

## Alignment with Minnesota's Science Standards

This document evaluates the state's Education Standards for Science to determine alignment with content found in Cogno board games. Grades 3-8 were analyzed.



### Highlighting Key

Indicates a significant amount of material addresses the standard

Indicates a moderate amount of material is present to develop student understanding of the standard

Grade Level	Strand	Sub-Strand	Standard	Benchmarks
GRADE 3	I. HISTORY AND NATURE OF SCIENCE	A. Scientific World View	The student will understand the use of science as a tool to examine the natural world.	1. The student will explore the use of science as a tool that can help investigate and answer questions about the environment.
GRADE 3	I. HISTORY AND NATURE OF SCIENCE	B. Scientific Inquiry	The student will understand the nature of scientific investigations.	1. The student will ask questions about the natural world that can be investigated scientifically.
GRADE 3	II. PHYSICAL SCIENCE	C. Energy Transformation	The student will explore the characteristics and properties of sound and light.	1. The student will investigate how sounds are made when objects vibrate. 2. The student will know that light tends to maintain its direction of motion until it is absorbed, refracted, or reflected by an object.
GRADE 3	III. EARTH AND SPACE SCIENCE	C. The Universe	The student will understand the characteristics and relationships of objects in the solar system.	2. The student will identify the planets in the solar system and their relative sizes, distances and basic characteristics. 3. The student will observe that the sun supplies heat and light to the Earth. 4. The student will know that planets look like stars, but over time they move differently than stars.

Grade Level	Strand	Sub-Strand	Standard	Benchmarks
GRADE 4	I. HISTORY AND NATURE OF SCIENCE	A. Scientific World View	The student will understand how science is used to investigate interactions between people and the natural world.	<p>1. The student will explore the uses and effects of science in our interaction with the natural world.</p> <p>3. The student will recognize the impact of scientific and technological activities on the natural world.</p>
GRADE 4	I. HISTORY AND NATURE OF SCIENCE	B. Scientific Inquiry	The student will participate in a controlled scientific investigation.	<p>3. The student will recognize that evidence and logic are necessary to support scientific understandings.</p>
GRADE 4	III. EARTH AND SPACE SCIENCE	C. The Universe	The student will identify the patterns and movements of celestial objects.	<p>1. The student will recognize that the stars in the sky appear to slowly move from east to west.</p> <p>2. The student will identify the sun as an average-sized star and that the other stars are so far away that they look like points of light.</p> <p>3. The student will know that telescopes magnify distant objects in the sky and dramatically increase the number of stars we can see.</p>
GRADE 5	I. HISTORY AND NATURE OF SCIENCE	A. Scientific World View	The student will understand that communication is essential to science.	<p>1. The student will know that current scientific knowledge and understanding guide scientific investigation.</p> <p>2. The student will recognize that clear communication of methods, findings and critical review is an essential part of doing science.</p>
GRADE 5	I. HISTORY AND NATURE OF SCIENCE	B. Scientific Inquiry	The student will understand the process of scientific investigations.	<p>2. The student will observe that when a science investigation or experiment is repeated, a similar result is expected.</p>
GRADE 5	I. HISTORY AND NATURE OF SCIENCE	C. Scientific Enterprise	The student will recognize that science and technology involve different kinds of work and engages men and women of all backgrounds.	<p>1. The student will describe different kinds of work done in science and technology.</p> <p>2. The student will identify men and women of various backgrounds and ages who have been involved in science and technology, both past and present.</p>

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GRADE 5	II. PHYSICAL SCIENCE	D. Motion	The student will understand that changes in speed or direction of motion are caused by forces.	2. The student will demonstrate that the greater the force applied, the greater the change in motion.
GRADE 5	IV. LIFE SCIENCE	F. Flow of Matter and Energy	The student will know that matter and energy flow into, out of, and within a biological system.	1. The student will recognize that organisms need energy to stay alive and grow, and that this energy originates from the sun.
GRADE 6	I. HISTORY AND NATURE OF SCIENCE	A. Scientific World View	The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.	1. The student will distinguish between scientific evidence and personal opinion. 2. The student will explain why scientists often repeat investigations to be sure of the results. 3. The student will recognize that scientists assume that the laws of nature are the same everywhere and that they are understandable and predictable. 4. The student will define scientific facts, laws and theories.
GRADE 6	I. HISTORY AND NATURE OF SCIENCE	B. Scientific Inquiry	The student will understand that scientific inquiry is used in systematic ways to investigate the natural world.	1. The student will identify questions that can be answered through scientific investigation and those that cannot.
GRADE 6	II. PHYSICAL SCIENCE	A. Structure of Matter	The student will understand that matter is made of small particles and this explains the properties of matter.	2. The student will use evidence to explain that matter is made of small particles called atoms or molecules which are too small to see. 3. The student will know that the mass of a substance remains constant whether it is together, in parts or in a different state.

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GRADE 6	II. PHYSICAL SCIENCE	C. Energy Transformations	The student will understand that energy exists in many forms and can be transferred in many ways.	<p>3. The student will demonstrate that visible light from the sun or reflected by objects may be made up of a mixture of many different colors of light.</p> <p>5. The student will describe waves in terms of speed, frequency and wave length.</p> <p>6. The student will recognize that vibrations such as sound and earthquakes move in waves and that waves move at different speeds in different materials.</p>
GRADE 6	II. PHYSICAL SCIENCE	D. Motion	The student will describe the motion of objects.	<p>3. The student will recognize that unbalanced forces acting on an object change the object's speed and/or direction.</p>
GRADE 7	I. HISTORY AND NATURE OF SCIENCE	A. Scientific World View	The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.	<p>1. The student will recognize how scientific knowledge is subject to change as new evidence becomes available, or as new theories cause scientists to look at old observations differently.</p>
GRADE 7	I. HISTORY AND NATURE OF SCIENCE	C. Scientific Enterprise	The student will know that science and technology are human efforts that both influence, and are influenced by, society.	<p>1. The student will give examples of the development of technology influencing scientific knowledge, and investigation and scientific knowledge influencing the development of technology.</p>
GRADE 7	I. HISTORY AND NATURE OF SCIENCE	D. Historic Perspectives	The student will understand how scientific discovery, culture, societal norms and technology have influenced one another in different time periods.	<p>1. The student will cite examples of individuals throughout history who made discoveries and contributions in science and technology.</p>

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GRADE 8	I. HISTORY AND NATURE OF SCIENCE	B. Scientific Inquiry	The student will understand that scientific inquiry is used by scientists to investigate the natural world in systematic ways.	<p>1. The student will know that scientific investigations involve the common elements of systematic observations, the careful collection of relevant evidence, logical reasoning and innovation in developing hypotheses and explanations.</p> <p>2. The student will describe how scientists can conduct investigations in a simple system and make generalizations to more complex systems.</p>
GRADE 8	I. HISTORY AND NATURE OF SCIENCE	C. Scientific Enterprise	The student will know that science and technology are human efforts that both influence and are influenced by civilizations and cultures worldwide.	<p>1. The student will evaluate the credibility and validity of scientific and technological information from various sources.</p>
GRADE 8	III. EARTH AND SPACE SCIENCE	C. The Universe	The student will compare objects in the solar system and explain their interactions with the Earth.	<p>1. The student will recognize that the sun is the principal energy source for the solar system and that this energy is transferred in the form of radiation.</p> <p>2. The student will explain how the combination of the Earth's tilted axis and revolution around the sun causes the progression of seasons and weather patterns.</p> <p>3. The student will compare and contrast the planets, taking into account their composition, mass and distance from the sun and recognize the conditions that have allowed life to flourish on Earth.</p>
GRADE 8	III. EARTH AND SPACE SCIENCE	C. The Universe	The student will describe the composition and structure of the universe.	<p>1. The student will recognize that the universe consists of many billions of galaxies, each containing many billions of stars and that there are vast distances that separate these galaxies and stars from one another.</p> <p>2. The student will recognize that the sun is a medium-sized star and is the closest star to Earth. It is the central and largest body in the solar system and is one of billions of stars in the Milky Way Galaxy.</p>

Please note that use of these standards does not imply this state's endorsement of Cogno.