

Alignment with Mississippi'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

THIRD GRADE CONTENT STRANDS:

Life Science (L) Earth and Space Science (E) Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

2. Explore the components of living systems. (L)

c. Demonstrate photosynthesis.

3. Identify and describe the appearance of stars in the night sky. (E, P)

a. Locate and identify constellations as imaginary patterns of stars that remain fixed in shape from night to night.

b. Describe the actual nature of stars as distant suns that appear small and faint only because of their great distances.

7. Develop the process of measurement and related concepts. (L, E, P) *

a. Identify and compare differences among length, weight/mass, and capacity/volume using English and metric measures. *

b. Choose appropriate units of measurement for length, weight/mass, and capacity/volume. *

d. Convert miles to feet and yards. *

e. Compare metric measurements to English measurements. *

f. Using various types of instruments measure: *

· length in millimeters, meters, kilometers

· mass in grams and kilograms

· capacity/volume in milliliters and liters

· time to nearest minute

· temperature in Celsius and Fahrenheit

* Indicates a similar competency/objective found in the Mississippi Mathematics Framework as well.

FOURTH GRADE CONTENT STRANDS:

Life Science (L) Earth and Space Science (E) Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

1. Investigate the ability of living things to adapt to their environment. (L)
 - b. Compare and contrast adaptations necessary for animals and plants to survive in different habitats.
3. Communicate an understanding of the interaction of bodies in the solar system. (E, P)
 - a. Explain why the apparent size of an object depends on its distance from the observer.
 - b. Describe the interaction between the Earth, Sun, Earth's moon, and planets of the solar system.
4. Identify and describe the visual and telescopic appearance of planets and moons. (E, P)
 - a. Locate and identify planets as bright, shining bodies that move in front of the background of constellations.
 - b. Explain the nature of telescopes as devices that collect light and enlarge the apparent size of distant objects to reveal otherwise unseen features.
 - c. Describe the physical features of the moon (craters, plains, mountains) and the planets.
5. Discover the effects of external forces on the Earth's surface. (E)
 - a. Describe how external forces including heat, wind and water affect the Earth's surface.
 - c. Group landform examples by the forces that may have created them.
8. Investigate the changes in the states of matter. (P)
 - a. Observe that matter occupies space and has mass and volume.
9. Examine the different forms of energy. (E, L, P)
 - a. Differentiate energy as potential or kinetic energy.
 - c. Demonstrate the use of the sun as an energy source.
10. Develop the process of measurement and the concepts related to units of measurement. (L, E, P) *
 - b. Select, use, compare and convert within the appropriate standard (English and metric) system of measurement. *
 - c. Identify the attributes of length, weight, capacity/volume, mass, time and temperature using English and metric units of measurement. *

* Indicates a similar competency/objective found in the Mississippi Mathematics Framework as well.

FIFTH GRADE

CONTENT STRANDS:

Life Science (L) Earth and Space Science (E) Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

3. Determine the factors that influence the regulation and behavior of organisms. (L, E)
 - a. Identify and describe resources needed to grow, reproduce, maintain, and survive in a changing environment.
 - b. Investigate ways organisms adapt to their environment.
5. Explore the diversity and adaptations of organisms. (L, E)
 - a. Classify organisms by their similarities.
 - b. Explore and explain biological adaptations in a particular environment.
 - c. Research and investigate environmental changes and the inability of a species to adapt.
6. Investigate the structure of the Earth. (E)
 - a. Investigate the structure of the atmosphere (gas-air), hydrosphere (liquid- water), and lithosphere (solid-land).
7. Investigate the Earth as a part of the solar system. (E, P)
 - b. Explain how gravity influences the action of the tides.
8. Identify properties and changes of matter. (E, P)
 - d. Demonstrate the ability to use simple measuring devices using metric and English units.
9. Investigate the effect motions and forces have on objects. (E, L, P)
 - a. Explore, measure, and graph the motion of an object.
 - b. Explore and measure the effect of force on an object.

SIXTH GRADE

CONTENT STRANDS:

Life Science (L) Earth and Space Science (E) Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

3. Explore how changing resources will influence the regulation and behavior of organisms. (L, E)

- a. Evaluate the significance of resources required by organisms.
- b. Investigate, compare/contrast ways organisms adapt to their environment.

5. Explore the unique characteristics and adaptations of organisms. (L, E)

- a. Evaluate and chart the similarities of organisms.
- b. Propose and relate environmental changes and the adaptive characteristics that influence the extinction of a species.

6. Model the structure of the Earth system past and present. (E)

- a. Construct and explain the structure of the atmosphere (gas-air), hydrosphere (liquid-water), lithosphere (solid-land), and changes that occur within.
- b. Examine the changes and processes that alter the Earth's system.

7. Investigate the Earth in relation to the solar system. (E, P)

- b. Explore how gravity influences the motion of all celestial bodies.

8. Investigate structure, properties, and changes of matter. (E, P)

- d. Demonstrate the ability to use simple measuring devices using metric and English units.

9. Evaluate the effect of force on the motion of an object.. (E, L, P)

- a. Analyze, measure, and graph the motion of an object.
- b. Experiment and measure the effect of force on an object.

10. Examine the transfer of energy in many different forms. (E, L, P)

- a. Observe and manipulate energy as potential or kinetic.
- c. Recognize the sun as a major source of energy.

SEVENTH GRADE

CONTENT STRANDS:

Life Science (L) Earth and Space Science (E) Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

5. Examine survival strategies of organisms over many generations. (L)

- a. Apply concepts of adaptation by analyzing how organisms are classified into groups and subgroups.
- b. Research animal adaptations and behaviors as related to survival strategies.
- c. Explain how natural and man-made pressures cause extinction.

7. Explain the causes of lunar phases, eclipses, and Earth's seasons. (E)

- a. Distinguish between radiating objects (the sun and the stars) and reflecting objects (the planets and their moons).

8. Investigate chemical and physical properties of matter. (P)

- e. Relate density to mass and volume.

EIGHTH GRADE

CONTENT STRANDS:

Life Science (L) Earth and Space Science (E) Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

4. **Examine the physical factors of populations as they relate to the formation of ecosystems. (L, E)**
 - a. Analyze the adaptation of representative organisms to aquatic or terrestrial environments.
7. **Describe the appearance and nature of our galaxy and the universe. (E)**
 - a. Explain the relationship between distance and light-travel time (light year).
 - b. Identify and describe deep-sky objects visible from Earth (diffuse nebulae, galactic and globular clusters, planetary nebulae, supernova remnants, “spiral nebulae”).
 - c. Identify and describe the Milky Way as the galaxy to which we belong.
 - d. Identify and describe our galaxy in terms of its components (core of older stars, spiral arms of gas and dust with younger stars, halo, “dark matter”) and our location within it.
 - e. Identify and describe “spiral nebulae” as distant galaxies.
 - f. Identify and describe different types of galaxies in terms of their shape (spiral, barred spiral, elliptical, irregular) and level of activity.
10. **Investigate the transfer of energy. (P)**
 - b. Illustrate wave motion in different media.
 - c. Research and discuss energy transformation.

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