

Alignment with North Dakota'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 3

Standard 2: Science Inquiry

3.2.2. Ask questions directly related to a scientific investigation

Standard 3: Physical Science

3.3.2 Identify a force as push or pull

3.3.4 Explain how sound is produced by vibration

3.3.5 Describe how the path of light tends to maintain its direction and motion until it encounters an object

Standard 4: Life Science

3.4.3 Identify the needs of living things (e.g., food, shelter, soil, space, water)

Standard 5: Earth and Space Science

3.5.5 Explain how stars are like the Sun, but because they are at a great distance, they look like small points of light

Standard 6: Science and Technology

3.6.1 Identify ways technology (e.g., zippers, Velcro, measuring instruments, computers) can be used to solve problems at home and school

Standard 8: History and Nature of Science

3.8.1 Identify ways people of all ages, genders, and backgrounds use science in their careers and in daily life (e.g., children check temperature conditions to decide what to wear, farmer uses genetic grains, hikers use GPS, depth-finder in boat, hearing-aides for disabilities)

Grade 4

Standard 2: Science Inquiry

4.2.1 Review and ask questions about the scientific investigations of others

4.2.2 Conduct simple investigations to answer questions based on observations

Standard 3: Physical Science

4.3.1 Identify the forms in which water appears when heated and cooled (i.e., water vapor, liquid, solid)

4.3.2 Explain the relationship between the mass of an object and the sum of its parts.

4.3.3 Explain that matter is made up of parts that are too small to see without magnification

4.3.4 Identify the effects forces may have when applied to objects (i.e., start, stop, change direction)

4.3.5 Describe how the path of light changes (i.e., reflected, absorbed, or allowed to pass through) when it encounters a variety of objects

4.3.6 Explain how the pitch of a sound is related to the rate of vibrations.

Standard 4: Life Science

4.4.1 Classify plants and animals according to common physical characteristics

4.4.2 Identify adaptations that help plants and animals survive and grow in their environment

Standard 5: Earth and Space Science

4.5.5 Identify components of our solar system (e.g., planets, moons, Sun)

4.5.6 Identify tools that are used to study the universe (e.g., telescopes, space probes, satellites, space craft)

Standard 6: Science and Technology

4.6.2 Explain how an invention may lead to other inventions

Standard 7: Science and Other Areas

4.7.2 Identify ways in which science and technology have greatly improved human lives (e.g., food quality and quantity, transportation, health, sanitation, communication)

Standard 8: History and Nature of Science

4.8.1 Identify a variety of careers in the field of science

Grade 5

Standard 2: Science Inquiry

5.2.2 Formulate an explanation supported by data

Standard 3: Physical Science

5.3.4 Identify the effects force and mass have on the motion of an object

5.3.5 Explain why gravity is called an attracting force.

Standard 5: Earth and Space Science

5.5.4 Identify the characteristics of the Earth (i.e., spherical in shape, orbits the Sun, rotates on tilted axis)

5.5.5 Identify the objects in the sky that have predictable patterns of movement (e.g., sun, planets, moons, stars)

Grade 6

Standard 1: Unifying Concepts

6.1.2 Identify systems that are composed of subsystems (e.g., solar system, cell, ecosystems.)

6.1.3 Explain the connection between cause and effect in a system

Standard 2: Science Inquiry

6.2.1 Explain the components of a scientific investigation (e.g., hypothesis, observation, data collection, data interpretation, communication of results, replicable)

6.2.2 Select alternative methods of scientific investigations (e.g., library, internet, field work) to address different kinds of questions.

6.2.5 Use data from scientific investigations to determine relationships and patterns

Standard 3: Physical Science

6.3.4 Identify sources of energy (e.g., sun, wind, moving water, nuclear, fossil fuels, food)

6.3.5 Explain how vibrations create wavelike disturbances that spread out from the source

Standard 5: Earth and Space Science

6.5.3 Describe the characteristics of the layers of the Earth (i.e., crust, mantle, core)

6.5.4 Identify the basic characteristics (e.g., composition, rings) of objects (e.g., planets, sun, small bodies) in the solar system

Standard 6: Science and Technology

6.6.1 Identify examples of how technologies have evolved

6.6.2 Explain the relationship between science and technology

Standard 8: History and Nature of Science

6.8.1 Identify various settings in which scientists may work alone or in a team (e.g., industries, laboratories, field work)

6.8.2 Identify scientific advances that have resulted in new ideas and further-advance

Grade 7

Standard 2: Science Inquiry

7.2.1 Communicate the results of scientific investigations using an appropriate format (e.g., journals, lab reports, diagrams, presentations, discussions)

Standard 3: Physical Science

7.3.1 Explain how forms of energy can be transferred. (e.g., photosynthesis, metabolism, battery)

Standard 4: Life Science

7.4.6 Explain how different adaptations help organisms survive

Standard 6: Science and Technology

7.6.1 Identify ways in which technology has influenced the course of history and improved the quality of life

7.6.3 Identify intended benefits and unintended consequences that result from the development and use of technologies

Standard 8: History and Nature of Science

7.8.1 Explain how science is influenced by human qualities (e.g., reasoning, insightfulness, creativity, life-long learning)

7.8.2 Explain the importance of keeping clear and accurate records of scientific investigations (e.g., Darwin's research, Da Vinci's notebooks, Galileo's notes, Goodall's observations)

Grade 8

Standard 2: Science Inquiry

8.2.1 Explain how science advances through legitimate skepticism

8.2.2 Use evidence to generate descriptions, explanations, predictions, and models

8.2.4 Design and conduct a scientific investigation (e.g., making systematic observations, making accurate measurements, identifying and controlling variables)

Standard 3: Physical Science

8.3.3 Interpret the effect of balanced and unbalanced forces on the motion of an object (e.g., convection currents, orbital motion, tides)

8.3.4 Explain how all objects exert gravitational force and this force is affected by the distance between the masses of the objects

8.3.6 Explain the characteristic properties (e.g., wavelength, frequency) and behaviors (e.g., reflection, refraction) of waves

Standard 5: Earth and Space Science

8.5.2 Explain how phenomena on Earth (i.e., day, year, seasons, lunar phases, eclipses, tides) are related to the position and motion of the Sun, Moon, and Earth

8.5.4 Identify the composition (e.g., stars, galaxies) and scale of the universe

8.5.8 Identify characteristics of stars (e.g., color, size, temperature, life cycle)

Standard 7: Science and Other Areas

8.7.1 Explain the interaction of science and technology with social issues (e.g., mining, natural disasters)

Standard 8: History and Nature of Science

8.8.1 Explain how many people from various cultures have made important contributions to the advancement of science and technology

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