INDIANA DEPARTMENT of EDUCATION

2024 INDIANA CONTENT CONNECTORS

SCIENCE

GRADE 1

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Indiana Content Connectors Context and Purpose

Introduction

The Indiana Content Connectors for Grade 1 Science are the result of a process designed to identify, evaluate, synthesize, and create high-quality learning expectations for Indiana students with significant cognitive disabilities.

The Indiana Department of Education (IDOE) convened stakeholder committees to review proposed revisions to Indiana's Alternative Standards, known as content connectors. The content connectors are designed to measure the knowledge and skills of students with the most significant cognitive disabilities and are assessed with the state's alternate assessment. The content connectors are designed to ensure that all Indiana students in this population are prepared with essential knowledge and skills needed to access employment, enrollment, or enlistment leading to service.

What are the Content Connectors and how should they be used?

The Indiana Content Connectors are designed to help educators, parents, students, and community members understand the necessary content for each grade level, and within each content area domain, to access employment, enrollment, or enlistment leading to service. These content connectors should form the basis for strong core instruction for all students at each grade level and content area. The content connectors identify the minimum academic content or skills to which Indiana students need access in order to be prepared for success after graduation, but they are not an exhaustive list.

While the Indiana Content Connectors establish key expectations for knowledge and skills and should be used as the basis for curriculum, the content connectors by themselves do not constitute a curriculum. It is the responsibility of the local school corporation to select and formally adopt curricular tools, including textbooks and any other supplementary materials, that align with Indiana Content Connectors. Additionally, corporation and school leaders should consider the appropriate instructional sequence of the content connectors as well as the length of time needed to teach each one. Every content connector has a unique place in the continuum of learning, but each content connector will not require the same amount of time and attention. A deep understanding of the vertical articulation of the standards will enable educators to make the best instructional decisions. These content connectors must also be complemented by robust, evidence-based instructional practices to support overall student development. By utilizing strategic and intentional instructional practices, other areas such as STEM and employability skills can be integrated with the content connectors.

Acknowledgments

IDOE appreciates the time, dedication, and expertise offered by Indiana's K-12 general and special educators, higher education professors, representatives from business and industry, families, and other stakeholders who contributed to the development of the Indiana Content Connectors. We wish to specially acknowledge the committee members, as well as participants in the public comment period, who dedicated many hours to the review and evaluation of these content connectors designed to prepare Indiana students for success after graduation.

Grade 1 Science

Standards and content connectors identified as essential for mastery by the end of the grade level are indicated with gray shading and an "E."

Indiana Academic Standards	Content Connectors
Waves and their Applications in Technologies for Information Transfer	
1-PS4-1: Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.] (E)	**1-PS4-1a:** Plan an investigation to provide evidence that vibrating materials can make sound. (E)
	1-PS4-1b: Plan an investigation to provide evidence that sound can make materials vibrate. (E)
1-PS4-2: Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]	**1-PS4-2a:** Make observations to support a claim that objects are only visible when illuminated.

1-PS4-3: Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).]	**1-PS4-3a:** Conduct an investigation to observe the effects of placing objects made with different materials in the path of a beam of light.
1-PS4-4: Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.]	**1-PS4-4a:** Identify a problem related to communication over a distance and generate potential solutions to address it.
From Molecules to Organisms: Structures and Processes	
1-LS1-1: From Molecules to Organisms: Structures and Processes Students who demonstrate understanding can: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.] (E)	**1-LS1-1a:** Match a human solution (e.g., winter coat) with an external structure (e.g., fur) used to help an animal survive. (E) **1-LS1-1b:** Match a human solution (e.g., digging a well) with an external structure (e.g., roots) used to help a plant survive. (E)

1-LS1-2: From Molecules to Organisms: Structures and Processes Students who demonstrate understanding can: Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]	**1-LS1-2a:** Identify behaviors between parents and offspring that help the offspring survive (e.g., keeping offspring safe from predators).
Heredity: Inheritance and Variation of Traits	
1-LS3-1: Heredity: Inheritance and Variation of Traits Students who demonstrate understanding can: Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and a particular breed of dog looks like its parents but is not exactly the same.]	**1-LS3-1a:** Identify a similarity or difference in an external feature between young animals or plants and their parents.
	1-LS3-1b: Make observations of patterns in features between young animals or plants and their parents.
Earth's Place in the Universe	
1-ESS1-1: Earth's Place in the Universe Students who demonstrate understanding can: Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.]	**1-ESS1-1a:** Use observations of the sun, moon, and stars to make predictions about future patterns.

1-ESS1-2: Earth's Place in the Universe Students who demonstrate understanding can: Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] (E)	**1-ESS1-2a:** Use observations to compare the relative amount of daylight during different seasons (winter, spring, summer, fall). (E)
Engineering Design	
K-2ETS1-1: Engineering Design Students who demonstrate understanding can: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	**1-ETS1-1a:** Make observations and gather information to define a simple problem that can be solved through the development of a new or improved object or tool.
K-2ETS1-2: Engineering Design Students who demonstrate understanding can: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	**K-2-ETS1-2a:** Use simple sketches, drawings, or physical models of an object to identify the relationship between the shape of the object and how it functions to solve a problem.
K-2ETS1-3: Engineering Design Students who demonstrate understanding can: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	**K-2-ETS1-3a:** Compare the strengths and weaknesses of two objects designed to solve the same problem.