Alignment to State Standards:

Mississippi Science Standards (Middle School)

E101 Principles/Topics

Mississippi Science Standards

1. **Estuaries are interconnected-**

Activity 1: Where Rivers Meet the Sea (Climate Extension)

6th grade: Inquiry

1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)

1c- Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK1)

1d- Analyze data collected from a scientific investigation to construct explanations and draw conclusions. (DOK3)

1e- Communicate scientific procedures and conclusions using diagrams, charts, tables, graphs, maps, written explanations, and/or scientific models. (DOK2)

1f- Evaluate the results or solutions to problems by considering how well a product or design met the challenge to solve a problem. (DOK3)

1g- Infer explanations for why scientists might draw different conclusions from a given set of data. (DOK2)

1h- Recognize and analyze alternative explanations and predictions. (DOK2)

7th grade: Inquiry

1b- Discriminate among observations, inferences, and predictions. (DKO1)

1c- Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). (DOK2)

1d- Organize data in tables and graphs and analyze data to construct explanations and draw conclusions. (DOK3)

1e- Communicate results of scientific procedures and explanations through a variety of written and graphic methods. (DOK2)

1h- Make relationships between evidence and explanations. (DK02)

8th grade: Inquiry

1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)

1c- Summarize data to show the cause and effect relationship between qualitative and quantitative observations (using standard, metric, and non-standard units of measurement). (DOK3)

1d- Analyze evidence that is used to form explanations and draw conclusions. (DOK3)

6th grade: Life Science

3a- Describe and predict interactions (among and within populations) and the effects of these interactions on population growth to include the effects on available resources. (DOK2)

3b- Compare and contrast structure and function in living things to include cells and whole organisms. (DOK2)

7th grade: Life Science

3a- Assess how an organism's chances for survival are influenced by adaptations to its environment. (DOK2)

3e- Compare and contrast how organisms obtain and utilize matter and energy. (DOK1)

8th grade: Life Science

3a- Analyze how adaptations to a particular environment (e.g., desert, aquatic, high altitude) can increase an organism's survival and reproduction and relate organisms and their ecological niches to evolutionary change and extinction. (DOK3)

3e- Explain energy flow in a specified ecosystem. (DOK2

6th grade: Earth Science

4c- Analyze climate data to draw conclusions and make predictions. (DOK2)

4g- Research and cite evidence of current resources in Earth's systems. (DOK3)

7th grade: Earth Science

4c- Describe the causes and effects of heat transfer as it relates to the circulation of ocean currents, atmospheric movement, and global wind patterns (e.g., trade winds, the jet stream). Provide examples of how these global patterns can affect local weather. (DOK2)

8th grade: Earth Science

4b- Describe the cause and effect relationship between the composition of and movement within the Earth's lithosphere. (DOK1)

4d- Research the importance of the conservation of renewable and nonrenewable resources, including (but not limited to) Mississippi, and justify methods that might be useful in decreasing the human impact on global warming. (DOK3)

6th grade: Physical Science

2b- Distinguish physical properties of matter (e.g. melting points, boiling points, solubility) as it relates to changes in states. (DOK2)

2c- Investigate and describe the effects of forces acting on objects. (DOK2)

2g- Predict and explain factors that affect the flow of heat in solids, liquids, and gases. (DOK3)

7th grade: Physical Science

2b- Categorize types of chemical changes, including synthesis and decomposition reactions, and classify acids and bases using the pH scale and indicators. (DOK2)

2e- Distinguish how various types of longitudinal and transverse waves (e.g. water, light, sound, seismic) transfer energy. (DOK2)

2f- Describe the effects of unbalanced forces on the speed or direction of an object's motion. (DOK2)

8th grade: Physical Science

2a- Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass. (DOK1)

2c- Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction. (DOK2)
2e- Contrast various components of the electromagnetic spectrum (e.g. infrared, visible light, ultraviolet) and predict their impacts on living things. (DOK2)

2. **Estuaries are dynamic-**

Activity 2: Seasonal Swings (Climate Extension)
Activity 3: Water Going Up, Water Going Down (Climate Extension)
6th grade: Inquiry
1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)
1c- Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK1)
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1h- Recognize and analyze alternative explanations and predictions. (DOK2)
7th grade: Inquiry
1b- Discriminate among observations, inferences, and predictions. (DKO1)
1c- Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). (DOK2)
1d- Organize data in tables and graphs and analyze data to construct explanations and draw conclusions. (DOK3)
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3e- Explain energy flow in a specified ecosystem. (DOK2

6th grade: Earth Science

4c- Analyze climate data to draw conclusions and make predictions. (DOK2)

4e- Explain the daily and annual changes in the Earth's rotation and revolution. (DOK2)

4g- Research and cite evidence of current resources in Earth's systems. (DOK3)

7th grade: Earth Science

4c- Describe the causes and effects of heat transfer as it relates to the circulation of ocean currents, atmospheric movement, and global wind patterns (e.g., trade winds, the jet stream). Provide examples of how these global patterns can affect local weather. (DOK2)

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2e- Contrast various components of the electromagnetic spectrum (e.g. infrared, visible light, ultraviolet) and predict their impacts on living things. (DOK2)

3. **Estuaries support an abundance of life-**

Activity 4: Estuary Food Pyramid (Climate Extension)

Activity 5: Planet Plankton (Climate Extension)

Activity 6: An Ode to the Oyster (Climate Extension)

Activity 7: Hooray for Horseshoe Crabs (Climate Extension)

Activity 8: Sharks in the Estuary (Climate Extension)

Activity 9: Bountiful Birds (Climate Extension)

6th grade: Inquiry

1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)

1c- Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK1)

1d- Analyze data collected from a scientific investigation to construct explanations and draw conclusions. (DOK3)

1e- Communicate scientific procedures and conclusions using diagrams, charts, tables, graphs, maps, written explanations, and/or scientific models. (DOK2)

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1g- Infer explanations for why scientists might draw different conclusions from a given set of data. (DOK2)

1h- Recognize and analyze alternative explanations and predictions. (DOK2)

7th grade: Inquiry

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6th grade: Earth Science
4b- Draw conclusions about historical processes that contribute to the shaping of planet Earth. (DOK3)
4c- Analyze climate data to draw conclusions and make predictions. (DOK2)
4d- Summarize the causes and effects of pollution on people and the environment (e.g. , air pollution, ground pollution, chemical pollution) and justify how and why pollution should be minimized. (DOK1)
4e- Explain the daily and annual changes in the Earth's rotation and revolution. (DOK2)
4g- Research and cite evidence of current resources in Earth's systems. (DOK3)
7th grade: Earth Science
4c- Describe the causes and effects of heat transfer as it relates to the circulation of ocean currents, atmospheric movement, and global wind patterns (e.g., trade winds, the jet stream). Provide examples of how these global patterns can affect local weather. (DOK2)

4d- Conclude why factors, such as lack of resources and climate can limit the growth of populations in specific niches in the ecosystem. (DOK2)

8th grade: Earth Science

4d- Research the importance of the conservation of renewable and nonrenewable resources, including (but not limited to) Mississippi, and justify methods that might be useful in decreasing the human impact on global warming. (DOK3)

4e- Explain how the tilt of Earth's axis and the position of the Earth in relation to the sun determine climatic zones, seasons, and length of the days. (DOK2)

6th grade: Physical Science

2b- Distinguish physical properties of matter (e.g. melting points, boiling points, solubility) as it relates to changes in states. (DOK2)

2c- Investigate and describe the effects of forces acting on objects. (DOK2)

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2b- Categorize types of chemical changes, including synthesis and decomposition reactions, and classify acids and bases using the pH scale and indicators. (DOK2)

8th grade: Physical Science

2c- Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction. (DOK2)

4. **Research and Monitoring-**

Activity 10: The Jubilee Phenomenon (Climate Extension)
Activity 11: The Great Oyster Mystery (Climate Extension)
Activity 12: Migrating Mangroves and Marshes (Climate Extension)

6th grade: Inquiry

1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)

1c- Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK1)

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2f- Describe the effects of unbalanced forces on the speed or direction of an object's motion. (DOK2)
8th grade: Physical Science
2a- Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass. (DOK1)
2c- Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction. (DOK2)
2e- Contrast various components of the electromagnetic spectrum (e.g. infrared, visible light, ultraviolet) and predict their impacts on living things. (DOK2)

5. **Humans rely on goods and services-**
   Activity 13: Port to Port (Climate Extension)

   6th grade: Inquiry
   1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)
   1c- Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK1)

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7th grade: Inquiry
1b- Discriminate among observations, inferences, and predictions. (DKO1)
1c- Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). (DOK2)
1d- Organize data in tables and graphs and analyze data to construct explanations and draw conclusions. (DOK3)
1e- Communicate results of scientific procedures and explanations through a variety of written and graphic methods. (DOK2)
1h- Make relationships between evidence and explanations. (DK02)
8th grade: Inquiry
1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)
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3e- Explain energy flow in a specified ecosystem. (DOK2)
6th grade: Earth Science
4b- Draw conclusions about historical processes that contribute to the shaping of planet Earth. (DOK3)

4c- Analyze climate data to draw conclusions and make predictions. (DOK2)
4d- Summarize the causes and effects of pollution on people and the environment (e.g. , air pollution, ground pollution, chemical pollution) and justify how and why pollution should be minimized. (DOK1)
4e- Explain the daily and annual changes in the Earth's rotation and revolution. (DOK2)
4g- Research and cite evidence of current resources in Earth's systems. (DOK3)

7th grade: Earth Science
4a- Justify the importance of Earth materials (e.g. rocks, minerals, atmospheric gases, water) to humans. (DOK3)
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4c- Describe the causes and effects of heat transfer as it relates to the circulation of ocean currents, atmospheric movement, and global wind patterns (e.g. trade winds, the jet stream). Provide examples of how these global patterns can affect local weather. (DOK2)
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4c- Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather. (DOK2)
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2c- Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction. (DOK2)
2e- Contrast various components of the electromagnetic spectrum (e.g. infrared, visible light, ultraviolet) and predict their impacts on living things. (DOK2)

6. **Human activities can impact Estuaries-**

Activity 14: Oil Spill - The Rest of the Story (Climate Extension)

Activity 15: Score One for the Estuaries (Climate Extension)

6th grade: Inquiry
1b- Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK3)
1c- Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement). (DOK1)
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4c- Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather. (DOK2)

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4e- Explain how the tilt of Earth's axis and the position of the Earth in relation to the sun determine climatic zones, seasons, and length of the days. (DOK2)

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2b- Distinguish physical properties of matter (e.g. melting points, boiling points, solubility) as it relates to changes in states. (DOK2)

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2g- Predict and explain factors that affect the flow of heat in solids, liquids, and gases. (DOK3)

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2a- Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass. (DOK1)

2c- Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction. (DOK2)

2e- Contrast various components of the electromagnetic spectrum (e.g. infrared, visible light, ultraviolet) and predict their impacts on living things. (DOK2)