

## Alignment with Hawaii'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

### Content Area: Science Grade/Course: 3

Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process

TOPIC: Scientific Inquiry

BENCHMARK SC.3.1.1: Pose a question and develop a hypothesis based on observations

BENCHMARK SC.3.1.2: Safely collect and analyze data to answer a question

Standard 6: Physical, Earth, and Space Sciences: NATURE OF MATTER AND ENERGY: Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe

TOPIC: Energy and its Transformation

BENCHMARK SC.3.6.1: Define energy and explain that the sun produces energy in the form of light and heat

TOPIC: Waves

BENCHMARK SC.3.6.2: Explain how things make sound through vibrations

BENCHMARK SC.3.6.3: Explain how light traveling in a straight line changes when it reaches an object

Standard 8: Physical, Earth, and Space Sciences: EARTH AND SPACE SCIENCE: Understand the Earth and its processes, the solar system, and the universe and its contents

TOPIC: The Universe

BENCHMARK SC.3.8.3: Safely observe and describe the basic movements of the sun and moon

BENCHMARK SC.3.8.4: Describe that constellations stay the same, though they "appear" to move across the night sky

### Content Area: Science

## **Grade/Course: 4**

Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process

TOPIC: Scientific Inquiry

**BENCHMARK SC.4.1.1: Describe a testable hypothesis and an experimental procedure**

Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT: Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment

TOPIC: Interdependence

**BENCHMARK SC.4.3.2: Describe how an organism's behavior is determined by its environment**

Standard 5: Life and Environmental Sciences: DIVERSITY, GENETICS, AND EVOLUTION: Understand genetics and biological evolution and their impact on the unity and diversity of organisms

TOPIC: Unity and Diversity

**BENCHMARK SC.4.5.2: Describe the roles of various organisms in the same environment**

**BENCHMARK SC.4.5.3: Describe how different organisms need specific environmental conditions to survive**

Standard 7: Physical, Earth, and Space Sciences: FORCE AND MOTION: Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic

TOPIC: Forces of the Universe

**BENCHMARK SC.4.7.1: Describe that the mass of the Earth exerts a gravitational force on all objects**

## **Content Area: Science Grade/Course: 5**

Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process

TOPIC: Scientific Inquiry

**BENCHMARK SC.5.1.2: Formulate and defend conclusions based on evidence**

Standard 2: The Scientific Process: NATURE OF SCIENCE: Understand that science, technology, and society are interrelated

TOPIC: Unifying Concepts and Themes

**BENCHMARK SC.5.2.1: Use models and/or simulations to represent and investigate features of objects, events, and processes in the real world**

Standard 6: Physical, Earth and Space Science: NATURE OF MATTER AND ENERGY: Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe

TOPIC: Waves

**BENCHMARK SC.5.6.3: Compare what happens to light when it is reflected, refracted, and absorbed**

Standard 7: Physical, Earth, and Space Sciences: FORCE AND MOTION: Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic

TOPIC: Forces of the Universe

**BENCHMARK SC.5.7.1: Explain how electrically charged materials can push or pull other charged materials**

Standard 8: Physical, Earth, and Space Sciences: EARTH AND SPACE SCIENCE: Understand the Earth and its processes, the solar system, and the universe and its contents

TOPIC: Earth in the Solar System

**BENCHMARK SC.5.8.1: Describe the relationship (size and distance) of Earth to other components in the solar system**

**BENCHMARK SC.5.8.2: Describe examples of what astronomers have discovered using telescopes**

**BENCHMARK SC.5.8.3: Explain that the planets orbit the sun and that the moon orbits the Earth**

### **Content Area: Science**

#### **Grade/Course: 7**

Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process

TOPIC: Scientific Inquiry

**BENCHMARK SC.7.1.1: Design and safely conduct a scientific investigation to answer a question or test a hypothesis**

**BENCHMARK SC.7.1.2: Explain the importance of replicable trials**

TOPIC: Scientific Knowledge

**BENCHMARK SC.7.1.3: Explain the need to revise conclusions and explanations based on new scientific evidence**

Standard 4: Life and Environmental Sciences: STRUCTURE AND FUNCTION IN ORGANISMS: Understand the structures and functions of living organisms and how organisms can be compared scientifically

TOPIC: Classification

**BENCHMARK SC.7.4.4: Classify organisms according to their degree of relatedness**

TOPIC: Unity and Diversity

**BENCHMARK SC.7.5.4: Analyze how organisms' body structures contribute to their ability to survive and reproduce**

**Content Area: Science  
Grade/Course: 8**

Standard 2: The Scientific Process: NATURE OF SCIENCE: Understand that science, technology, and society are interrelated

TOPIC: Science, Technology, and Society

**BENCHMARK SC.8.2.1: Describe significant relationships among society, science, and technology and how one impacts the other**

TOPIC: Unifying Concepts and Themes

**BENCHMARK SC.8.2.2: Describe how scale and mathematical models can be used to support and explain scientific data**

Standard 5: Life and Environmental Sciences: DIVERSITY, GENETICS, AND EVOLUTION: Understand genetics and biological evolution and their impact on the unity and diversity of organisms

TOPIC: Biological Evolution

**BENCHMARK SC.8.5.1: Describe how changes in the physical environment affect the survival of organisms**

Standard 6: Physical, Earth, and Space Science: NATURE OF MATTER AND ENERGY: Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe

TOPIC: Waves

**BENCHMARK SC.8.6.1: Explain the relationship between the color of light and wavelength within the electromagnetic spectrum**

Standard 7: Physical, Earth, and Space Sciences: FORCE AND MOTION: Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic

TOPIC: Forces of the Universe

**BENCHMARK SC.8.7.1: Explain that every object has mass and therefore exerts a gravitational force on other objects**

Standard 8: Physical, Earth, and Space Sciences: EARTH AND SPACE SCIENCE: Understand the Earth and its processes, the solar system, and the universe and its contents

TOPIC: Forces that Shape the Earth

**BENCHMARK SC.8.8.4: Explain how the sun is the major source of energy influencing climate and weather on Earth**

TOPIC: The Universe

**BENCHMARK SC.8.8.8: Describe the composition of objects in the galaxy**

**BENCHMARK SC.8.8.9: Explain the predictable motions of the Earth and moon**

BENCHMARK SC.8.8.10: Compare the characteristics and movement patterns of the planets in our solar system

BENCHMARK SC.8.8.11: Describe the major components of the universe

BENCHMARK SC.8.8.12: Describe the role of gravitational force in the motions of planetary systems

**Content Area: Science**  
**Grade/Course: Earth Space Science**

Standard 1: The Scientific Process: SCIENTIFIC INVESTIGATION: Discover, invent, and investigate using the skills necessary to engage in the scientific process

TOPIC: Scientific Inquiry

BENCHMARK SC.ES.1.1: Describe how a testable hypothesis may need to be revised to guide a scientific investigation

BENCHMARK SC.ES.1.3: Defend and support conclusions, explanations, and arguments based on logic, scientific knowledge, and evidence from data

BENCHMARK SC.ES.1.4: Determine the connection(s) among hypotheses, scientific evidence, and conclusions

BENCHMARK SC.ES.1.6: Engage in and explain the importance of peer review in science

TOPIC: Scientific Knowledge

BENCHMARK SC.ES.1.7: Revise, as needed, conclusions and explanations based on new evidence

BENCHMARK SC.ES.1.9: Explain how scientific explanations must meet a set of established criteria to be considered valid

Standard 2: The Scientific Process: NATURE OF SCIENCE: Understand that science, technology, and society are interrelated

TOPIC: Science, Technology, and Society

BENCHMARK SC.ES.2.1: Explain how scientific advancements and emerging technology have influenced society

BENCHMARK SC.ES.2.2: Compare the risks and benefits of potential solutions to technological issues

BENCHMARK SC.ES.2.4: Describe technologies used to collect information about the universe

Standard 8: Physical, Earth, and Space Sciences: EARTH AND SPACE SCIENCE: Understand the Earth and its processes, the solar system, and the universe and its contents

TOPIC: Earth in the Solar System

BENCHMARK SC.ES.8.3: Explain the possible origins and evolution of the solar system

BENCHMARK SC.ES.8.8: Describe the major internal and external sources of energy on Earth

TOPIC: The Universe

BENCHMARK SC.ES.8.9: Describe the physical and nuclear dynamics involved in the life cycle of a star

BENCHMARK SC.ES.8.10: Compare different theories concerning the formation of the universe