
BIG HOLLOW SCHOOL DISTRICT



SCIENCE CURRICULUM MAP

GRADE K

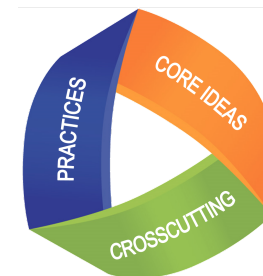
2024-2025

Next Generation Science Standards

The Next Generation Science Standards are based on the Framework for K–12 Science Education developed by the National Research Council.

Advances in the Next Generation Science Standards

- Every NGSS standard has three dimensions: disciplinary core ideas (content), scientific and engineering practices, and cross-cutting concepts. Currently, most state and district standards express these dimensions as separate entities, leading to their separation in both instruction and assessment. The integration of rigorous content and application reflects how science and engineering is practiced in the real world.
- Scientific and Engineering Practices and Crosscutting Concepts are designed to be taught in context – not in a vacuum. The NGSS encourage integration with multiple core concepts throughout each year.
- Science concepts build coherently across K-12. The emphasis of the NGSS is a focused and coherent progression of knowledge from grade band to grade band, allowing for a dynamic process of building knowledge throughout a student's entire K-12 scientific education.
- The NGSS focus on a smaller set of Disciplinary Core Ideas (DCI) that students should know by the time they graduate from high school, focusing on deeper understanding and application of content.
- Science and engineering are integrated into science education by raising engineering design to the same level as scientific inquiry in science classroom instruction at all levels, and by emphasizing the core ideas of engineering design and technology applications.
- The NGSS content is focused on preparing students for college and careers. The NGSS are aligned, by grade level and cognitive demand, with the English Language Arts and Mathematics Common Core State Standards. This allows an opportunity both for science to be a part of a child's comprehensive education as well as ensuring an aligned sequence of learning in all content areas. The three sets of standards overlap and are reinforcing in meaningful and substantive ways.



Disciplinary Core Idea Progression in the NGSS

The NGSS have been developed in learning progressions based on the progressions identified by the grade-band endpoints in the Framework. Short narrative descriptions of the progressions are presented for each disciplinary core idea in each of the traditional sciences. These progressions were used in the college- and career-readiness review to determine the learning expected for each idea before leaving high school.

1. Physical Sciences (PS)
2. Life Sciences (LS)
3. Earth and Space Sciences (ESS)
4. Engineering, Technology, and Applications of Science (ETS)

Scientific and Engineering Practices in the NGSS

The Framework identifies eight science and engineering practices that mirror the practices of professional scientists and engineers. Use of the practices in the performance expectations is not only intended to strengthen students' skills in these practices but also to develop students' understanding of the nature of science and engineering. Listed below are the science and engineering practices from the Framework:

1. Asking questions and defining problems
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Crosscutting Concepts in the NGSS

The Framework also identifies seven Crosscutting Concepts that are meant to give students an organizational structure to understand the world and help students make sense of and connect Core Ideas across disciplines and grade bands. They are not intended as additional content. Listed below are the Crosscutting Concepts from the Framework:

1. Patterns
2. Cause and Effect
3. Scale, Proportion, and Quantity
4. Systems and System Models
5. Energy and Matter in Systems
6. Structure and Function
7. Stability and Change of Systems

Connection to Standards Based Grading

Teachers at Big Hollow have worked to unpack and understand more deeply the learning targets that align with our goals of students grasping key mathematical concepts. Through this work teachers have prioritized standards, created learning targets, and developed proficiency scales aligned with each prioritized standard. This work enables learning to be more visible for student learning and allows students to be reflective learners. By students engaging in reflective practice they will be able to more accurately determine where they are in relation to the learning journey and

develop goals to continue to improve their mastery of skills. These proficiency scales are linked below, as well as on our Teaching and Learning page. This is the “rubric” teachers use to report final grades.

Grade K Scope & Sequence

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Unit _:
Approximate Time Frame:

DESIRED RESULTS		
Content Standards:	Essential Questions:	Essential Vocabulary:
Priority Standards:		
Crosscutting Concepts in NGSS:		
Science and Engineering Practices		
Acquisition		
Knowledge and Understanding:	Skills:	
<i>Students will know and understand...</i> •	<i>Students will be skilled at (be able to do)...</i> •	
Assessments		
☐ Pre-Assessment ☐ Checks for Understanding	☐ Summative Assessment ☐ Performance-Based Task	

