

Alignment with Colorado'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

Colorado Model Content Standards SCIENCE

Standard 1:

Students apply the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.

BENCHMARKS

GRADES 6-8

1. ask questions and state hypotheses that lead to different types of scientific investigations (*for example: experimentation, collecting specimens, constructing models, researching scientific literature*)
3. interpret and evaluate data in order to formulate logical conclusions
4. demonstrate that scientific ideas are used to explain previous observations and to predict future events (*for example: plate tectonics and future earthquake activity*)
5. identify and evaluate alternative explanations and procedures

Standard 2:

Physical Science: Students know and understand common properties, forms, and changes in matter and energy. (*Focus: Physics and Chemistry*)

BENCHMARKS

GRADES 3-5

1. objects have physical properties that can be measured (*for example: length, mass, volume and temperature*)
3. matter is made up of parts that are too small to be seen
4. matter exists in physical states (solid, liquid, gas) and can change from one state to another
5. there are different types and sources of energy (*for example: light, heat, motion*)
7. there are different types of forces (*for example: gravity and magnetism*)
8. changes in speed or direction of motion are caused by forces

GRADES 6-8

3. mass is conserved in a chemical or physical change
4. mass and weight can be distinguished
5. all matter is made up of atoms that are comprised of protons, neutrons and electrons and when a substance is made up of only one type of atom it is an element
7. quantities (*for example: time, distance, mass, force*) that characterize moving objects and their interactions within a system (*for example, force, speed, velocity, potential energy, kinetic energy*) can be described, measured and calculated
8. that there are different forms of energy and those forms of energy can be transferred and stored (*for example: kinetic, potential*) but total energy is conserved
10. white light is made up of different colors that correspond to different wavelengths

Standard 3:

Life Science: Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment. (*Focus: Biology-- Anatomy, Physiology, Botany, Zoology, Ecology*)

BENCHMARKS

GRADES 3-5

1. each plant or animal has different structures and behaviors that serve different functions in growth, survival, and reproduction
2. green plants need energy from sunlight and various raw materials to live, and animals consume plants and other organisms to live

GRADES 6-8

4. photosynthesis and cellular respiration are basic processes of life (*for example, set up a terrarium or aquarium and make changes such as blocking out light*)

Standard 4:

Earth and Space Science: Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space. (*Focus: Geology, Meteorology, Astronomy, Oceanography*)

BENCHMARKS

GRADES 3-5

2. natural processes change Earth's surface (*for example: weathering, erosion, mountain building, volcanic activity, earthquakes and floods*)
5. most of the Earth's surface is covered by water, that most of the water is salt water in the oceans, and that fresh water is found in rivers, lakes, underground sources and glaciers
7. there are basic components of the solar system (*for example: Sun, planets, moons*)
8. the Earth and Sun provide a diversity of resources (*for example: soils, fuels, minerals, medicines and food*)
9. the rotation of the Earth on its axis, in relation to the Sun, produces the day-and-night cycle and the orbit of the Earth around the Sun completes one year

GRADES 6-8

7. the atmosphere has basic composition, properties, and structure (*for example: the range and distribution of temperature and pressure in the troposphere and stratosphere*)
13. there are characteristics (components, composition, size) and scientific theories of origin of the solar system
14. relative motion, axes tilt and positions of the Sun, Earth, and Moon have observable effects (*for example: seasons, eclipses, moon phases*)
15. the universe consists of many billions of galaxies (each containing many billions of stars) and that vast distances separate these galaxies and stars from one another and from the Earth
16. technology is needed to explore space (*for example: telescopes, spectrosopes, spacecraft, life support systems*)

Standard 5:

Students understand that the nature of science involves a particular way of building knowledge and making meaning of the natural world

GRADES 3-5

1. when a science experiment is repeated with the same conditions, the experiment generally works the same way

GRADES 6-8

1. a controlled experiment must have comparable results when repeated
2. scientific knowledge changes as new knowledge is acquired and previous ideas are modified (*for example: through space exploration*)
3. contributions to the advancement of science have been made by people in different cultures and at different times in history
5. there are interrelationships among science, technology and human activity that affect the world

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