

Iowa Science Standards

Frequently Asked Questions

What are the Iowa Science Standards?

Iowa recently adopted new science standards that set expectations for what all students in kindergarten through 12th grade should know and be able to do. Iowa's science standards identify science and engineering practices, crosscutting concepts, and content that all K-12 students should master in order to prepare for success in college and 21st century careers. The standards will be phased in beginning with the 2016-17 school year.

Why do state science standards need to be updated?

It has been more than 17 years since the National Research Council and the American Association for the Advancement of Science produced their reports from which most state science standards, including Iowa's, are based. Since then, there have been major advances in science and our understanding of how students learn science.

What process did Iowa follow to adopt the standards?

Iowa's new science standards were adopted by the State Board of Education in August 2015 following a recommendation from an Iowa review team that incorporated scientific expertise and broad public input into a transparent process. Specifically, the review team recommended using the Next Generation Science Standards as the basis for Iowa's science standards. The science standards review was prompted by Governor Branstad's Executive Order 83, which called for an ongoing review of Iowa's academic standards, including public comment.

How were the standards developed?

The science standards were developed through a collaborative state-led process. Twenty-six states, including Iowa, volunteered to work with the 41 members of the writing team to lead the development of the standards. The science supervisors from these state education agencies worked with the writers to provide feedback from their state broad-based committees. These state committees consisted of representatives from the K-12 education, education policy, scientific, postsecondary education, and informal science communities. In addition, a critical stakeholder team, comprised of hundreds of members representing K-12 educators, administrators, higher education faculty, scientists, engineers, business leaders, policymakers, and key organizations, provided confidential feedback at critical points in the development process.

The draft standards also received comments from more than 10,000 individuals during two public review periods. These comments came from teachers, school, and school district discussion groups, scientific societies, parents, and students. The writers used this feedback to make substantial revisions to each draft. The final standards were released in April 2013 and are available for all states to consider adopting and adapting.

Why is science education important, now more than ever?

High-quality science education standards allow educators to teach effectively, moving their practice toward how students learn best – in a hands-on, collaborative, and integrated environment rooted in inquiry and discovery. Iowa's new science standards require thinking and reasoning rather than rote memorization.

The definition of what it means to be “literate” in science continues to grow and now includes the use of technology, critical thinking, and analytical skills. As citizens, we are increasingly asked to make informed decisions on issues ranging from health care to energy policy that affect ourselves, our families, and our communities. Having a deep understanding of scientific concepts and processes and the ability to understand and apply this knowledge is essential.

A strong science education equips students with skills that are necessary for college and all careers – within and beyond STEM (science, technology, engineering, and mathematics) fields. Students need the right foundation to tackle long-term and difficult issues that face our generation and future generations.

How do Iowa’s new science standards address equity?

The standards were built upon a vision for quality science education for ALL students, not just a select few. Our nation’s science teachers are finding that when educators raise expectations and give students the right tools and learning environment, students are capable of remarkable science literacy and achievement.

How will teaching and learning change?

The new science standards have the potential to revolutionize science education. Not only do they incorporate the most current research and findings in science, they also include the most up-to-date research on how students learn.

Classroom instruction based on the standards allows students to engage in science learning not as a memorization of loosely connected facts, but as a holistic understanding of integrated and interrelated concepts. This is one of the biggest shifts compared to previous sets of science standards.

Iowa’s science standards connect scientific principles to real-world situations, allowing for more engaging and relevant instruction that fosters a stronger understanding of complicated topics.

