Goals of Florida's State Academic Standards for Science

Simplicity
Florida's state academic standards and benchmarks for science are written in clear, accessible language to explain complex scientific concepts while preserving the academic vocabulary necessary for scientific literacy and disciplinary understanding.

Specificity
Florida's state academic standards and benchmarks for science are organized to provide clear expectations for student learning while supporting multiple pathways for Florida's students.

Longevity
Florida's state academic standards and benchmarks for science are intentionally developed around enduring scientific concepts and principles to ensure they remain scientifically accurate and relevant as scientific knowledge advances and new discoveries are made.

Scientific Accuracy
Florida's state academic standards and benchmarks for science are grounded in evidence-based scientific theories, laws, models, and explanations and are written to promote accurate scientific understanding and address common misconceptions.

Guiding Principles for Florida's State Academic Standards for Science

High Expectations
Florida's state academic standards and benchmarks for science are designed to provide all students with access to a world-class science education, preparing them for future learning, career opportunities, and evidence-based decision-making.

Clarity
Florida's state academic standards and benchmarks for science are written using clear and concise language for students, families, educators, and stakeholders. Benchmark clarifications are included to support comprehensive understanding of the standards and increase transparency of expectations.

Alignment
Florida's state academic standards and benchmarks for science are organized as a coherent progression of scientific knowledge, understanding, and practices.

- Vertical alignment ensures that concepts, skills, and scientific practices build systematically from Kindergarten through Grade 12, allowing students to develop increasingly sophisticated understanding over time.

- Horizontal alignment ensures consistency and coherence among related disciplines, strands, standards, benchmarks, clarifications, examples and instructional supports within each grade band, enabling students to make meaningful connections across scientific concepts and fields of study.
- Together, vertical and horizontal alignment support benchmarks-aligned, high-quality instruction by establishing clear expectations for teaching and learning while promoting coherence across the K-12 science system.
- Interdisciplinary application of benchmarks ensures that students apply their scientific knowledge and practices across scientific disciplines, incorporating mathematics, literacy, engineering, technology, and real-world contexts to support deeper thinking and problem-solving through integrated content within the K-12 educational system.
- Science benchmarks are intended to be taught through meaningful connections within and across strands, standards, and scientific disciplines rather than in isolation. Instruction should provide opportunities for students to apply multiple benchmarks together while investigating phenomena, solving problems, analyzing evidence, and developing explanations. This integrated approach promotes deeper understanding and reflects the interconnected nature of science.

Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards for Science

Design of Standards

The standards are designed to be user-friendly, so every stakeholder will understand what students are expected to master. Taken together, the benchmarks, clarifications, and examples represent the expected outcomes for students of Florida and carry the full weight of the standards.

Coding Scheme

Florida's state academic standards utilize a unique coding scheme that uses a five-part alphanumeric coding system comprised of the subject, grade level, strand, standard, and benchmark. For Kindergarten through Grade 8, the coding scheme is defined by each individual grade level. For Grades 9-12, the scheme is banded and organized by strands. **Strands** are groups of related standards organized around a common scientific concept or theme. **Standards** are overarching criteria for the grade level or grade band. **Benchmarks** are specific expectations for the grade level or grade band that falls within the standard. The scientific knowledge and skills described in each benchmark are intended to be developed throughout the school year and mastered by the end of each grade level or course. It is important to note that benchmarks from different strands may be closely related because science is an interconnected discipline.

Science benchmarks are intended to be taught through meaningful and purposeful connections within and across strands, disciplines, and scientific practices. While benchmarks establish discrete expectations for student learning, they are not intended to function as isolated units of instruction. Effective science teaching integrates related benchmarks and incorporates the

Scientific Thinking and Reasoning Standards (STARS) throughout instruction, providing students with opportunities to investigate phenomena, analyze evidence, develop models, construct explanations, and apply scientific knowledge in authentic contexts.

K-8 Example

Subject	*Grade Level*	*Strand*	*Standard*	*Benchmark*
SC.	**1.**	**EN.**	**1.**	**1**
Science	Grade 1	Energy	Describe how light and electricity are sources of energy used in everyday life.	Investigate light energy and explain how it can cause changes.

9-12 Example

Subject	*Grade Level*	*Strand*	*Standard*	*Benchmark*
SC.	**912.**	**EN.**	**1.**	**1**
Science	Grades 9-12	Energy	Explain the forms, conservation, transfer, efficiency, and sources of energy to describe how energy is stored, moves between systems, and powers natural and human made processes.	Recall the forms of energy.

Scientific Thinking and Reasoning Standards (STARS) Example

Subject	*Grade Level*	*Strand*	*Standard*	*Benchmark*
SC.	**K12.**	**STR.**	**1.**	**1**
Science	Kindergarten through Grade 12	Scientific Thinking and Reasoning Standards (STARS)	Actively participate in the practice of science.	*Placeholder used to maintain the coding structure.*

The fifth position in the STARS coding sequence is reserved as a placeholder value to maintain consistency with Florida's five-part coding structure. The value "1" does not represent a benchmark sequence and is used solely for coding consistency.

Organization of the B.E.S.T. Standards for Science

Florida's B,E,S,T, Science Standards are organized into three major disciplines:

- **Energy, Matter, and Force and Motion**, which examines the structure and behavior of matter, energy transfer and transformation, waves, forces, and interactions within physical systems.
- **Planet Earth and Space**, which explores Earth systems, Earth history, weather and climate, natural processes, planetary systems, and the universe.
- **Life Science**, which investigates living systems, organisms, heredity, ecosystems, and the processes that sustain life.

Across all disciplines, students investigate phenomena through an increasingly sophisticated study of patterns; cause-and-effect relationships; energy and matter interactions; structure and function; stability and change; and systems, system models, and interactions. From Kindergarten through Grade 12, students progress from observing and describing phenomena to analyzing complex systems, evaluating evidence, constructing explanations, and applying scientific knowledge across disciplines and real-world contexts.

Florida's B.E.S.T. Science Standards are intentionally designed to support both vertical and horizontal alignment. Vertically, related concepts and scientific practices progress systematically across grade levels, building in complexity and sophistication as students advance through the K-12 system. Horizontally, related concepts, scientific practices, and disciplinary strands are connected within grade bands, allowing students to recognize relationships among scientific fields and develop a more cohesive understanding of science. Together, these alignments create a coherent framework that supports deep understanding, long-term mastery, and meaningful application of scientific concepts and practices.

Scientific Thinking and Reasoning Standards (STARS)

The standards are further supported by the Scientific Thinking and Reasoning Standards (STARS), which establish a common framework for scientific inquiry, evidence-based reasoning, communication, problem-solving, engineering design, ethical decision-making, and understanding the historical development of scientific knowledge. The STARS are intentionally integrated throughout science instruction and should be incorporated into learning experiences across all science disciplines, standards, and benchmarks. Rather than being taught as a separate body of content, the STARS provide a common framework through which students develop and apply scientific knowledge while engaging in investigation, reasoning, modeling, problem-solving, communication, and evidence-based decision-making.

Integration of Mathematics, Modeling, Laboratory Practices, Systems Thinking and Historical Context

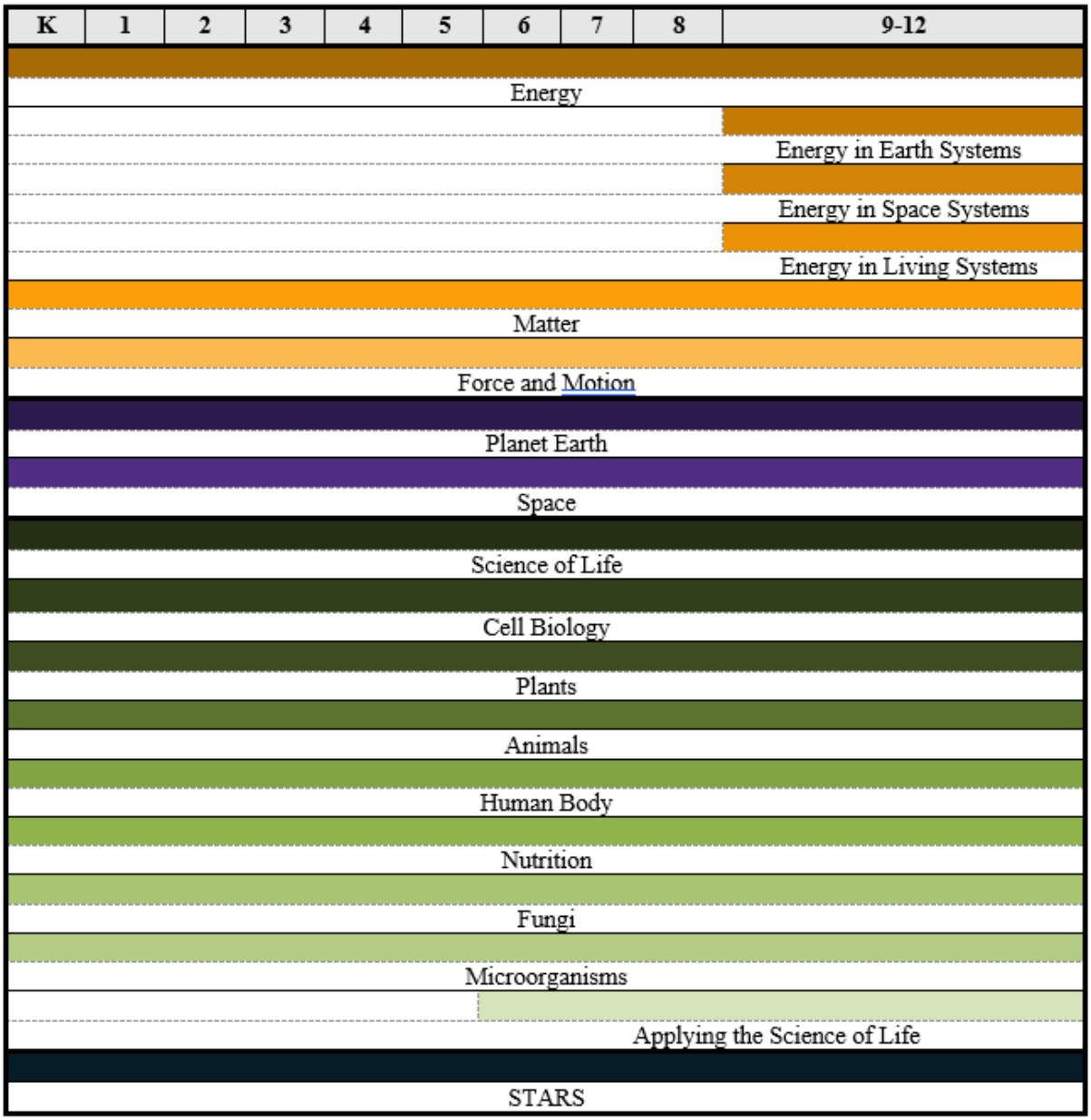
In addition to disciplinary content and scientific reasoning, the standards intentionally integrate mathematics, modeling, laboratory practices, systems thinking, and historical context to support learning at the point of instruction. Students are expected to use mathematical reasoning, analyze data, develop and evaluate models, conduct investigations, communicate evidence-based explanations, and understand how scientific knowledge has advanced through observation, experimentation, innovation, and technological progress. These integrated supports help students connect scientific concepts with the authentic practices used by scientists and engineers.

Florida's B.E.S.T. Science Standards are designed to support benchmarks-aligned, high-quality instruction in every classroom. The standards, benchmarks, clarifications, examples, Scientific Thinking and Reasoning Standards (STARS), mathematics integration, modeling supports, laboratory practices, systems thinking supports, and historical context work together to provide educators with a unified instructional framework. This promotes consistency, transparency, and high expectations while ensuring that students engage deeply with scientific concepts and practices at the point of learning. Students develop, use, evaluate, revise, and apply models to explain phenomena and predict system behavior.

Through this learning framework, students develop and apply scientific knowledge, build the habits of mind used by scientists and engineers, and acquire the knowledge, skills, and reasoning necessary to understand the natural world, evaluate information critically, explain phenomena, solve complex problems, pursue future educational and career opportunities, and continue learning throughout their lives.

K-12 Science Strands

The table below illustrates the K-12 science strands, and the shaded areas indicate the grade levels where each are addressed. Strands with similar scientific content are shaded with a different variation of color. These strands support the major scientific disciplines (Physical; Earth and Space; and Life). Most of the strands span multiple grade levels, which leads to the progression of science and coherence across courses.


K
1
2
3
4
5
6
7
8
9-12
Energy
Energy in Earth Systems
Energy in Space Systems
Energy in Living Systems
Matter
Force and Motion
Planet Earth
Space
Science of Life
Cell Biology
Plants
Animals
Human Body
Nutrition
Fungi
Microorganisms
Applying the Science of Life
STARS