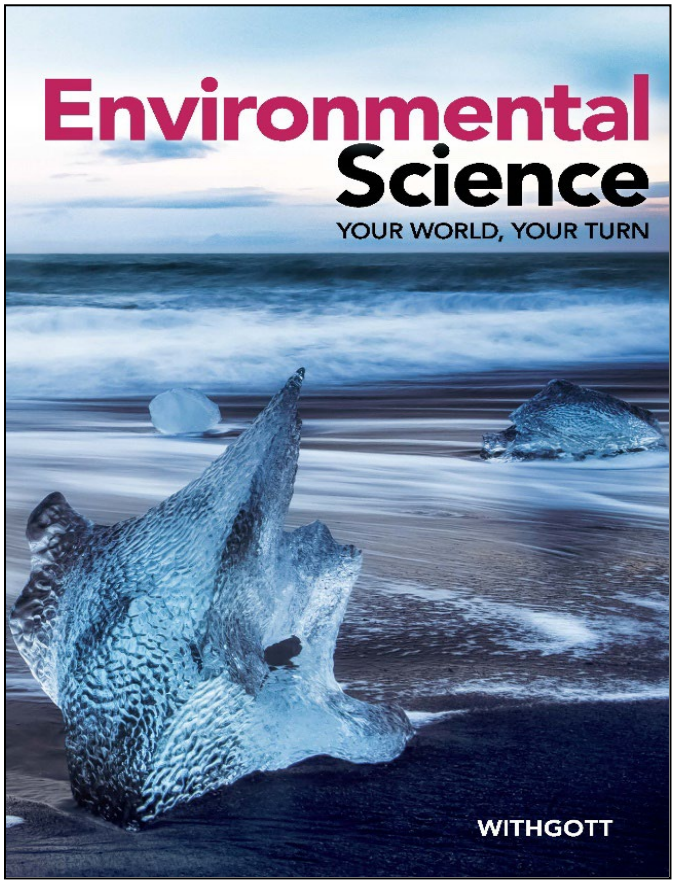
SAVVAS
LEARNING COMPANY

A Correlation of

Environmental Science
Your World, Your Turn ©2021



To the

Louisiana
2017 Student Standards for Science
Environmental Science

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

A Correlation of Environmental Science: Your World, Your Turn ©2021
To the
Louisiana 2017 Student Standards for Science: Environmental Science

Introduction

This document demonstrates how ***Environmental Science: Your World, Your Turn*** **©2021** supports the Louisiana 2017 Student Standards for Science: Environmental Science. References are to the Student and Teacher Editions and are cited at the page level.

Environmental Science: Your World, Your Turn combines high-interest, real-world content with cutting-edge digital support and a variety of hands-on inquiry investigations to help ensure student success in environmental science. Phenomena drives student engagement through unit level Anchoring Phenomena, Claim Evidence Reasoning, Modeling Activities and Problem-Based learning projects. Acclaimed author and active researcher Jay Withgott shows students why learning environmental science is vital. Students dive deeper with 19 Investigative Phenomena Case Studies. These authentic, real-world applications of environmental science excite students and inspire their passion for the environment.

Anchoring Phenomenon: Launch every unit with an engaging Anchoring Phenomenon that introduces and unifies the upcoming environmental science concepts. Students track their knowledge throughout the unit in a Claims-Evidence-Reasoning or Modeling document and build understanding with an Anchoring Phenomenon Project.

Case Studies Drive Learning: Introduce every chapter with an Investigative Phenomenon Case Study. This engaging real-world case encourages students to draw connections between environmental science and their life while providing a storyline for students to follow. Students “Defend Their Case” at the end of the chapter.

Hands-on Inquiry: Editable hands-on inquiry activities, including labs, Take it Local, Real Data math practice, and Claim-Evidence- Reasoning documents support student understanding of the phenomenon under study.

Student Centered Experience: Facts, questions, and thought-provoking scenarios including Make a Difference, Find out More, and What Do You Think? appear throughout the book, empowering students to apply the science, make choices, and interact with content.

Award-Winning Digital Platform: Access all of your digital content, inquiry labs, planning materials, assessments, and student data in ONE location. The Savvas Realize™ digital platform includes offline capabilities, integration with learning management systems and editable documents and assessments. Our fully digital programs and e-books provide cutting-edge online instruction with a seamless transition from the textbook, allowing students to complete assignments, access videos and activities, and take online tests and remediation.

Table of Contents

RESOURCES AND RESOURCE MANAGEMENT 4

ENVIRONMENTAL AWARENESS AND PROTECTION 7

PERSONAL RESPONSIBILITIES 10

HUMAN SUSTAINABILITY 15

ECOSYSTEMS: INTERACTIONS, ENERGY AND DYNAMICS 21

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
RESOURCES AND RESOURCE MANAGEMENT	
Performance Expectation HS-EVS1-1: Analyze and interpret data to identify the factors that affect sustainable development and natural resource management in Louisiana.	For supporting content, please see: **SE/TE:** Economics and Sustainability, 39-41 Renewable Resource Management, 324-327 Management Approaches, 327-329 What Do You Think?, 328 Investigative Phenomenon, 333 National Forest Logging, 338 Sustainable Forestry Products, 343 Lesson 3 Assessment, #5, 343 Chapter 11 Assessment, #26, #30, #31, #32, #33, 348-349 Solutions to Freshwater Depletion, 432-434 Chapter 14 Assessment, #36, 449
Disciplinary Core Ideas	
LOUISIANA'S NATURAL RESOURCES	
Ecosystem capital can be characterized as goods (removable products) and services such as the functions and values of wetlands. (HS.EVS1A.a)	**SE/TE:** Support from the Environment, 38 The Ecological Importance of Wetlands, 184 Ecological Value, 331 Economic and Medicinal Value, 332
Science & Engineering Practices	
• Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.	**SE/TE:** Chapter 3 Assessment, #33, 95 Chapter 11 Assessment, #31, #32, #33, 349 Chapter 14 Assessment, #32-#33, 449
Crosscutting Concepts	
STABILITY AND CHANGE Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.	For supporting content, please see: **SE/TE:** Interpret Graphs, 327 Real Data, 332 Figure 10: Deforestation in the United States, 335 Lesson 2 Assessment, #3, 336 Chapter 11 Assessment, #32, 349

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-EVS1-2: Obtain, evaluate and communicate information on the effectiveness of management or conservation practices for one of Louisiana's natural resources with respect to common considerations such as social, economic, technological, and influencing political factors over the past 50 years.	For supporting content, please see: **SE/TE:** Success Stories, 339 Challenges, 339 Future Fire Potential, 341 Sustainable Forestry Products, 343 Success Stories, 344-345 U.S. Policies, 362-363 Lesson 2 Assessment, #3, 364 Diverting Water, 428 Dams, 428-429 Reading Checkpoint, 429 Industrial Solutions, 434 Personal Solutions, 434 Find Out More, 559
Disciplinary Core Ideas	
RESOURCE MANAGEMENT FOR LOUISIANA	
Population growth along with cultural and economic factors impact resource availability, distribution and use. (HS.EVS1B.a)	For supporting content, please see: **SE/TE:** Impacts of Population, 242-246 Lesson 3 Assessment, #1, 247 Chapter 8 Assessment, #34, 253
Some changes to our natural environment such as the building of levees and hydrological modification have provided for economic and social development but have resulted in unintended negative impacts. (HS.EVS1.B.b)	For supporting content, please see: **SE/TE:** Dams, 428-429 Reading Checkpoint, 429 Lesson 2 Assessment, #2, 434 Investigative Phenomenon, 558 Benefits and Costs of Hydropower, 558-559 Find Out More, 559
Science & Engineering Practices	
• Compare, integrate and evaluate sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a scientific question or solve a problem.	For supporting content, please see: **SE/TE:** Reading Checkpoint, 429
• Gather, read, and evaluate scientific and/or technical information from multiple authoritative sources, assessing the evidence and usefulness of each source.	For supporting content, please see: **SE/TE:** Find Out More, 559
Crosscutting Concepts	
SYSTEMS AND SYSTEM MODELS	
When investigating or describing a system, the boundaries and initial conditions of the system need to be defined and their inputs and outputs analyzed and described using models.	**SE/TE:** A System Is a Network, 72 Interacting Systems, 72-73 Figure 13: Desalination, 433

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-EVS1-3: Analyze and interpret data about the consequences of environmental decisions to determine the risk-benefit values of actions and practices implemented for selected issues.	**SE/TE:** Figure 10: Costs and Benefits of Dams, 429 Surface Water Depletion, 430 Lesson 2 Assessment, #2, 434 Chapter 14 Assessment, #35, 449 Lesson 2 Assessment, #6, 528 Real Data, 530 Pollution from Fossil Fuels, 530-531 Possible Impact on the Arctic Refuge, 533 Lesson 3 Assessment, #5, 535 Defend Your Case, 545 Chapter 17 Assessment, #39, 547 Benefits and Costs of Hydropower, 558-559 21st Century Skills, 575 Defend Your Case, 577 Chapter 18 Assessment, #35, 579
Disciplinary Core Ideas	
RESOURCE MANAGEMENT FOR LOUISIANA	
Some changes to our natural environment such as the building of levees and hydrological modification have provided for economic and social development but have resulted in unintended negative impacts. (HS.EVS1B.b)	**SE/TE:** Dams, 428-429 Reading Checkpoint, 429 Lesson 2 Assessment, #2, 434 Investigative Phenomenon, 558 Benefits and Costs of Hydropower, 558-559 Find Out More, 559
Science & Engineering Practices	
• Analyze data to identify design features or characteristics of the components of a proposed process or system to optimize it relative to criteria for success.	**SE/TE:** Interpret Graphs, 527 Real Data, 530
Crosscutting Concepts	
CAUSE AND EFFECT	
Cause and effect relationships can be suggested and predicted for complex natural and human-designed systems by examining what is known about smaller scale mechanisms within the system.	**SE/TE:** Lesson 2 Assessment, #2, 434 Real Data, 530 Investigative Phenomenon, 532

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
ENVIRONMENTAL AWARENESS AND PROTECTION	
Performance Expectation HS-EVS2-1: Design and evaluate a solution to limit the introduction of non-point source pollution into state waterways.	**SE/TE:** Central Case, 35 Defend Your Case, 59 Central Case, 63 Make a Difference, 86 Human Impacts, 86 Figure 26: Potential Solutions to the Dead Zone, 89 Defend Your Case, 93 Pollution, 302 Water Pollution, 406 Chapter 13 Assessment, #26, #27, 416 Managing Watersheds, 423 Types of Water Pollution, 435-438 Groundwater Pollution, 439 Chapter 14 Assessment, #27, 448
Disciplinary Core Ideas	
POLLUTION AND THE ENVIRONMENT	
Pollution includes both natural and man-made substances which occur at rates or levels which incur harm (i.e. combustion of fossil fuels, agricultural waste, and industrial byproducts). Pollution can be categorized as point-source pollution and non-point source pollution. (HS.EVS2A.a)	**SE/TE:** Water Pollution, 406 Types of Water Pollution, 435-438 Groundwater Pollution, 439 Nutrient Pollution in the Ocean, 440 Chapter 14 Assessment, #27, 448
ENVIRONMENTAL CHOICES	
Different approaches can be used to manage impacts to our environment. Generally speaking, we can change human activities to limit negative impacts. Alternately, we can use technologies that reduce impact or we can perform restoration work to recover natural functions and values. (HS.EVS2C.a)	**SE/TE:** Defend Your Case, 59 Make a Difference, 86 Figure 26: Potential Solutions to the Dead Zone, 89 Defend Your Case, 93
Trade-offs occur when we make environmental choices. (HS.EVS2C.b)	**SE/TE:** Cost-Benefit Analysis, 37 Impact on the Environment, 38-39 Economics and Sustainability, 39-41
DEFINING AND DELIMITING ENGINEERING PROBLEMS	
Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed through engineering. These global challenges also may have manifestations in local communities. (HS.ETS1A.b)	**SE/TE:** Central Case, 35 Real Data, 51 Success Stories, 56-57 Water Treatment, 442-443 A Closer Look, 444-445

A Correlation of Environmental Science: Your World, Your Turn ©2021
To the
Louisiana 2017 Student Standards for Science: Environmental Science

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Science & Engineering Practices	
• Design, evaluate and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria and trade-off considerations.	**SE/TE:** Central Case: Cleaning the Tides of San Diego and Tijuana, 35 Defend Your Case, 59 Central Case: The Gulf of Mexico's Dead Zone, 63 Make a Difference, 86 Figure 26: Potential Solutions to the Dead Zone, 89 Defend Your Case, 93
Crosscutting Concepts	
STRUCTURE AND FUNCTION	
Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.	**SE/TE:** Water Treatment, 442-443 A Closer Look, 444-445
Performance Expectation HS-EVS2-2: Use a model to predict the effects that pollution as a limiting factor has on an organism's population density.	For supporting content, please see: **SE/TE:** Logistic Growth, 115 Density-Independent Factors, 116 Chapter 4 Assessment, #34, 123 Pollution, 210 Nutrient Pollution, 436 Quick Lab, 437 Nutrient Pollution in the Ocean, 440
Disciplinary Core Ideas	
POLLUTION AND THE ENVIRONMENT	
Different organisms have unique tolerances to pollution hazards. Many of the organisms most tolerant of pollution are the least desirable to humans (e.g., for food, for recreation, for ecosystem services). (HS.EVS2A.b)	For supporting content, please see: **SE/TE:** Tolerance, 134
Science & Engineering Practices	
• Develop and/or use a model (including mathematical and computational) to generate data to support explanations, predict phenomena, analyze systems and/or solve problems	**SE/TE:** Quick Lab, 437
Crosscutting Concepts	
CAUSE AND EFFECT	
Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.	**SE/TE:** Lesson 4 Assessment, #5, 89 Chapter 4 Assessment, #34, 123 Quick Lab, 437

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-EVS2-3: Use multiple lines of evidence to construct an argument addressing the negative impacts that introduced organisms have on Louisiana's native species.	For supporting content, please see: **SE/TE:** What Do You Think?, 153 Invasive Species, 153-155 Lesson 4 Assessment, #3, 155 Invasive Species, 210
Disciplinary Core Ideas	
ECOSYSTEM CHANGE	
The introduction of exotic/invasive species causes a disruption in natural ecosystems and can lead to the loss of native species (i.e. threatened/endangered). (HS.EVS2B.a)	**SE/TE:** What Makes a Species Invasive?, 154 The Cane Toad, 154 Invasive Species, 210
Changes in ecosystems impact the availability of natural resources (e.g. sediment starvation, climate change). (HS.EVS2B.b)	For supporting content, please see: **SE/TE:** The Honeybee, 155
Science & Engineering Practices	
• Construct, use, and/or present an oral and written argument or counterarguments based on data and evidence.	**SE/TE:** What Do You Think?, 153
Crosscutting Concepts	
CAUSE AND EFFECT	
Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.	For supporting content, please see: **SE/TE:** Reading Checkpoint, 210 Assessment, #3, Think It Through, 211

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
PERSONAL RESPONSIBILITIES	
Performance Expectations HS-EVS3-1: Construct and evaluate arguments about the positive and negative consequences of using disposable resources versus reusable resources.	**SE/TE:** Plastic Products, 583 Waste Reduction, 589 Reduce Use of Nonbiodegradable Plastics, 590 Quick Lab, 591 What Do You Think?, 594 Defend Your Case, 607 Chapter 19 Assessment, #34, 609
Disciplinary Core Ideas	
STEWARDSHIP	
Ecosystem sustainability can be used as a model for a sustainable society (e.g. recycling, energy efficiency, diversity). (HS.EVS3A.a)	**SE/TE:** Investigative Phenomenon, 592 Recycling, 593 A Closer Look, 604-605 21st Century Skills, 605
Louisiana citizens are responsible for conserving our state's natural resources. Personal actions can have a positive or negative impact. (HS.EVS3A.b)	**SE/TE:** Waste Reduction, 589 Quick Lab, 591 Investigative Phenomenon, 592
Science & Engineering Practices	
• Evaluate the claims, evidence, and/or reasoning behind currently accepted explanations or solutions to determine the merits of arguments.	For supporting content, please see: **SE/TE:** #3, Think It Through, 588 Chapter 19 Assessment, #27, 608
• Construct, use, and/or present an oral and written argument or counterarguments based on data and evidence.	**SE/TE:** What Do You Think?, 594 Defend Your Case, 607 Chapter 19 Assessment, #34, 609 Write About It, #34, Revisit Investigative Phenomenon, 609
Crosscutting Concepts	
ENERGY AND MATTER	
Changes of energy and matter in a system can be described in terms of energy and matter flows into, out of, and within that system.	**SE/TE:** Ecological Footprints, 609

Louisiana 2017 Student Standards for Science Environmental Science	**Environmental Science Your World, Your Turn ©2021**
EARTH'S SYSTEMS	
Performance Expectation HS-ESS2-2: Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems.	**SE/TE:** Everyday Phenomenon, 484 Energy from the Sun, 484-487 Wind Patterns in the Atmosphere, 487 Ocean Circulation, 488 Ocean Absorption of Carbon Dioxide, 489 Other Factors That Affect Climate, 489-490 Chapter 16 Assessment, #29, 512 For supporting content, please see: Feedback Loops, 73-74 Lesson 2 Assessment, #3, 75
Disciplinary Core Ideas	
EARTH MATERIALS AND SYSTEMS	
Earth's systems, being dynamic and interacting, include feedback effects that can increase or decrease the original changes. (HS.ESS2A.a)	**SE/TE:** Feedback Loops, 73-74 Lesson 2 Assessment, #1, #3, 75
WEATHER AND CLIMATE	
The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, hydrosphere, and land systems, and this energy's re-radiation into space. (HS.ESS2D.a)	**SE/TE:** Everyday Phenomenon, 484 Energy from the Sun, 484-487 Wind Patterns in the Atmosphere, 487 Ocean Circulation, 488 Ocean Absorption of Carbon Dioxide, 489 Other Factors That Affect Climate, 489-490 Chapter 16 Assessment, #29, 512
Science & Engineering Practices	
• Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.	For related content, please see: **SE/TE:** Lesson 2 Assessment, #3, 75 Analyze Data, #33-#37, 513
Crosscutting Concepts	
STABILITY AND CHANGE	
Feedback (negative or positive) can stabilize or destabilize a system.	**SE/TE:** Feedback Loops, 73-74 Lesson 2 Assessment, #1, #3, 75

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-ESS2-4: Analyze and interpret data to explore how variations in the flow of energy into and out of Earth's systems result in changes in atmosphere and climate.	**SE/TE:** The Troposphere and Weather, 458 Everyday Phenomenon, 484 Energy from the Sun, 484-487 Investigative Phenomenon, 485 Wind Patterns in the Atmosphere, 487 The Oceans and Climate, 488-489 Real Data, 493 Models: Predicting the Future, 494-495 Finding the Cause of Climate Change, 495-496 Lesson 2 Assessment, #3, #4, 496 Chapter 16 Assessment, #20, #26, 512
Disciplinary Core Ideas	
EARTH AND THE SOLAR SYSTEM	
Cyclical changes in the shape of Earth's orbit around the sun, together with changes in the tilt of the planet's axis of rotation, both occurring over hundreds of thousands of years, have altered the intensity and distribution of sunlight falling on Earth. These phenomena cause a cycle of ice ages and other gradual climate changes. (HS.ESS1B.b)	**SE/TE:** Changes in Earth's Orbit, 490
EARTH MATERIALS AND SYSTEMS	
The geological record shows that changes to global and regional climate can be caused by interactions among changes in the sun's energy output or Earth's orbit, tectonic events, hydrosphere circulation, volcanic activity, glaciers, vegetation, and human activities. These changes can occur on a variety of time scales from sudden (e.g., volcanic ash clouds) to intermediate (ice ages) to very long-term tectonic cycles. (HS.ESS2A.d)	**SE/TE:** Everyday Phenomenon, 484 Energy from the Sun, 484-487 The Oceans and Climate, 488-489 Other Factors That Affect Climate, 489-490 Finding the Cause of Climate Change, 495-496 Lesson 2 Assessment, #3, #4, 496 Chapter 16 Assessment, #20, #26, 512
WEATHER AND CLIMATE	
The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, hydrosphere and land systems, and this energy's re-radiation into space. (HS.ESS2D.a)	**SE/TE:** Everyday Phenomenon, 484 Energy from the Sun, 484-487 Wind Patterns in the Atmosphere, 487 Ocean Circulation, 488 Ocean Absorption of Carbon Dioxide, 489 Chapter 16 Assessment, #29, 512
Gradual atmospheric changes were due to plants and other organisms that captured carbon dioxide and released oxygen. (HS.ESS2D.b)	**SE/TE:** Producers, 84 Cellular Respiration, 85 The Missing Carbon Sink, 85 Regional Vegetation, 490

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate. (HS.ESS2D.c)	**SE/TE:** Human Impacts, 85 Investigative Phenomenon, 495 Finding the Cause of Climate Change, 495-496 Lesson 2 Assessment, #3, #4, 496 Chapter 16 Assessment, #20, 512
Science & Engineering Practices	
• Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution	**SE/TE:** Real Data, 493 Interpret Visuals, 495 Increase in Greenhouse Gases, 496
Crosscutting Concepts	
CAUSE AND EFFECT	
Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.	**SE/TE:** Everyday Phenomenon, 484 Lesson 1 Assessment, #1, 490 Investigative Phenomenon, 495 Lesson 2 Assessment, #3, #4, 496 Chapter 16 Assessment, #25, #26, 512
Performance Expectation HS-ESS2-5: Plan and conduct an investigation on the properties of water and its effects on Earth materials and surface processes.	**SE/TE:** Quick Lab: How Does the Hot Water Move?, 459 For supporting content, please see: Bonding, 65 Properties of Water, 69-70 Lesson 1 Assessment, #3, 71 The Oceans and Climate, 488-489
Disciplinary Core Ideas	
THE ROLE OF WATER IN EARTH'S SURFACE PROCESSES	
The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks (HS.ESS2C.a)	**SE/TE:** Properties of Water, 69-70 Carbon in Oceans, 85 A River's Course, 186 Sedimentary Rock, 396 Quick Lab: How Does the Hot Water Move?, 459 The Oceans and Climate, 488-489
Science & Engineering Practices	
• Plan an investigation (science) or test a design (engineering) individually and collaboratively to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.	For related content, please see: **SE/TE:** Bonding, 65 Properties of Water, 69-70 Lesson 1 Assessment, #3, 71

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Crosscutting Concepts	
STRUCTURE AND FUNCTION	
The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.	**SE/TE:** Bonding, 65 Properties of Water, 69-70
Performance Expectation HS-ESS2-6: Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	**SE/TE:** The Carbon Cycle, 83-85 Figure 21: Carbon Cycle, 84 Write About It, #35, 95 Revisit Anchoring Phenomenon, #2, 96
Disciplinary Core Ideas	
WEATHER AND CLIMATE	
Gradual atmospheric changes were due to plants and other organisms that captured carbon dioxide and released oxygen. (HS.ESS2D.b)	**SE/TE:** Producers, 84 Cellular Respiration, 85 The Missing Carbon Sink, 85 Regional Vegetation, 490
Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate. (HS.ESS2D.c)	**SE/TE:** Human Impacts, 85 Investigative Phenomenon, 495 Finding the Cause of Climate Change, 495-496 Lesson 2 Assessment, #3, #4, 496 Chapter 16 Assessment, #20, 512
Science & Engineering Practices	
• Develop a model based on evidence to illustrate the relationships between systems or between components of a system.	**SE/TE:** Figure 21: Carbon Cycle, 84 Revisit Anchoring Phenomenon, #2, 96
Crosscutting Concepts	
ENERGY AND MATTER	
The total amount of energy and matter in closed systems is conserved.	**SE/TE:** Nutrient Cycling, 83

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
HUMAN SUSTAINABILITY	
Performance Expectation HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	**SE/TE:** The Tragedy of the Commons, 11 Lesson 1 Assessment, #3, 11 Everyday Phenomenon, 277 Earthquakes, 277-278 Damage from Volcanic Eruptions, 279 Investigative Phenomenon, 280 Hurricane Damage, 281 Investigative Phenomenon, 500 Future Impact on People, 501 Lesson 3 Assessment, #2, #3, #4, 501 Chapter 16 Assessment, #40, 513
Disciplinary Core Ideas	
NATURAL RESOURCES	
Resource availability has guided the development of human society. (HS.ESS3A.a)	**SE/TE:** Renewable or Nonrenewable?, 7 Human Population Growth, 8 History of Human Population Growth, 228-229 Lesson 1 Assessment, #1, 233 Chapter 8 Assessment, #35, 253
NATURAL HAZARDS	
Natural hazards and other geologic events have shaped the course of human history; [they] have significantly altered the sizes of human populations and have driven human migrations. (HS.ESS3B.a)	**SE/TE:** The Lesson of Easter Island, 28-29 Surface Effects, 278 Volcanoes, 279 Tornado Damage, 280 Hurricane Damage, 281
Science & Engineering Practices	
• Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.	**SE/TE:** Investigative Phenomenon, 280 Investigative Phenomenon, 500 Lesson 3 Assessment, #4, 501
Crosscutting Concepts	
CAUSE AND EFFECT	
Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.	**SE/TE:** Everyday Phenomenon, 277 Investigative Phenomenon, 280 Lesson 3 Assessment, #2, #3, 501 Chapter 16 Assessment, #40, 513

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-ESS3-2: Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.	**SE/TE:** Mining Methods, 399-402 Investigative Phenomenon, 400 Responsible Mineral Use, 411 Lesson 3 Assessment, #4, 411 Chapter 13 Assessment, #35, 417 Find Out More, 524 New Sources of Fossil Fuels, 528 Lesson 2 Assessment, #6, 528 Energy Conservation, 535 Lesson 3 Assessment, #5, 535 Benefits and Costs of Nuclear Power, 539-540 Lesson 4 Assessment, #5, 541 Using Coal to Generate Electricity, 542-543 Chapter 17 Assessment, #39, 547 What Do You Think?, 553 Investigative Phenomenon, 554 Benefits and Costs of Geothermal Energy, 555 Lesson 1 Assessment, #4, 555 Investigative Phenomenon, 558 Benefits and Costs of Hydropower, 558-559 Benefits and Costs of Solar Power, 565-566 Investigative Phenomenon, 566 Benefits and Costs of Wind Power, 568-569 Benefits and Costs of Energy from Hydrogen, 572 Lesson 4 Assessment, #3, 573 Are Biofuels Better For the Environment?, 574-575 Chapter 18 Assessment, #37, 579
Disciplinary Core Ideas	
NATURAL RESOURCES	
All forms of energy production and other resource extraction have associated economic, social, environmental, and geopolitical costs and risks as well as benefits. New technologies and social regulations can change the balance of these factors. (HS.ESS3A.b)	**SE/TE:** Negative Impacts of Mining, 405-408 Surface Mining Control and Reclamation Act (1977), 410 Advantages of Coal, 524 Find Out More, 524 Pollution from Fossil Fuels, 530-531 Damage Caused by Extracting Fuels, 532-533 Benefits and Costs of Nuclear Power, 539-540 Benefits of Biomass Energy, 553 Benefits and Costs of Geothermal Energy, 555 Benefits and Costs of Hydropower, 558-559 Tidal Energy, 559-560 Benefits and Costs of Solar Power, 565-566 Benefits and Costs of Wind Power, 568-569 Benefits and Costs of Energy from Hydrogen, 572

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
DESIGNING SOLUTIONS TO ENGINEERING PROBLEMS	
When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. (HS.ETS1B.a)	**SE/TE:** Damage Caused by Extracting Fuels, 532-533 Benefits and Costs of Nuclear Power, 539-540 Benefits of Biomass Energy, 553 Benefits and Costs of Geothermal Energy, 555 Benefits and Costs of Hydropower, 558-559 Benefits and Costs of Solar Power, 565-566 Benefits and Costs of Wind Power, 568-569 Benefits and Costs of Energy from Hydrogen, 572
Science & Engineering Practices	
• Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.	**SE/TE:** Investigative Phenomenon, 407 Lesson 3 Assessment, #4, 411 Chapter 13 Assessment, #35, 417 Interpret Graphs, 527 Lesson 2 Assessment, #6, 528 Lesson 3 Assessment, #5, 535 Lesson 4 Assessment, #5, 541 21st Century Skills, 543 What Do You Think?, 553 Lesson 1 Assessment, #4, 555 Lesson 4 Assessment, #3, 573 21st Century Skills, 575 Chapter 18 Assessment, #37, 579
Crosscutting Concepts	
SYSTEMS AND SYSTEM MODELS	
Systems can be designed to do specific tasks.	**SE/TE:** Processing Minerals and Metals, 403-404 Diverting Water, 428 Solutions That Increase Supply, 432-433 Water Treatment, 442-443 A Closer Look, 444-445 Generating Electricity, 538 A Closer Look, 545-543 Generating Electricity, 554 Generating Electricity with Hydropower, 557-558 Generating Electricity with Solar Energy, 562-564

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-ESS3-3: Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	**SE/TE:** Causes of Biodiversity Loss, 209-211 Lesson 2 Assessment, #3, 211 Ecosystem and Habitat Approaches, 215-517 Chapter 7 Assessment, #20, 222 Ecological Footprints, 223 Impacts of Population, 242-246 Investigative Phenomenon, 245 What Do You Think?, 246 Chapter 8 Assessment, #34, 253 Ecological Footprints, 253 Renewable Resource Management, 324-327 Investigative Phenomenon, 325 Management Approaches, 327-329 Dwindling Deposits, 527
Disciplinary Core Ideas	
HUMAN IMPACTS ON EARTH SYSTEMS	
The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. (HS.ESS3C.a)	**SE/TE:** Renewable Resource Management, 324-327 Investigative Phenomenon, 325 Management Approaches, 327-329 What Do You Think?, 328 Responsible Mineral Use, 411 Solutions That Reduce Demand, 433-434 Lesson 2 Assessment, #5, 434 Energy Conservation, 535
Science & Engineering Practices	
• Create a computational model or simulation of a phenomenon, designed device, process, or system.	**SE/TE:** Ecological Footprints, 223
Crosscutting Concepts	
STABILITY AND CHANGE	
Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.	**SE/TE:** Chapter 7 Assessment, #17, #18, #19, #20, 222 Chapter 8 Assessment, #33, #34, 253 Interpret Graphs, 327 Interpret Graphs, 527 Chapter 17 Assessment, #33, #34, #35, #36, 547

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Performance Expectation HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.*	**SE/TE:** Real Data, 332 Everyday Phenomenon, 502 Use and Production of Electricity, 502-503 Transportation, 504 Other Approaches to Reducing Greenhouse Gases, 505-506 Lesson 4 Assessment, #5, 507 Chapter 16 Assessment, #38, 512 Figure 8: Hydropower Dam, 557 Figure 17: How a Wind Turbine Generates Electricity, 567 How Fuel Cells Are Used, 573
Science & Engineering Practices	
• Design or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations	**SE/TE:** Real Data, 332 Lesson 4 Assessment, #5, 507 Chapter 16 Assessment, #38, 513 What Do You Think?, 553
Disciplinary Core Ideas	
HUMAN IMPACTS ON EARTH SYSTEMS	
Scientists and engineers can make major contributions by developing technologies that produce less pollution and waste and that preclude ecosystem degradation. (HS.ESS3C.b)	**SE/TE:** Vehicle Technology, 504 Air Pollution, 530 Benefits of Nuclear Power, 539 21st Century Skills, 543 Ground Source Heat Pumps, 554-555 Figure 8: Hydropower Dam, 557 Photovoltaic Cells, 562-563 Figure 13: Going Solar, 563 Concentrating Solar Power (CSP), 564 Figure 17: How a Wind Turbine Generates Electricity, 567 How Fuel Cells Are Used, 573
DESIGNING SOLUTIONS TO ENGINEERING PROBLEMS	
When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. (HS.ETS1B.a)	**SE/TE:** Benefits and Costs of Nuclear Power, 539-540 What Do You Think?, 553 Benefits and Costs of Geothermal Energy, 555 Benefits and Costs of Hydropower, 558-559 Benefits and Costs of Solar Power, 565-566 Benefits and Costs of Wind Power, 568-569 Benefits and Costs of Energy from Hydrogen, 572

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Crosscutting Concepts	
STABILITY AND CHANGE	
Feedback (negative or positive) can stabilize or destabilize a system.	**SE/TE:** Feedback Loops, 73-74 Agriculture and Forestry, 505
Performance Expectation HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.	**SE/TE:** Earth's Systems, 73 Earth's "Spheres", 74-75 Human Impacts, 82-89 Chapter 3 Assessment, #35, 95 Ecological Footprints, 95 Wind Patterns in the Atmosphere, 487 Ocean Circulation, 488 Ocean Absorption of Carbon Dioxide, 489 Figure 9: Climate Model, 495 Finding the Cause of Climate Change, 495-496 Lesson 2 Assessment, #3, #4, 496 Everyday Phenomenon, 497 Effects on Ecosystems and Organisms, 497-499 Chapter 16 Assessment, #40, 513
Disciplinary Core Ideas	
WEATHER AND CLIMATE	
Current models predict that, although future regional climate changes will be complex and varied, average global temperatures will continue to rise. The outcomes predicted by global climate models strongly depend on the amounts of human-generated greenhouse gases added to the atmosphere each year and by the ways in which these gases are absorbed by the ocean and biosphere. (HS.ESS2D.d)	**SE/TE:** Rising Temperatures, 491 Models: Predicting the Future, 494-495 Lesson 2 Assessment, #2, 496
GLOBAL CLIMATE CHANGE	
Important discoveries are still being made about how the ocean, the atmosphere, and the biosphere interact and are modified in response to human activities (e.g., through computer simulations and other discoveries satellite imagery). (HS.ESS3D.b)	**SE/TE:** Wind Patterns in the Atmosphere, 487 Ocean Circulation, 488 Ocean Absorption of Carbon Dioxide, 489 Models: Predicting the Future, 494-495 Finding the Cause of Climate Change, 495-496 Effects on Ecosystems and Organisms, 497-499
Science & Engineering Practices	
• Use a computational representation of phenomena or design solutions to describe and/or support claims and/or explanations.	**SE/TE:** Figure 9: Climate Model, 495

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Crosscutting Concepts	
SYSTEMS AND SYSTEM MODELS	
When investigating or describing a system, the boundaries and initial conditions of the system need to be defined and their inputs and outputs analyzed and described using models.	**SE/TE:** Figure 19: The Water Cycle, 81 Figure 21: Carbon Cycle, 84 Figure 23: Phosphorus Cycle, 86 Figure 24: Nitrogen Cycle, 87 Figure 4: El Niño, 488 Figure 9: Climate Model, 495 Chapter 16 Assessment, #40, 513
ECOSYSTEMS: INTERACTIONS, ENERGY AND DYNAMICS	
Performance Expectation HS LS2-1: Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity, biodiversity and populations of ecosystems at different scales.	**SE/TE:** Everyday Phenomenon, 110 Factors That Determine Population Growth, 110-113 Real Data, 112 Investigative Phenomenon, 114 How Populations Grow, 114-115 Figure 13: Population Growth in Nature, 115 Limiting Factors and Biotic Potential, 116-117 Lesson 3 Assessment, #4, 117 Write About It, 119 Chapter 4 Assessment, #30, #31, #34, 123 Everyday Phenomenon, 149 Investigative Phenomenon, 150 Everyday Phenomenon, 207 Causes of Biodiversity Loss, 209-211 Lesson 2 Assessment, #2, 211 Chapter 7 Assessment, #20, #34, 222-223
Disciplinary Core Ideas	
INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS	
Ecosystems have carrying capacities, which are limits to the numbers of organisms and populations they can support. These limits result from such factors as the availability of living and nonliving resources and from such challenges as predation, competition, and disease that affect biodiversity, including genetic diversity within a population and species diversity within an ecosystem. Organisms would have the capacity to produce populations of great size were it not for the fact that environments and resources are finite. This fundamental tension affects the abundance (number of individuals) of species in any given ecosystem. (HS.LS2A.a)	**SE/TE:** How Populations Grow, 114-115 Limiting Factors and Biotic Potential, 116-117 Lesson 3 Assessment, #3, 117 Chapter 4 Assessment, #31, #34, 123 Competition, 134 Predation, 136 How Long Will Growth Continue?, 231

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Human activity directly and indirectly affect biodiversity and ecosystem health (e.g., habitat fragmentation, introduction of nonnative or invasive species, over- harvesting, pollution and climate change). (HS.LS2A.b)	**SE/TE:** Causes of Biodiversity Loss, 209-211 Lesson 2 Assessment, #2, 211 Chapter 7 Assessment, #34, 223
Science & Engineering Practices	
• Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.	**SE/TE:** Real Data, 112 Chapter 4 Assessment, #30, 123 Chapter 7 Assessment, #20, 222
Crosscutting Concepts	
SCALE, PROPORTION, AND QUANTITY	
The significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs.	**SE/TE:** Population Distribution, 107 Age Structure and Sex Ratios, 108-109 Survivorship Curves, 111 Age Structure and Population Growth, 111 How Populations Grow, 114-115 Chapter 4 Assessment, #34, 122-123 The Ten Percent Rule, 145 Numbers and Biomass in Communities, 145 Habitat Change and Loss, 209 Maximum Sustainable Yield, 328
Performance Expectation HS-LS2-4: Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	**SE/TE:** Ecological Footprints, 95 Real Data, 144 Energy in Communities, 144-145 Lesson 3 Assessment, #2, 148 Also see: The Water Cycle, 81-82 The Carbon Cycle, 83-85 The Phosphorus Cycle, 86 The Nitrogen Cycle, 87-89
Disciplinary Core Ideas	
CYCLES OF MATTER AND ENERGY TRANSFER IN ECOSYSTEMS	
Energy is inefficiently transferred from one trophic level to another that affect the relative number of organisms that can be supported at each trophic level and necessitates a constant input of energy from sunlight or inorganic compounds from the environment. (HS.LS2B.b)	**SE/TE:** Energy from the Sun, 142 Energy from Chemicals, 142 Real Data, 144 Energy in Communities, 144-145

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Photosynthesis, cellular respiration, decomposition and combustion are important components of the carbon cycle, in which carbon is exchanged among the biosphere, atmosphere, hydrosphere, and geosphere through chemical, physical, geological, and biological processes.(HS.LS2B.c)	**SE/TE:** Figure 21: Carbon Cycle, 84 Producers, 84 Consumers and Decomposers, 84 Cellular Respiration, 85
Photosynthesis, chemosynthesis, aerobic and anaerobic respiration and cellular respiration (including anaerobic processes) provide most of the energy for life processes. Environmental conditions restrict which and when reactions can occur. (HS.LS2B.a) (suggested extension)	**SE/TE:** Energy from the Sun, 142 Energy from Chemicals, 142 Consumers, 142-143
Crosscutting Concepts	
ENERGY AND MATTER: FLOWS, CYCLES, AND CONSERVATION	
Energy cannot be created or destroyed—it only moves between one place and another place, between objects and/or fields, or between systems.	**SE/TE:** Energy from the Sun, 142 Consumers, 142-143 Real Data, 144 Energy in Communities, 144-145 Reading Checkpoint, 145
Performance Expectation HS-LS2-6: Evaluate the claims, evidence and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.	**SE/TE:** Investigative Phenomenon, 108 Age Structure, 108 Age Structure and Population Growth, 111 Logistic Growth, 115 The Cloudless Forest, 118-119 Chapter 4 Assessment, #34, 123 Population Cycles, 136 Reading Checkpoint, 136 Numbers and Biomass in Communities, 145 Everyday Phenomenon, 149 Ecological Succession, 149-153 Investigative Phenomenon, 150 Quick Lab, 152 Chapter 5 Assessment, #29, 161 Biodiversity and Ecosystem Function, 204-205

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
Disciplinary Core Ideas	
ECOSYSTEM DYNAMICS, FUNCTIONING, AND RESILIENCE	
The dynamic interactions within an ecosystem can keep its numbers and types of organisms relatively constant over long periods of time under stable conditions. If a modest biological or physical disturbance to an ecosystem occurs, it may return to its more or less original status (i.e., the ecosystem is resilient), as opposed to becoming a very different ecosystem. Extreme fluctuations in conditions or the size of any population, however, can challenge the functioning of ecosystems in terms of resources and habitat availability and may result in new ecosystems. (HS.LS2C.a)	**SE/TE:** Age Structure, 108 Age Structure and Population Growth, 111 Logistic Growth, 115 Lesson 3 Assessment, #4, 117 The Cloudless Forest, 118-119 Population Cycles, 136 Reading Checkpoint, 136 Numbers and Biomass in Communities, 145 Everyday Phenomenon, 149 Ecological Succession, 149 Primary Succession, 150 Climax Communities, 153 Chapter 5 Assessment, #29, 161 Biodiversity and Ecosystem Function, 204-205 Causes of Biodiversity Loss, 209-211
Science & Engineering Practices	
• Evaluate the claims, evidence, and/or reasoning behind currently accepted explanations or solutions to determine the merits of arguments.	**SE/TE:** The Cloudless Forest, 118-119 Write About It, 119 Chapter 4 Assessment, #34, 123
Crosscutting Concepts	
STABILITY AND CHANGE	
Much of science deals with constructing explanations of how things change and how they remain stable.	**SE/TE:** Investigative Phenomenon, 108 Real Data, 112 Lesson 3 Assessment, #2, #4, 117 The Cloudless Forest, 118-119 Write About It, 119 Chapter 4 Assessment, #34, 123 Reading Checkpoint, 136 Lesson 3 Assessment, #3, 148 Everyday Phenomenon, 149 Investigative Phenomenon, 150 Chapter 5 Assessment, #29, 161

Louisiana 2017 Student Standards for Science Environmental Science	**Environmental Science Your World, Your Turn ©2021**
Performance Expectation HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	**SE/TE:** Legal Efforts, 212-213 Chapter 7 Assessment, #32, 223 Write About It!, #36, 319 Chapter 16 Assessment, #38, 513 Also see supporting content: Smart Growth, 308 Green Building Design, 312 Ecological Footprints, 319 Management Approaches, 327-329 Real Data, 332 Soil Conservation Policies, 362-363 Lesson 2 Assessment, #5, 364 Sustainable Agriculture, 381 Solutions to Freshwater Depletion, 432-434 Lesson 2 Assessment, #5, 434 Other Approaches to Reducing Greenhouse Gases, 505-506 Waste Reduction, 589-591
Disciplinary Core Ideas	
ECOSYSTEM DYNAMICS, FUNCTIONING, AND RESILIENCE	
Ecosystems with a greater biodiversity tend to have a greater resistance and resilience to change. Moreover, anthropogenic changes (induced by human activity) in the environment—including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species. (HS.LS2C.b)	**SE/TE:** Biodiversity and Ecosystem Function, 204-205 Causes of Biodiversity Loss, 209-211 Lesson 2 Assessment, #2, 211 Chapter 7 Assessment, #34, 223
BIODIVERSITY AND HUMANS	
Biodiversity is increased by the formation of new species (speciation) and decreased by the loss of species (extinction). Humans depend on the living world for the resources and other benefits provided by biodiversity. Human activity is also having adverse impacts on biodiversity through overpopulation, overexploitation, habitat destruction, pollution, introduction of invasive species, and climate change. Thus, sustaining biodiversity so that ecosystem functioning and productivity are maintained is essential to supporting and enhancing life on Earth. Sustaining biodiversity also aids humanity by preserving landscapes of recreational or inspirational value. (HS.LS4D.a)	**SE/TE:** Speciation and Extinction, 131-132 Lesson 1 Assessment, #2, 132 The Ecological Importance of Wetlands, 184 Species Diversity, 201 Benefits of Biodiversity, 204-206 Biodiversity, Tourism, and Recreation, 206 Investigative Phenomenon, 205 Lesson 1 Assessment, #3, 206 A Sixth Mass Extinction?, 208 Causes of Biodiversity Loss, 209-211 Ecosystem and Habitat Approaches, 215-217 Chapter 7 Assessment, #33, #34, 223

Louisiana 2017 Student Standards for Science Environmental Science	Environmental Science Your World, Your Turn ©2021
DEVELOPING POSSIBLE SOLUTIONS	
When evaluating solutions it is important to take into account a range of constraints including cost, safety, reliability and aesthetics and to consider social, cultural and environmental impacts. (HS.ETS1B.a)	**SE/TE:** Single-Species Approaches, 214-215 Ecosystem and Habitat Approaches, 215-217 Lesson 3 Assessment, #4, 217 Chapter 7 Assessment, #32, 223 Management Approaches, 327-329 What Do You Think?, 328 Lesson 1 Assessment, #2, 329 Real Data, 332 Solutions to Freshwater Depletion, 432-434 Lesson 2 Assessment, #5, 434
Science & Engineering Practices	
• Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.	**SE/TE:** Chapter 7 Assessment, #32, 223 Ecological Footprints, 319 What Do You Think?, 328 Real Data, 332 Lesson 2 Assessment, #5, 364 Lesson 2 Assessment, #5, 434 Chapter 16 Assessment, #38, 513
Crosscutting Concepts	
STABILITY AND CHANGE	
Much of science deals with constructing explanations of how things change and how they remain stable.	**SE/TE:** Chapter 7 Assessment, #19, #20, #33, 222-223 Chapter 10 Assessment, #31, 318 Lesson 2 Assessment, #3, 364 Chapter 16 Assessment, #32, 512