

Science

Fifth Grade



Fifth Grade Science Curriculum Overview

The [Indiana Academic Standards](#) define what students should know, understand, and be able to do at grade level beginning in kindergarten and progressing through grade twelve. These standards serve as the foundation to our curriculum in Noblesville Schools but are not a curriculum on their own. The Indiana Academic Standards are supported through grade-level curriculum maps and a selection of curriculum materials to support these maps. These curriculum maps and materials are aligned to the Indiana Academic standards while also meeting the needs of all learners. Therefore, the Noblesville Schools' curriculum is constantly undergoing periodic and systematic analysis and revision.

The Indiana Academic Standards for Grades K-12 Science are based on *A Framework for K-12 Science Education* (NRC, 2012) and the Next Generation Science Standards (NGSS Lead States, 2013). The K-12 Science Indiana Academic Standards outline the knowledge, science, and engineering practices that all students should learn by the end of high school. The standards are three-dimensional because each student performance expectation engages students at the nexus of the following three dimensions:

- **Dimension 1** describes scientific and engineering practices.
- **Dimension 2** describes crosscutting concepts, overarching science concepts that apply across science disciplines.
- **Dimension 3** describes core ideas in the science disciplines.

The content area standards and the types of learning experiences they provide to students in fifth grade are described below. These fifth grade standards are supported in Noblesville Schools through curriculum materials for science instruction, including *Inspire Science by McGraw Hill*.

Science

Fifth Grade



Inspire Science

Inspire Science by McGraw Hill serves as the primary core curriculum material for all fifth grade learners and provides alignment with the Indiana Academic Standards for Fifth Grade Science.

Table 1: Fifth Grade Inspire Science

Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 1: Investigate Matter	Consider how the properties of matter and its interactions with other matter apply to designing a recipe for the perfect pancake. Observe and produce data to identify materials based on their properties. Students will use mathematical and computational thinking to determine if mixing substances causes a change in mass. Plan and carry out investigations to determine if mass is conserved after matter undergoes a chemical or physical change. Use models to show the scale and organization of particles in matter. Investigate how the arrangement of particles affect the properties of matter.	(Big Idea) What do we need to know about matter to use it to solve problems? What are the properties of matter? What happens when different materials are mixed together? How does matter change when it interacts with other matter? What are the differences between solids, liquids, and gases?

Science

Fifth Grade



Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 2: Ecosystems	Module 1: Learn about different types of matter in ecosystems and how the types of matter interact. Support an argument that most of the mass of a plant is obtained from water and air and not from the soil. Use models to show the relationships between living things in an ecosystem. Use models to understand the role of decomposers and their place in an ecosystem. Module 2: Use models to understand how energy flows within an ecosystem. Use a model to identify matter on Earth as part of Earth's systems. Develop and use models of how matter cycles through ecosystems. Be able to explain how these cycles affect the ecosystems. Develop and use models to show how energy is transferred through an ecosystem.	Module 1: (Big Idea) How does matter cycle between the living and nonliving parts of an ecosystem? What do plants need to survive? What happens when different materials are mixed together? What is the role of decomposers in an ecosystem? Module 2: (Big Idea) How is energy from the sun essential for life on Earth? What are Earth's major systems? How does matter cycle in ecosystems? How is energy transferred in ecosystems?

Science

Fifth Grade



Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 3: Earth's Interactive Systems	Module 1: Understand the effects humans have on Earth's water sources as well as location and amount of water on Earth's surface. Use mathematics to graph the amounts of usable fresh water on Earth. Explain the positive and negative impact that humans can have on water resources. Develop and use models to show how the hydrosphere interacts with Earth's other systems. Module 2: Develop and use models to show how Earth's major systems interact. Develop and use models to show how the geosphere interacts with Earth's other systems. Develop and use models to show how the atmosphere interacts with Earth's other systems. Develop and use models to show how the biosphere interacts with Earth's other systems.	Module 1: (Big Idea) How can we collect water to conserve water resources? What types of water features are on Earth's surface? How do humans impact Earth's water? How does the hydrosphere interact with Earth's other systems? How does the biosphere interact with other systems? Module 2: (Big Idea) How do Earth's systems interact with one another? How does the geosphere interact with other systems? How does the atmosphere interact with other systems?

Science

Fifth Grade



Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 4: Earth and Space Patterns	Module 1: Gain an understanding of the role of gravity in relation to patterns of the Earth and Moon. Support an argument that gravity causes objects to be pulled towards the center of Earth. Model the movement of Earth in relationship to other objects in space. Module 2: Apply their understanding of Earth's patterns and knowledge of the Sun and other star's distance from Earth to design a model of a constellation. Explain Earth's location within the universe. Support an argument that some stars appear brighter than others due to their relative distances.	Module 1: (Big Idea) What patterns are caused by Earth's movements? What pulls objects down? How does Earth move through space? Module 2: (Big Idea) What causes different stars to appear during different seasons throughout the year? Where is Earth located in space? What causes some stars to be brighter than others?