

Science

First Grade



First 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 first grade are described below. These first grade standards are supported in Noblesville Schools through curriculum materials for science instruction, including *Inspire Science by McGraw Hill*.

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Inspire Science

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

Table 1: First 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: All About Plants	Module 1: Learn how plant structures help plants live. Make observations of plants to construct explanations of their external parts and how their structures help them to survive. Make observations of plants to construct explanations of their external parts and how plant structures are related to their functions and help them survive. Module 2: Develop the understanding that plants have almost identical structures to their parents and that these structures help the plants survive. Construct explanations about patterns found when exploring plants and their offspring. Analyze and interpret data about how a plant's structure and function helps it survive and grow.	Module 1: (Big Idea) What are the functions of common plant structures? What patterns can you find between different plants? What do plant structures do? Module 2: (Big Idea) How do plants grow and survive? How are plants similar and different from their offspring? How do plants use their parts to meet their needs?

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Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 2: Animals and How They Communicate	Module 1: Develop the understanding of animals. Learn about their structures and functions, traits that are passed down, and ways animals behave that help them survive. Construct explanations about the structure and function of animal body parts. Explore the structure and function of animal body parts to construct explanations about how animals and their young survive. Construct explanations about the patterns of animals and their offspring to identify similarities and differences. Explore patterns in behaviors that animals exhibit and communicate their understanding. Module 2: Develop an understanding of how animals communicate. Learn specifics of how sounds are made. Use observations and text to obtain information and learn about patterns of animal communication that help them survive. Learn the relationship between sound and vibration.	Module 1: (Big Idea) How do animal body parts help them survive? What structures do animals have? What are the functions of different animal body parts? How are animals similar to and different from their offspring? How does an animal's behavior help it to survive? Module 2: (Big Idea) How does sound help animals communicate? How do animals communicate? How are sounds made?

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Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 3: Light and Shadows	Explore the interaction of light and materials. Learn that light illuminates, passes through some objects, and casts shadows. Make observations and construct explanations to observe what causes objects to be seen when illuminated. Carry out investigations to determine the effect of placing objects in the path of a beam of light. Begin to construct explanations and design solutions for people who use modern technology to communicate over a distance.	(Big Idea) What happens when light hits an object? Do we need light to see? How does light interact with materials? How do we use light to communicate?

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Science Unit and Module(s) Pacing Varies By Unit	Science Unit Learning Outcomes Learners will...	Science Unit Big Idea and Essential Questions
Unit 4: Sky Patterns	Observe long and short term patterns in the sky. Identify the objects in the sky and make observations about what objects are present during the day and night. Make observations and predict patterns of day and night. Recognize patterns that occur over several days, weeks, or months.	(Big Idea) What patterns can be observed in the sky? When can we see different objects in the sky? What are the day and night patterns? What long-term patterns exist during the year?