High School Family Guide

What is the purpose of this family guide?

This guide was made to help families understand the Iowa Academic Standards and to show what students will learn by the end of high school. It provides information about the key ideas and skills teachers will introduce in mathematics, English Language Arts/Reading and science. It also includes possible examples of what students will be asked to do in class, how to help your student at home, questions you can ask your student and questions families can ask the teacher.

This guide was also designed to help families understand how they can work with teachers to support the learning of their high schooler. When teachers and families work together to help students master Iowa's Academic Standards, students can develop the skills they will need for success in school and life. If you have questions about this information or if your student needs extra help, please contact the teacher.

Why are Iowa's Academic Standards Important?

Academic standards are important because they help ensure that all students, no matter where they live or what school they attend, are prepared for success in college and the workforce. The standards help set clear and consistent expectations for what students should know and be able to do from kindergarten through 12th grade.

Standards are a set of goals, not a curriculum, so decisions about teaching remain with local schools. They guide families and teachers to know when students need extra assistance or when they need more of a challenge in the classroom. They also help your student develop critical-thinking skills in preparation for college and career.

English/Language Arts

To become ready for college and career, high school students work independently and confidently to learn to evaluate intricate arguments and surmount the challenges posed by complex written materials. Students expand their literary and cultural knowledge and better understand references and images by reading literature and literary nonfiction of increasing sophistication. They also develop the flexibility, concentration and fluency to produce high-quality first drafts of writing under tight deadlines. They are able to revisit and make improvements to a piece of writing over multiple drafts if needed. High school students master the essential “rules” of standard written and spoken English and resolve usage issues by consulting style and usage guides. By writing and participating in a variety of conversations, they assert and defend claims and show their knowledge of a subject by using appropriate examples and evidence.

What might students be learning in their classroom in connection to the standards?

- Students will be tracking an author’s position, noting if the reasoning is valid and evidence is sufficient. Identifying false statements and reasoning.
- Students will analyze where materials on the same topic disagree. Are the disagreements on matters of fact, interpretation and/or point of view?
- Students will figure out the meaning of unknown words in text by using context, word relationships or tools like dictionaries and glossaries, determining or clarifying the meaning of unknown words, synonyms, antonyms, figures of speech (irony, puns) and words that are similar but not identical (for example, bullheaded, willful, firm, persistent, resolute) based on how they are used in context.
- Students will make and justify a claim in writing or discussion, supporting claims with precise and relevant evidence from credible sources, demonstrating a thorough understanding of the topic or text.
- Students will cite the evidence that most strongly supports an analysis of what is explicitly stated or implied from a book, article, poem, or play.
- Students will show something new they have learned from a text or about a topic. This can be in any form – speaking and conversation, letters, journals, stories, reports, diagrams, or essays – and should include sufficient additional detail that fits the form they have chosen.
- Students will write essays or other papers in response to text, with an introduction and thesis statement; examples that are linked, logically ordered and grouped; a conclusion; and mostly accurate spelling, capitalization and punctuation.

What might my student be learning in their classroom?

- Your student will understand more from and make fuller use of, written materials that include using a wider range of evidence to support an analysis.
- Your student will make more connections about how complex ideas interact and develop within a book, essay, or article.
- Your student will evaluate arguments and specific claims; assess whether the reasoning is valid and the evidence is sufficient; and detect inconsistencies and ambiguities when appropriate.
- Your student will analyze the meaning of foundational U.S. documents (e.g., the Declaration of Independence, the Preamble to the Constitution, the Bill of Rights).
- Your student will write a literary analysis, report or summary that develops a central idea and a coherent focus and is well-supported with relevant examples, facts and details.

- Your student will conduct several research projects that address different aspects of the same topic by using more complex books, articles and other sources.
- Your student will respond thoughtfully to diverse perspectives; synthesize comments, claims and evidence made on all sides of an issue; and resolve contradictions when possible.
- Your student will share research, findings and evidence clearly and concisely, making strategic use of digital media (animations, video, websites, podcasts) to enhance interest in and understanding of findings.
- Your student will determine or clarify the meaning of words and phrases by using multiple strategies such as using context, Greek and Latin roots (bene as in benefactor or benevolent), patterns of words (conceive, conception, conceivable) and consulting specialized reference materials (dictionary, glossary, thesaurus).

What can I do to support my student at home?

- Encourage your student to regularly write, read and use technology to support literacy.
- Set high expectations for your student's learning. Look up college requirements for English language arts/literacy at the college of your student's choice. Make sure he or she is taking any necessary courses in this area.
- Help your student make connections between English language arts/literacy and college and career readiness.
- Help your student see how what they are learning in school connects to their future.

What questions can I ask my student about the learning happening at school?

- What is the most surprising thing that happened in that story?
- How did the setting of the story influence the events?
- What is your essay about? What is the main point you are trying to make?
- Who is the intended audience for this (writing or speech)? How are you adjusting your (writing or speaking) for this audience?
- Did you have any discussion in your class this week that was interesting or from which you learned a lot?
- What would you do differently the next time?

What questions can I ask my student's teacher?

- Talk to your student's teacher regularly and ensure that the teacher and your student have a good relationship.
- Are there specific anchor texts that can support my student with reading comprehension?
- Are there specific texts you would recommend based on my student's interests?
- What text will the class read? How can I support my student with this reading?

Mathematics

High school mathematics marks an important stage where students refine their skills in algebra, geometry, statistics and more advanced topics like trigonometry and calculus. These years are essential for preparing students for college, careers and real-world problem-solving. Your involvement and encouragement can play a key role in supporting their growth and confidence in mathematics.

What might students be learning in their classroom in connection to the standards?

- **Algebra:** Solving and graphing linear, quadratic and exponential equations; working with systems of equations and inequalities.
- **Geometry:** Exploring congruence, similarity and transformations; solving problems involving angles, shapes and theorems like the Pythagorean Theorem.
- **Functions:** Understanding and analyzing linear, quadratic, exponential and trigonometric functions.
- **Statistics and Probability:** Interpreting data, calculating probabilities and analyzing statistical models.
- **Advanced Topics (if applicable):** Pre-calculus concepts, including trigonometry and limits; calculus topics like derivatives and integrals; or real-world applications in STEM fields.

What might my student be learning in their classroom?

- Applying algebraic concepts to solve real-world problems, like calculating rates of change or optimizing solutions.
- Using geometric reasoning to analyze shapes and solve complex problems.
- Exploring various types of functions and how they relate to real-life scenarios, such as growth patterns or financial models.
- Interpreting data through graphs, charts and statistical calculations to make predictions or support arguments.
- Developing problem-solving strategies and critical-thinking skills to tackle complex multi-step problems.

What can I do to support my student at home?

- Help them stay organized by setting aside dedicated study time for mathematics each day.
- Encourage them to explain mathematics problems and solutions out loud to reinforce their understanding.
- Use everyday examples, like budgeting, cooking, or analyzing sports statistics, to connect mathematics concepts to real life.
- Explore mathematics-focused apps or online resources to reinforce skills and provide extra practice.
- Support them in preparing for standardized tests by reviewing practice questions and discussing test-taking strategies.

What questions can I ask my student about the learning happening at school?

- What types of equations or problems are you solving in mathematics right now?
- Can you show me how to graph a function or solve a system of equations?
- What have you learned about shapes, angles, or geometry recently?
- How are you using mathematics to analyze data or make predictions?
- What connections are you finding between mathematics and real life?

What questions can I ask my students' teacher?

- What are the key mathematics skills my student needs to master this year?
- How is my student progressing with foundational concepts like algebra and geometry?
- Are there specific resources or tools you recommend for extra practice?
- How can I support their preparation for college-level mathematics or STEM careers?
- What strategies can I use to help them succeed in advanced topics like calculus or statistics?

Science

The high school Iowa Academic Standards for Science aim to prepare students for college, careers and informed citizenship. These standards focus on helping students deeply understand key scientific concepts, apply scientific practices and make connections across different areas of science.

Rather than memorizing facts, students engage in hands-on investigations, ask questions, develop models and analyze data to explain real-world phenomena. The standards are typically spread across Iowa's three integrated courses used as graduation requirements, with each course building on earlier learning and supporting continued development of science and engineering skills. Supplemental elective courses allow students to explore specific interest areas or career pathways.

By the end of high school, students are expected to demonstrate a strong understanding of core ideas in physical science, life science, Earth and space science and engineering, skills they will use throughout their lives, no matter what career path they choose.

What might students be learning in their classroom in connection to the standards?

High school students enhance their understanding of matter, living organisms, Earth and space by exploring more complex phenomena and developing sophisticated models, arguments, explanations and designs. Compared to middle school, their work integrates more quantitative analysis, establishes clearer connections between microscopic interactions and macroscopic effects and acknowledges the evolving nature of scientific models. Additionally, students deepen their grasp of cellular processes and scientific principles while linking their studies to broader themes, including the nature of science and its relationship to Iowa's industries.

What might my student be learning in their classroom?

What scientists do:
Science and engineering are more than just learning facts—they're about exploring, asking questions and solving problems. In school, students learn by doing science, not just reading about it. They try out the same kinds of things real scientists and engineers do, like asking questions, testing ideas and working with others. This helps them build important skills, think more deeply and understand the world better. When kids get to investigate and figure things out for themselves, it keeps their curiosity growing and prepares them for the future.

How scientists think:
Scientists and engineers use big ideas, called crosscutting concepts, to help them understand the world. These ideas help students make connections between different science topics. Instead of learning facts one by one, students use these big ideas to find patterns, solve problems and better understand how things work. When kids learn to think this way, they get better at asking questions, understanding information and tackling problems like real scientists and engineers.

What scientists know:
Science is always changing and there's too much to cover everything in high school. That's why Iowa's science standards focus on the most important ideas, called disciplinary core ideas. These key concepts come from physical, life and earth sciences and help students build a strong understanding of how the world works. By focusing on these big ideas, students learn deeply and are better prepared to keep learning and exploring science in the future.

What can I do to support my student at home?

Parents play a vital role in supporting their student's science learning at home, especially when aligned with the Iowa Academic Standards for Science. The vision in the standards emphasizes three-dimensional learning, which integrates disciplinary core ideas (what scientists know), science and engineering practices (what scientists do) and crosscutting concepts (how scientists think). At home, parents can nurture curiosity by encouraging students to ask questions about the world around them and helping them explore possible answers through observation, discussion and hands-on investigation. Everyday activities—like cooking, gardening, fixing things, or observing weather patterns—can be opportunities to engage in these practices in meaningful, relevant ways.

Sensemaking is another key element of effective science learning, and parents can support it by prompting their students to explain their thinking, connect new ideas to their prior knowledge and revise their understanding as they gather more evidence. Rather than giving immediate answers, parents can ask open-ended questions like, "What do you think is happening here?" or "What makes you say that?" This helps students build confidence in using reasoning and evidence to make sense of phenomena. By creating a supportive environment that values questioning, exploration and reflection, parents help reinforce the goals of three-dimensional science education and foster deeper, long-lasting scientific understanding.

What questions can I ask my student about the learning happening at school?

- What are you trying to figure out in science class?
- What kinds of activities help you make sense of science phenomena in class?
- What kinds of problems are you trying to solve through engineering in science class?

What questions can I ask my student's teacher?

- What kinds of phenomena is my student going to be making sense of this year?
- How is my student going to be engaging with the practices of science?
- What elective courses are available for my student to move towards a career pathway?