Alignment with Vermont'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

Please note the coding system for each standard. "S3-4:2" indicates that it is a Grade 3-4 standard. Other grade combinations (5-6, 7-8) follow suit.

Predicting and Hypothesizing S3-4:2
- Identifying simple patterns of evidence used to develop a prediction and propose an explanation.

Predicting and Hypothesizing S 5-6: 2
- Using logical inferences derived from evidence to predict what may happen or be observed in the future.
- Providing an explanation (hypothesis) that is reasonable in terms of available evidence.

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Scientific Questioning S7-8:1
- Developing questions that reflect prior knowledge
- Refining and focusing broad ill-defined questions.

Predicting and Hypothesizing S7-8:2
- Predicting results (evidence) that support the hypothesis.
- Proposing a hypothesis based upon a scientific concept or principle, observation, or experience that identifies the relationship between variables.

Conducting Experiments S3-4:4
- Referring to and following a detailed plan for an investigation.

Conducting Experiments S5-6:4
- Clearly describing evidence and quantifying observations with appropriate units.
- Choosing appropriate measurements for the task and measuring accurately
- Collecting data and recording accurate and complete data from multiple trials.

Representing Data and Analysis S3-4:6
- Interpreting patterns or trends in data.

· Relating data to the original question and prediction.

Representing Data and Analysis S3-4:7
· Providing a reasonable explanation that accurately reflects data.

Representing Data and Analysis S 5-6: 6
· Questioning data that might not seem accurate or does not fit into the pattern of other findings.

Applying Results S3-4:8
· Generating a new question to obtain additional information.
· Creating a plan to investigate a scientific concept further or connecting a classroom model to a real-world example.
· Connecting the investigation or model to a real world example.

Applying Results S5-6:8
· Explaining how experimental findings can be generalized to other situations.

Applying Results S5-6:7
· Using experimental results to support or refute original hypothesis.

Applying Results S7-8:7
· Using scientific concepts, models, and terminology to report results, discuss relationships, and propose new explanations.
· Considering all data when developing an explanation/conclusion.
· Using additional resources (e.g., books, journals, data bases, interview, etc.) to strengthen an explanation.
· Identifying problems/flaws with the experimental design.
· Preparing a conclusion statement/summary.

Applying Results S5-6:8
· Explaining how experimental findings can be generalized to other situations.
· Generating alternative explanations.
· Using mathematical analysis as an integral component of the conclusion.

Applying Results S7-8:8
· Identifying additional data that would strengthen an investigation
· Explaining relevance of findings (e.g., So what?) to local environment (community, school, classroom)
· Devising recommendations for further investigation and making decisions based on evidence.

Physical Science

Properties of Matter S3-4:12
· Identifying, describing and comparing the properties of selected solids, liquids and gases.

Motion S5-6:20
· Investigating and identifying evidence of an object's inertia and explaining their observation in terms of the object's tendency to resist a change in motion.

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Force S3-4:21
· Investigating and describing how different amounts of force can change the direction and speed of an object in motion.

Force S5-6:21
· Investigating variables that change an object's speed, direction, or both, and identifying and describing the forces that cause the change in motion.

Force S5-6:22
· Predicting the effect of gravitational forces between pairs of objects (i.e., earth and object's on the surface, earth and moon, earth and sun).

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Force S5-6:22
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Force S7-8:21
· Diagramming or describing, after observing a scenario with a moving object, the forces acting on the object before and after it is put in motion (Students include in their diagram or description, the effect of these forces on the motion of the object.)

Force S7-8:22
· Describing the effects of gravitational force on objects in the Solar System, and identifying evidence that the force of gravity is relative to the mass of objects and their distance apart.

Energy

Energy S3-4:25
· Describing what happens when like and opposite poles of the magnet are placed near each other.

S3-4:28 Energy and Energy Transformation
· Investigating with flash lights and other light sources and describing how light rays reflect off of objects.

Energy and Energy Transformation S5-6:28
· Designing demonstrations that represent the characteristics of light energy transfer.

Energy S5-6:29
· Generating a sound and identifying the path of vibration from the source to the ear.

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Energy and Energy Transformation S7-8:28

· Designing demonstrations that represent the characteristics of light energy transfer.
· Explaining that visible light is made up of the colored light waves.

Chemical Reactions within Cells S5-6:33
· Demonstrating through drawings, stories or models that cells take in food and oxygen to produce energy and send out waste materials.

Interdependence within Ecosystems S3-4:34
· Identifying the source of energy for the survival of organisms.

Natural Selection/Evolution S5-6:39
· Explaining, through engaging in simulations, how a variation in a characteristic (trait) enables an organism to survive in a changing environment.

Scale, distances, star formation, theories, instrumentation S5-6:45
· Explaining (after viewing a picture or illustration with sun/moon showing true relative size) why the sun and moon appear to be the same size when seen from the earth.
· Comparing (similarities) between the sun and stars.

Scale, distances, star formation, theories, instrumentation S5-6:4
· Explaining (after viewing a picture or illustration with sun/moon showing true relative size) why the sun and moon appear to be the same size when seen from the earth.

Scale, distances, star formation, theories, instrumentation S7-8:45
· Identifying and labeling the location of the sun in our solar system and its relationship to the galaxy.