Global Warming & The Greenhouse Effect
Grades 7-10

Benchmarks for the Sunshine State Standards
Correlation for Grades 6-8 Only

SCIENCE

Strand A: The Nature of Matter

Standard 1: The student understands that all matter has observable, measurable properties.

Benchmarks
SC.A.1.3.1 The student identifies various ways in which substances differ (e.g., mass, volume, shape, density, texture, and reaction to temperature and light).
SC.A.1.3.3 The student knows that temperature measures the average energy of motion of the particles that make up the substance.

Standard 2: The student understands the basic principles of atomic theory.

Benchmark
SC.A.2.3.3 The student knows that radiation, light, and heat are forms of energy used to cook food, treat diseases, and provide energy.

Strand B: Energy

Standard 1: The student recognizes that energy may be changed in form with varying efficiency.

Benchmarks
SC.B.1.3.1 The student identifies forms of energy and explains that they can be measured and compared.
SC.B.1.3.2 The student knows that energy cannot be created or destroyed, but only changed from one form to another.
SC.B.1.3.3 The student knows the various forms in which energy comes to Earth from the sun (e.g., visible light, infrared, and microwave).
SC.B.1.3.4 The student knows that energy conversions are never 100% efficient (i.e., some energy is transformed to heat and is unavailable for further useful work).
SC.B.1.3.5 The student knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.
SC.B.1.3.6 The student knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.
Standard 2: The student understands the interaction of matter and energy.

Benchmark
SC.B.2.3.2 The student knows that most of the energy used today is derived from burning stored energy collected by organisms millions of years ago (i.e., nonrenewable fossil fuels).

Strand D: Processes that Shape the Earth

Standard 1: The student recognizes that processes in the lithosphere, atmosphere, hydrosphere, and biosphere interact to shape the Earth.

Benchmarks
SC.D.1.3.3 The student knows how conditions that exist in one system influence the conditions that exist in other systems.
SC.D.1.3.5 The student understands concepts of time and size relating to the interaction of Earth’s processes (e.g., lightning striking in a split second as opposed to the shifting of the Earth’s plates altering the landscape, distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).

Standard 2: The student understands the need for protection of the natural systems on Earth.

Benchmarks
SC.D.2.3.1 The student understands that quality of life is relevant to personal experience.
SC.D.2.3.2 The student knows the positive and negative consequences of human action on the Earth’s systems.

Strand E: Earth and Space

Standard 1: The student understands the interaction and organization in the Solar System and the universe and how this affects life on Earth.

Benchmarks
SC.E.1.3.1 The student understands the vast size of our Solar System and the relationship of the planets and their satellites.
SC.E.1.3.3 The student understands that our sun is one of many stars in our galaxy.

Strand G: How Living Things Interact with Their Environment

Standard 2: The student understands the consequences of using limited natural resources.

Benchmarks
SC.G.2.3.1 The student knows that some resources are renewable and others are nonrenewable.
SC.G.2.3.2 The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.
SC.G.2.3.4 The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.
Strand H: The Nature of Science

Standard 1: The student uses the scientific processes and habits of mind to solve problems.

**Benchmarks**

SC.H.1.3.1 The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.

SC.H.1.3.4 The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator’s credibility with other scientists and society.

SC.H.1.3.5 The student knows that a change in one or more variables may alter the outcome of an investigation.

Standard 3: The student understands that science, technology, and society are interwoven and independent.

**Benchmarks**

SC.H.3.3.1 The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.

SC.H.3.3.2 The student knows that special care must be taken in using animals in scientific research.
MATH

**Strand B: Measurement**

**Standard 2:** The student compares, contrasts, and converts within systems of measurement.

**Benchmark**  
MA.B.2.3.1 The student uses direct (measured) and indirect (nonmeasured) measures to compare a given characteristic in either metric or customary units.

**Strand D: Algebraic Thinking**

**Standard 1:** The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions.

**Benmarks**  
MA.D.1.3.1 The student describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.  
MA.D.1.3.2 The student creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.

**Strand E: Data Analysis and Probability**

**Standard 1:** The student understands and uses the tools of data analysis for managing information.

**Benchmark**  
MA.E.1.3.1 The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.

**Standard 3:** The student uses statistical methods to make inferences and valid arguments about real-world situations.

**Benchmark**  
MA.E.3.3.1 The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, mode) and tables, graphs, and charts.
**LANGUAGE ARTS**

**Strand A: Reading**

**Standard 1: The student uses the reading process effectively.**

**Benchmark**
LA.A.1.3.3 The student demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.

**Standard 2: The student constructs meaning from a wide range of texts.**

**Benchmarks**
LA.A.2.3.4 The student uses a variety of reading materials to develop personal preferences in reading.
LA.A.2.3.5 The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.

**Strand B: Writing**

**Standard 2: The student writes to communicate ideas and information effectively.**

**Benchmark**
LA.B.2.3.1 The student writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.

**Strand C: Listening, Viewing, and Speaking**

**Standard 1: The student uses listening strategies effectively.**

**Benchmarks**
LA.C.1.3.1 The student listens and uses information gained for a variety of purposes, such as gaining information from interviews, following direction, and pursuing personal interest.
LA.C.1.3.4 The student uses responsive listening skills, including paraphrasing, summarizing, and asking questions for elaboration and clarification.

**Standard 3: The student uses speaking strategies effectively.**

**Benchmarks**
LA.C.3.3.2 The student asks questions and makes comments and observations that reflect understanding and application of content, processes, and experiences.
LA.C.3.3.3 The student speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations.
Strand E: Literature

Standard 2: The student responds critically to fiction, nonfiction, poetry, and drama.

Benchmark
LA.E.2.3.8 The student knows how a literary selection can expand or enrich personal viewpoints or experiences.

Social Studies

Strand B: People, Places, and Environments [Geography]

Standard 2: The student understands the interactions of people and the physical environment.

Benchmarks
SS.B.2.3.6 The student understands the environmental consequences of people changing the physical environment in various world locations.
SS.B.2.3.9 The student understands how the interaction between physical and human systems affects current conditions on Earth.

Strand C: Government and the Citizen [Civics & Government]

Standard 2: The student understands the role of the citizen in American democracy.

Benchmark
SS.C.2.3.6 The student understands the importance of participation in community service, civic improvement, and political activities.