

Biosphere 09 Problem

The earth is a closed biosphere. The web of life is fragile; without balance organisms can have trouble surviving. How does keeping a guppy alive in a closed jar relate to the idea of a future Moon Colony?

Create a closed biosphere that can sustain guppy life. Write an instructional manual for creating an enclosed biosphere for a guppy. Review for an audience the cooperation and competition that exist among organisms to provide for the needs of the guppy and relate it to the future of establishing a colony on the Moon on Wednesday, September 9th.

Lab:
Microscope
Identification of organisms
Photosynthesis & Respiration

The Climbing Wave by Marion Zimmer Bradley
In this story, whose view of the future of the earth is most likely to endure and why?

Language Arts

Literature; Character,
theme
Research comprehension

Science

Chemical Cycles
(nitrogen, carbon,
photosynthesis,
respiration, water)
Carbohydrates, Proteins
Energy pyramid
Food web
Conservation of matter
and energy

Social Studies

Society and Technology
NASA
Cooperative group skills

Biosphere Standards 2009-2010

Science

Concepts & Processes (1)

- Interdependence of Organisms
 - Predator/prey
 - Food chains & webs
 - Food pyramid
- Matter, Energy and Organization in Living Systems
 - Energy flow
 - Conservation of matter
 - Decomposition
- Geochemical Cycles
 - Nitrogen
 - Carbon
 - Water

Inquiry (2)

- Research
- Design an experiment
- Communicate results
- Science and technology
- Use of lab equipment

Social Studies

Culture and Cultural Diversity (2)

- Various cultural influences impact society
- Shared cultural experiences influence personal perceptions of historical figures and world events

People, Places, Environment (5)

- Organize and process information about people, places & environment

Language Arts

Reading (1)

- Understanding of literacy text
 - Character development
 - Theme
 - Predictions
- Variety of sources
- Understanding of informational resources

Writing (2)

- Bibliography
- Writing expressive pieces
- Writing w/ audience in mind
- Organization/focus

Speaking & Listening (3)

- Formal presentation
- Details to support ideas
- Group discussion
 - consider other's ideas before speaking
 - constructive criticism
 - lead,participate & moderate

Vocabulary

Biology

Photosynthesis
Limiting Factors
Biomolecules
Interdependence
Abiotic
Biotic
Biosphere
Homeostasis
Ecosystem
Atom
Molecule
Ecology
Population
Cellular Respiration
Sugars
Proteins