

2026 Science Curriculum Report

Multicultural Aspect

Our adopted curriculum through Amplify, Pearson, HMH, and McGraw Hill, supports multicultural education through diverse examples, real-world case studies, and digital media. The middle school Amplify curriculum includes data and examples from across the country and the world. During each and every unit students read several articles that bring real world phenomena from other countries and cultures into the classroom. In physical science students analyze how current trends affect various ethnicities, socioeconomic statuses and geographic groups.

In biology, students experience cultural perspectives and data from around the world. Case studies and group research projects provide opportunities for students to incorporate all students' views, examine different cultural scientific achievements, and gain a broader world view.

By evaluating authentic, current data our students gain a broader worldview and recognize the importance of the scientific achievements of diverse groups.

What do we want students to learn?

Our instruction aligns our district curriculum with Nebraska's College and Career Ready Standards for Science prioritizing the development of critical thinking through the scientific process. Across these standards (K-12) there is common language referring to gather, analyze and communicate various types of evidence and information based on the course. We work to do this across all of our science courses. This provides students opportunities to develop and improve scientific reasoning and critical thinking skills. To support all of our learners we cultivate inquiry based opportunities, authentic data analysis and real-world problem solving. We continue to develop new lessons in the lab and classroom that bring innovative and relevant learning opportunities to our students.

Our freshman physical science course is our foundational high school science course that exposes students to the core concepts of physics and chemistry. Students build essential skills in data analysis and graphing through bell work, labs and daily instruction. Each unit has a project that requires students to apply their knowledge on calculations and then communicate their findings through the projects. These projects range from creating Element Superheroes, to engineering devices students to safely deliver an egg from the top of the stadium bleachers to the concrete below.

With the new curriculum adoption in biology and applied science, the HMH resources have provided a wider repertoire of labs that emphasize various laboratory methods where students are more actively involved in all aspects of the procedure. The HMH Earth Science curriculum provides a cohesive structure for both semesters of Applied Science. By adopting a hands-on, applied approach, students explore Earth's systems while meeting the Nebraska Science Standards for high school students.

Anatomy and Physiology added a couple new spirometers this year. The spirometers bluetooth to a computer and collect breathing data in real time that students could then analyze. By integrating new technology in the classroom, students can develop higher level science skills needed in this day and age. Students can spend less time constructing the graph and more time analyzing a very accurate graph.

Our advanced science courses (chemistry, physics, anatomy and physiology, and chemistry 2) give students an opportunity to further their scientific knowledge through college prep science courses.

As a department, vertical alignment is essential. We do this by providing students with consistent learning expectation strategies. Additionally, we build upon prior learning to achieve a deeper level of learning and skill building. Additionally, we have developed a plan to help counselors, students, and parents select the appropriate elective science course for students entering their junior year based on reflection of the student's personal passion, purpose, and pathway.

How do we know students are learning?

Students are given a variety of assessments to measure student performance. Some assessments are completed using Canvas Quizzes which provide data profiles per class, student, or question. It also provides the ability for the teacher to provide rapid feedback, targeted reteaching, and retesting opportunities. Throughout the learning sequence, we utilize a variety of assessment strategies such as homework, quizzes, open questioning, lab work observation, collaboration observation, question and answer sessions, reviews, and tests. Another tool to measure student performance is through MAPS, NSCAS, preACT, and ACT data. Our students continually show growth in science testing. We are able to achieve these high scores through the work that we do on a day to day basis and how we check for learning with our students. We will continue to strive for better performances hoping to show an increase in scores year after year.

We continue to grow as teachers and a department working within our PLC groups to improve instruction and assessment. One area we have worked to improve assessment is by discussing ways to align assessment strategies as well as agreeing upon the criteria for specific learning outcomes, such as what a good scientific argument entails

and how we will know it has been achieved. Future PLC meetings will allow us to continue to work on grading and criteria alignment in this area. Our goal is to provide consistent student performance evaluations to support student learning.

Additionally, the science department assesses student learning and instructional effectiveness by developing yearly SLO goals. This affords teachers the opportunity to practice reflective teaching, as we plan, collect data, and evaluate the data of low, average, and high performing students. This allows us to improve, develop and evolve our methods and delivery of instruction.

How do we respond when students are not learning?

We have multiple methods of intervention to help students when they are not learning. One of the many great strengths of our school is that we do not allow many students to slip through the cracks and provide them every opportunity to learn material and grow their understanding of concepts across all curriculum. We utilize the after school GRIP program in which students are referred if they are missing work, needing to make up assignments or having issues with subjects. We also provide times for one-on-one help before school, after school and throughout the course of the day. Another way we help students learn is through differentiation by providing students with different forms of delivery of information. We may use power point, hands on learning, putting students in groups or pairs, labs and online activities. We also keep parent logs and contact parents when students may be struggling or falling behind in classes. These are multiple ways to ensure that students are given every opportunity possible to be successful. As a department we utilize reteaching, remediation opportunities, and test/quiz retakes to provide an opportunity for students to demonstrate learning of material.

How do we extend or enrich the learning for students who exceed proficiency?

We provide a Chemistry II and Biology II courses for students to gain more knowledge and information based on a potential interest of studying these fields or related fields in their post-secondary education. We have also utilized student groups to help students collaborate pairing higher level students with lower level ones in which the higher level student teaches or assists the lower performing student. This is beneficial for both parties as it allows the lower performing student a different angle to learn and allows the higher performing student to get deeper into the material due to the need to teach to the other. There are also some independent projects and enrichment activities for students to do once they have finished the class work or assignments.

Mrs. Kern is working on an advanced degree in Biology through UNK in order to provide a Dual-Enrollment Biology option for students. This will enhance our students' college

readiness and provide students an opportunity to secure an Associates degree with other Kickstart classes.

Other information

The online Amplify resources have shown improvement this year, especially compared to past challenges with student rostering and site overload issues. To address these ongoing concerns, the middle school teacher dedicated significant time to developing supplemental materials that better support both the curriculum and student learning. These additional resources have been well received, with students reporting that they greatly benefited from access to materials that were not previously available. While Amplify's model often relies on a more passive "sit and get" approach, this method has not proven effective for our students. In response, the teacher has consistently adapted and refined supplemental materials each year to better meet student needs, ensuring that instruction remains flexible, engaging, and responsive.

Technology upgrades have been a great benefit for the high school science curriculum. Probeware has been used consistently in the labs and students have been using computer technology to gather data and interpret results. We have secured a grant from the Washington County Community Foundation for three televisions for the science lab. Having televisions in a science lab can be really useful, when they're used intentionally. It's not just about convenience; it actually improves how students see, understand, and engage with scientific concepts. They make demonstrations much clearer. In a lab, not every student can crowd around safely to see a small experiment. Projecting it on a screen lets everyone observe details, like color changes, reactions, or measurements, in real time without safety risk. Another big advantage is modeling procedures. You can project step-by-step lab instructions or a live demo so students can follow along at their stations. This reduces confusion and helps prevent mistakes, especially with more complex or safety-sensitive experiments.

We were also approved for a grant from Keep Nebraska Beautiful to dispose of old chemicals that are either outdated or no longer needed. Keep Nebraska Beautiful will pay for 90% of the chemical disposal and we are responsible for the remainder of the cost. This will allow us to make space for improved chemical storage going forward.