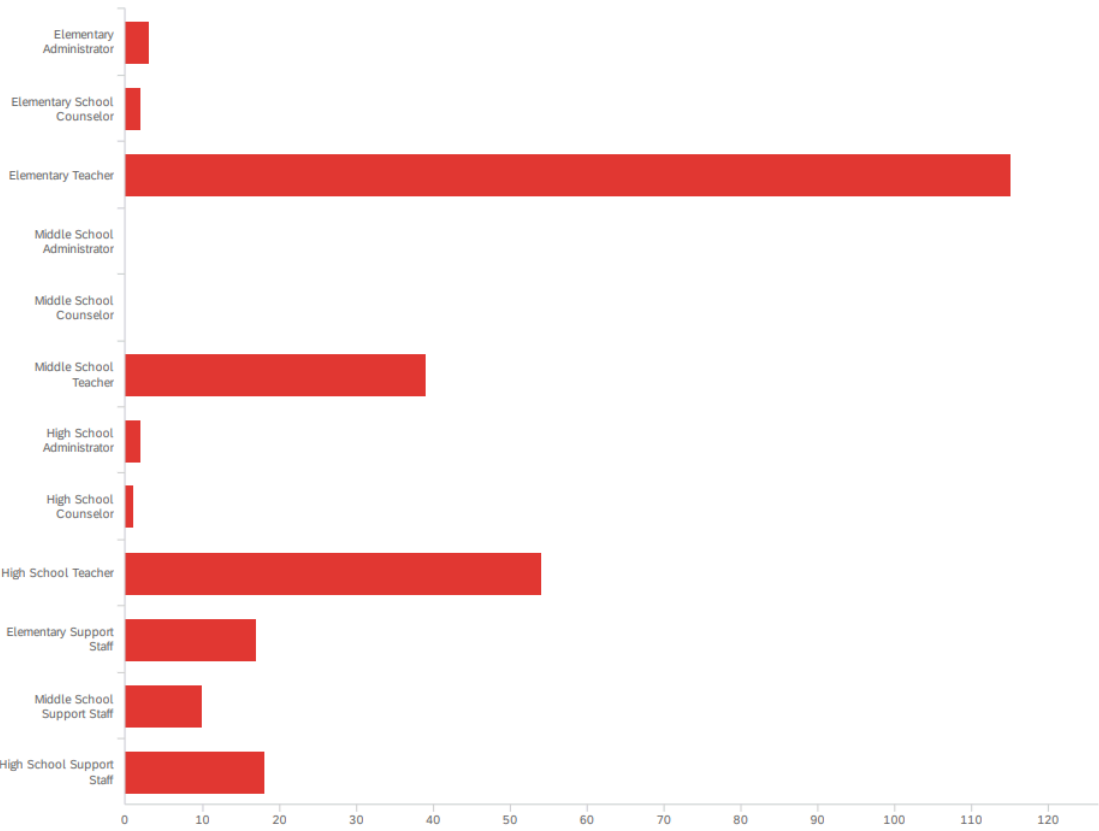
Numerous survey instruments were developed and administered in the winter of 2025. Target groups included teachers, principals, parents/guardians, community members, and students at the elementary and secondary levels. The purpose of the surveys was to identify program strengths and limitations in the areas of academic achievement; curriculum and instruction; and support and management. Respondents were asked to react to a set of statements identifying whether or not they agreed or disagreed. They were also allowed to make comments.

The survey included the following topics:

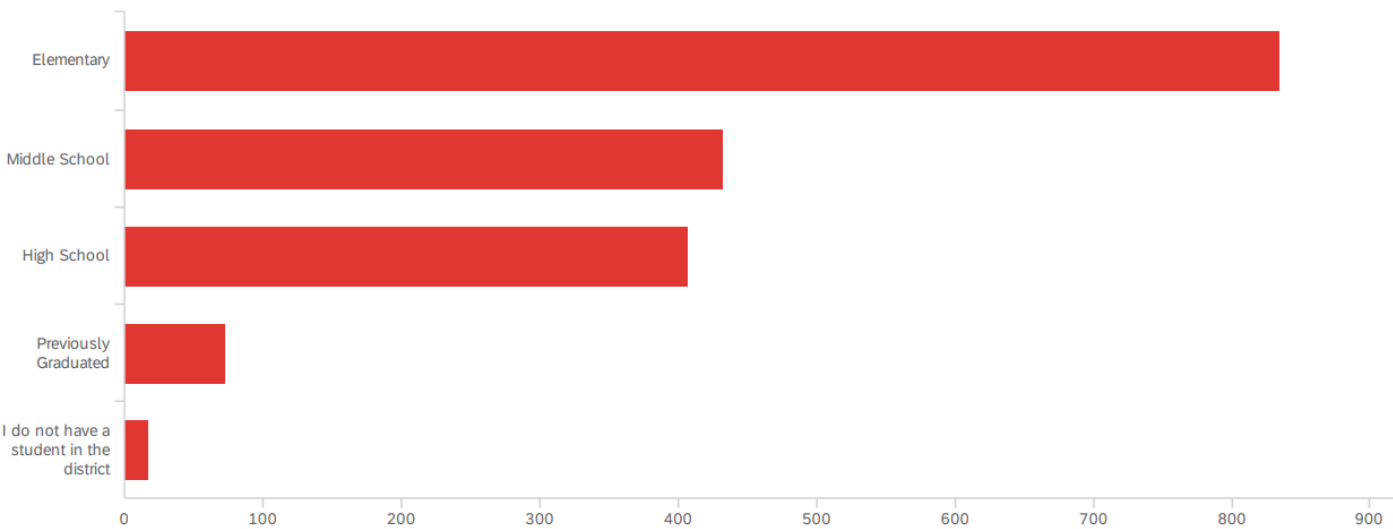
- [Staff Science Data](#)
- [Community/Family Science Data](#)

The survey window was February, 3rd, 2025 through February, 11th, 2025. Email invitations were sent to families/community members and staff members. Students from various schools participated in focus groups in grades 4-12. The link was anonymous and not tied to an individual. Qualtrics was used to ensure accessibility and provide translations.

STAFF SCIENCE DATA PARTICIPATION TOTALS:



SURVEY PARTICIPATION TOTALS



Student Participation Information

Representative classes from across the district participated in focus groups in grades 4-12.

PROGRAM STRENGTHS

The following information was generated from a review and analysis of data gathered from surveys and feedback from elementary teachers, students, parents, and administrators. The information addresses the perceived strengths of the Science Program as determined by the survey and feedback results.

Program Strengths Identified By Staff Survey Results:

The science program across the district is marked by strong hands-on, inquiry-based instruction that actively engages students and builds critical thinking and problem-solving skills. Students show high levels of interest in science, particularly through hands-on experiments and activities that connect to real-world applications. Teachers are dedicated, collaborative, and well-supported with professional development and access to high-quality resources, textbooks, and online tools. The curriculum is well-aligned with state and NGSS standards and includes structured lesson plans, rigorous AP and honors courses, and integration of computer science and technology. Overall, the program is well-resourced, standards-driven, and designed to meet the diverse needs of all learners.

Program Strengths Identified By Community/Family Survey Results:

Feedback from stakeholders highlights several key strengths of the district's science program. Teachers are seen as passionate, knowledgeable, and deeply committed to student learning. Instruction emphasizes hands-on, experiential learning through labs and activities that actively engage students and promote critical thinking. The curriculum is research-based, age-appropriate, and aligned to important scientific principles, with strong vertical alignment from elementary through high school. A broad range of course offerings, including AP and accelerated options, supports both foundational learning and advanced exploration. Additionally, the program is praised for promoting equity and inclusion by incorporating diverse perspectives and addressing historical and social contexts within science.

PROGRAM LIMITATIONS AND RECOMMENDATIONS

The Science Program Improvement plan outlines action steps aimed at addressing the perceived program limitations generated from review and analysis of survey and feedback results.

Program Limitations Identified By Staff And Improvement Plan

Staff feedback reveals several limitations within the current science program. Time constraints remain a significant challenge, with science instruction often reduced or replaced by other subjects, particularly in elementary grades. The existing curriculum is viewed as outdated and lacking in relevance, with a call for more inquiry-based, hands-on experiences. Teachers report a lack of training, resources, and preparation time, which contributes to inconsistent implementation and inequitable student experiences—particularly for all multilingual students and English Language Learners and students receiving special education services. Additionally, instruction and assessments are often too focused on memorization rather than deeper thinking, application, and skill development.

1. **Identified area for improvement:** Increase Science Instruction Time (Focused on Elementary)

Recommended action: Ensure dedicated, protected time for science in all grades by integrating it more intentionally into daily academic schedules especially in elementary while also focusing on High Reliability Schools (HRS).

- a. HRS Connection:
 - i. Level 1 (Safe and Collaborative Culture): Develop shared expectations and norms across buildings for protected science time.
 - ii. Level 2 (Effective Teaching in Every Classroom): Use time effectively by aligning science instruction with evidence-based practices.

2. **Identified area for improvement:** Update and Modernize Curriculum

Recommended action: Adopt engaging, Iowa Academic Standards for Science-aligned curricula with relevant, hands-on, and phenomena-based experiences. Prioritize materials that include NGSS-style three-dimensional learning and real-world phenomena.

- a. HRS Connection:
 - i. Level 2 (Effective Teaching in Every Classroom): Ensure the curriculum supports effective teaching practices in every classroom.
 - ii. Level 3 (Guaranteed and Viable Curriculum): Provide all students access to the same high-quality, aligned materials.

3. **Identified area for improvement:** Invest in Professional Learning

Recommended action: Provide ongoing, job-embedded training and collaborative planning time for all science educators with additional focuses on phenomena-based learning, science storylines, and 3D assessments. Build teacher capacity through instructional coaching, peer observation, and professional development opportunities.

- a. HRS Connection:
 - i. Level 2 (Effective Teaching in Every Classroom): Ensure teachers continuously refine instruction through high-quality professional learning.
 - ii. Level 4 (Standards Referenced Reporting): Support teachers in using data to inform instruction and feedback.

4. **Identified area for improvement:** Promote Equity and Access

Recommended action: Utilizing HRS level 3, science will standardize expectations across schools and provide additional support for multilingual students, English Language Learners, and students receiving special education services to access the content meaningfully.

- a. HRS Connection:
 - i. Level 3 (Guaranteed and Viable Curriculum): Guarantee access to a viable curriculum for all students, regardless of background or ability.
 - ii. Level 1 (Safe and Collaborative Culture): Foster inclusive classroom cultures that honor diverse learners.

5. **Identified area for improvement:** Strengthen Assessment Practices

Recommended action: Shift focus from rote memorization to performance-based tasks and proficiency scales that reflect critical thinking and problem-solving skills.

- a. HRS Connection:
 - i. Level 4 (Standards Referenced Reporting): Use standards-referenced grading and reporting to support clarity and growth.
 - ii. Level 2 (Effective Teaching in Every Classroom): Use data from assessments to refine teaching strategies.

PROGRAM LIMITATIONS IDENTIFIED BY COMMUNITY/FAMILY AND IMPROVEMENT PLAN

Community/family limitations acknowledge the enthusiasm for more hands-on and applied learning, expanded course offerings, and stronger communication. There are some practical limitations identified as: limited instructional time due to competing priorities and disparities in building-level resources. Also noted is the idea of balancing equity across schools. Additionally, instructional shifts—such as integrating project-based learning or revising assessment practices—necessitate sustained professional development and curriculum alignment.

1. **Identified area for improvement:** Expand Hands-On and Applied Learning

Recommended action: Increase access to labs, experiments, project-based learning, and field trips. Embed phenomena-based and hands-on experiences into student learning allowing time and resources for consistent implementation of lab-based learning across schools.

a. HRS Connection:

- i. Level 2 (Effective Teaching in Every Classroom): Ensure instructional practices are active and inquiry-driven in all classrooms.
- ii. Level 3 (Guaranteed and Viable Curriculum): Standardize access to project-based learning opportunities across the system.

2. **Identified area for improvement:** Strengthen Communication and Transparency

Recommended action: Improve family understanding of science curriculum and student progress.

a. HRS Connection:

- i. Level 1 (Safe and Collaborative Culture): Foster strong school-family partnerships.
- ii. Level 4 (Standards Referenced Reporting): Ensure clear communication of student progress.

3. **Identified area for improvement:** Expand and Diversify Course Offerings

Recommended action: Increase access to specialized and advanced science courses.

a. HRS Connection:

- i. Level 3 (Guaranteed and Viable Curriculum): Ensure all students have access to rigorous learning pathways.
- ii. Level 5 (Competency-Based Education): Offer personalized, interest-driven course options.

4. **Identified area for improvement:** Promote Access

Recommended action: Increase science course enrollment across buildings and student groups.

- a. HRS Connection:
 - i. Level 3 (Guaranteed and Viable Curriculum): Ensure access to high-quality curriculum and instruction.
 - ii. Level 1 (Safe and Collaborative Culture): Create environments that support all learners.

5. **Identified area for improvement:** Modernize Assessment and Feedback Practices

Recommended action: Shift from memorization to performance-based, standards-aligned science assessments. Develop common proficiency scales and potential performance tasks for each grade level. Provide professional development on formative assessment practices.

- a. HRS Connection:
 - i. Level 4 (Standards Referenced Reporting): Align assessment practices with standards-referenced reporting.
 - ii. Level 2 (Effective Teaching in Every Classroom): Use assessment data to inform and improve instruction.

6. **Identified area for improvement:** Invest in Early Science Foundations

Recommended action: Prioritize science in elementary grades by protecting time allotments. Provide elementary educators with high quality instructional materials and appropriate levels of professional learning.

- a. HRS Connection:
 - i. Level 3 (Guaranteed and Viable Curriculum): Ensure all students receive accessible and equitable science instruction starting in early grades.
 - ii. Level 2 (Effective Teaching in Every Classroom): Strengthen instructional quality through professional learning.

7. **Identified area for improvement:** Support Teachers with Resources and Professional Learning

Recommended action: Ensure educators have the materials and training needed to facilitate high-quality science instruction.

- a. HRS Connection:
 - i. Level 2 (Effective Teaching in Every Classroom): Develop effective teaching in every classroom.
 - ii. Level 4 (Standards Referenced Reporting): Support instructional alignment through coaching and feedback.

PROGRAM SUMMARY CONCLUSION

In conclusion, the science curriculum self-study report serves as a comprehensive reflection on the strengths, challenges, and opportunities within our educational program. Through data analysis and targeted discussions, the review team identified areas of success where student learning outcomes align closely with our intended curriculum objectives. Simultaneously, the team acknowledged areas for growth, where targeted interventions and enhancements can further optimize student engagement and achievement. Moving forward, our commitment to the continuous cycle of improvement and a Guaranteed and Viable science curriculum will be guided by evidence-based instructional practices, collaborative work in Professional Learning Communities, Collaborative Teams and yearly revisions and modifications to the Science Priority Standards and program scope and sequence.

RESOURCES

1. [Meeting #1 Slides & Agenda](#)
2. [Meeting #2 Slides & Agenda](#)
3. [Meeting #3 Slides & Agenda](#)