

Mississippi Science Standards

E101 Principles/Topics Mississippi Science Standards High School

Earth Science Module

Students investigate landforms and features associated with estuaries, tides and salinity in estuaries, watersheds and their relationship to the dynamic changes that occur in estuaries due to drainage and runoff, and how hurricanes can affect estuaries.

- • Activity 1: Observing Estuaries: A Landform and Feature Scavenger Hunt
- • Activity 2: Salinity and Tides in York River
- • Activity 3: Estuary and Watershed
- • Activity 4: Extreme Weather and Estuaries
- • Final Earth Science Module Assessment

Earth and Space Science:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science -

#4. Demonstrate an understanding of Earth systems relating to weather and climate.

#5. Apply an understanding of ecological factors to explain relationships between Earth systems.

Environmental Science:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science -

#2. Develop an understanding of the relationship of ecological factors that affect an ecosystem.

#3. Discuss the impact of human activities on the environment, conservation activities, and efforts to maintain and restore ecosystems.

Spatial Information Science:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science-

#2. Develop an understanding of geographic information systems.

Geology:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science-

#2. Develop an understanding of ecological processes that affect Earth.

Marine and Aquatic Science:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science-

#2 Develop an understanding of physical and chemical properties of water and aquatic environments.

Physical Science:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Physical Science-

#3. Demonstrate an understanding of general properties and characteristics of waves.

Life Science Module

Students investigate the range of conditions that selected animal and plant species need to survive in an estuary, model estuaries, consider algae blooms in estuaries, study how nutrients cycle through an estuary, suggest recommendations for reducing nutrient inputs to estuary waters, and investigate the incredible biodiversity that exists in estuarine environments.

- • Activity 1: Survival in the Estuary
- • Activity 2: Nutrients in an Estuary
- • Activity 3: Biodiversity in an Estuary
- • Final Life Science Module Assessment

Introduction to Biology:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Physical Science-

#2. Investigate and summarize the chemical basis of life.

Life Science-

#3. Investigate and explain how organisms interact with their environment.

Biology I:

Inquiry-

#1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Physical Science-

#2. Describe the biochemical basis of life and explain how energy flows within and between the living systems.

Life Science- #3. Investigate and evaluate the interaction between living organisms and their environment.

#6. Demonstrate an understanding of principles that explain the diversity of life.

#5. Develop an understanding of organism classification.

Biology II:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.
- #4I. Analyze changes in an ecosystem resulting from natural causes (succession), changes in climate, human activity (pollution and recycling), or introduction of non-native species.
- #5. Develop an understanding of organism classification.

Botany:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Life Science:

- #2. Distinguish among the characteristics of botanical organization, structure, and function.
- #4. Draw conclusions about the factors that affect the adaptation and survival of plants.

Zoology:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Life Science:

- #3. Differentiate among animal life cycles, behaviors, adaptations, and relationships. Marine and Marine & Aquatic Science:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Life Science:

- #3. Apply an understanding of the diverse organisms found in aquatic environments.
- #4. Draw conclusions about the relationships between human activity and aquatic organisms.

Physical Science

Students investigate water quality parameters to study the nature of, and the cyclical changes inherent in, the chemistry of estuarine water, learn about dissolved oxygen and its effects on life, with a focus on the chemistry, model a pollution spill that occurred at Bangs Lake (a tidal lake within the Grand Bay NERR), and study the actual spill and how it changed water quality parameters in the estuary.

- • Activity 1: Chemistry in an Estuary
- • Activity 2: Dissolved Oxygen in the Estuary
- • Activity 3: Human Impacts on Estuaries: A Terrible Spill in Grand Bay
- • Final Physical Science Assessment

Chemistry:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.
- #5. Compare factors associated with acid/base and oxidation/reduction reactions.

Marine & Aquatic Science:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science:

- #2. Develop an understanding of physical and chemical properties of water and aquatic environments.
- #4. Draw conclusions about the relationships between human activity and aquatic organisms.

Environmental Science:

Inquiry-

- #1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.

Earth and Space Science -

- #2. Develop an understanding of the relationship of ecological factors that affect an ecosystem.
- #3. Discuss the impact of human activities on the environment, conservation activities, and efforts to maintain and restore ecosystems.