

SCIENCE SAURUS: A STUDENT
HANDBOOK © 2002
GRADES 6-8

correlated to

Florida

**Grade Level Expectations for
the Sunshine State Standards
Grade 5**

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ScienceSaurus: A Student Handbook © 2002

Grades 6-8

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Grade Level Expectations for the Sunshine State Standards

Grade 5

Strand A: The Nature of Matter

Standard 1

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

Benchmark SC.A.1.2.1

The student determines that the properties of materials (e.g., density and volume) can be compared and measured (e.g., using rulers, balances, and thermometers).

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. uses metric tools to determine the density and volume of materials.	Student Handbook: 059-062, 068

Benchmark SC.A.1.2.2

The student knows that common materials (e.g., water) can be changed from one state to another by heating and cooling.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that matter is conserved during heating and cooling.	Student Handbook: 253, 254

Benchmark SC.A.1.2.4

The student knows that different materials are made by physically combining substances and that different objects can be made by combining different materials.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that different materials can be physically combined to produce different substances.	Student Handbook: 262, 264, 271

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
2. knows the differences and similarities between mixtures and solutions.	Student Handbook: 271, 272

Benchmark S.C.A.1.2.5

The student knows that materials made by chemically combining two or more substances may have properties that differ from the original materials.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that materials made by chemically combining two or more substances have properties that differ from the original materials.	Student Handbook: 271, 272
2. knows the difference between physical and chemical changes.	Student Handbook: 252

Standard 2

The student understands the basic principles of atomic theory.

Benchmark S.C.A.2.2.1

The student knows that materials may be made of parts too small to be seen without magnification.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that materials may be made of parts too small to be seen without magnification.	Student Handbook: 250

Strand B: Energy

Standard 1

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

Benchmark SC.B.1.2.1

The student knows how to trace the flow of energy in a system (e.g. as in an ecosystem).

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows how to trace the flow of energy in a system (for example, electricity in a circuit to produce heat, light, sound, or magnetic fields).	Student Handbook: 317, 318, 320, 321

Benchmark SC.B.1.2.2

The student recognizes various forms of energy (e.g., heat, light, and electricity).

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that energy can be described as stored energy (potential) or energy of motion (kinetic).	Student Handbook: 300

Benchmark SC.B.1.2.5

The student knows that various forms of energy (e.g., mechanical, chemical, electrical, magnetic, nuclear, and radiant) can be measured in ways that make it possible to determine the amount of energy that is transformed.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. extends and refines use of a variety of tools to measure the gain or loss of energy.	Student Handbook: 071, 072, 302

Benchmark SC.B.1.2.6

The student knows ways that heat can move from one object to another.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that some materials conduct heat better than others.	Student Handbook: 304
2. understands that convection, radiation, and conduction are methods of heat transfer.	Student Handbook: 304

Standard 2

The student understands the interaction of matter and energy.

Benchmark SC.B.2.2.3

The student knows that the limited supply of usable energy sources (e.g., fuels such as coal or oil) places great significance on the development of renewable energy sources.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that the limited supply of usable energy sources (for example, fuels such as coal or oil) places great significance on the development of renewable energy sources.	Student Handbook: 323-328, 332-335

Strand C: Force and Motion

Standard 1

The student understands that types of motion may be described, measured, and predicted.

Benchmark SC.C.1.2.1

The student understands that the motion of an object can be described and measured.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. uses scientific tools (for example, stopwatch, meter stick, compass) to measure speed, distance, and direction of an object.	Student Handbook: 058, 070

Benchmark SC.C.1.2.2

The student knows that waves travel at different speeds through different materials.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that waves travel at different speeds through different materials.	Student Handbook: 305, 311, 312

Standard 2

The student understands that the types of force that act on an object and the effect of that force can be described, measured, and predicted.

Benchmark SC.C.2.2.1

The student recognizes that forces of gravity, magnetism, and electricity operate simple machines.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands the relationship between force and distance as it relates to simple machines (for example, levers and fulcrums working to lift objects).	Student Handbook: 288-294

Benchmark SC.C.2.2.2

The student knows that an object may move in a straight line at a constant speed, speed up, slow down, or change direction dependent on net force acting on the object.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that objects do not change their motion unless acted upon by an outside force.	Student Handbook: 284-286
2. understands how friction affects an object in motion.	Student Handbook: 279

Benchmark SC.C.2.2.3

The student knows that the more massive an object is, the less effect a given force has.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows the relationship between the strength of a force and its effect on an object (for example, the greater the force, the greater the change in motion; the more massive the object, the smaller the effect of a given force).	Student Handbook: 284-286

Benchmark SC.C.2.2.4

The student knows that the motion of an object is determined by the overall effect of all the forces acting on the object.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that motion in space is different from motion on Earth due to changes in gravitational force and friction.	Student Handbook: 276, 278, 279
2. understands how inertia, gravity, friction, mass, and force affect motion.	Student Handbook: 275, 283-286

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.

Benchmark SC.D.1.2.1

The student knows that larger rocks can be broken down into smaller rocks, which in turn can be broken down to combine with organic material to form soil.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that rocks are constantly being formed and worn away.	Student Handbook: 180, 192

Benchmark SC.D.1.2.3

The student knows that the water cycle is influenced by temperature, pressure, and the topography of the land.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands how atmospheric pressure affects the water cycle.	Student Handbook: 216, 295

Benchmark SC.D.1.2.4

The student knows that the surface of the Earth is in a continuous state of change as waves, weather, and shifts of the land constantly change and produce many new features.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands how eroded materials are transported and deposited over time in new areas to form new features (for example, deltas, beaches, dunes).	Student Handbook: 192
2. understands that geological features result from the movement of the crust of the Earth (for example, mountains, volcanic islands).	Student Handbook: 181-187

Benchmark SC.D.1.2.5

The student knows that some changes in the Earth's surface are due to slow processes and some changes are due to rapid processes.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands how the surface of the Earth is shaped by both slow processes (for example, weathering, erosion, deposition) and rapid, cataclysmic events (for example, earthquakes, tsunamis, volcanoes).	Student Handbook: 181-187, 188, 189, 190, 192

Standard 2

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

Benchmark SC.D.2.2.1

The student knows that reusing, recycling, and reducing the use of natural resources improve and protect the quality of life.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. extends and refines knowledge of ways people can reuse, recycle, and reduce the use of resources to improve and protect the quality of life.	Student Handbook: 336-339

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.

Benchmark SC.E.1.2.1

The student knows that the tilt of the Earth on its own axis as it rotates and revolves around the Sun causes changes in season, length of day, and energy available.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that the orbit of the Earth is slightly elliptical and the Earth is closest to the Sun in the Northern Hemisphere in winter.	Student Handbook: 233, 234
2. knows that the angle that the rays of the Sun strike the surface of the Earth determines the amount of energy received and thus the season of the year.	Student Handbook: 234
3. knows the effect of the tilt of the Earth on polar climates.	Student Handbook: 234

Benchmark SC.E.1.2.2

The student knows that the combination of Earth's movement and the Moon's own orbit around the Earth results in the appearance of cyclical phases of the Moon.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows the relative positions of the Moon, Earth, and Sun during each of the phases of the Moon.	Student Handbook: 235

Benchmark SC.E.1.2.4

The student knows that the planets differ in size, characteristics, and composition and that they orbit the Sun in our Solar System.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that the planets differ in size, characteristics, and composition and that they orbit the Sun in our Solar System.	Student Handbook: 238, 240

Benchmark SC.E.1.2.5

The student understands the arrangement of planets in our Solar System.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows the arrangement of the planets and the asteroid belt in our Solar System.	Student Handbook: 238, 240, 241

Strand F: Processes of Life

Standard 1

The student describes patterns of structure and function in living things.

Benchmark SC.F.1.2.1

The student knows that the human body is made of systems with structures and functions that are related.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands how body systems interact (for example, how bones and muscles work together for movement).	Student Handbook: 085-087, 088-090, 091-093, 094-097, 098, 099-102

Benchmark SC.F.1.2.4

The student knows that similar cells form different kinds of structures.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. uses magnifying tools to identify similar cells and different kinds of structures.	Student Handbook: 076
2. knows the parts of plants and animal cells.	Student Handbook: 076-078
3. understands how similar cells are organized to form structures (for example, tissue, organs) in plants and animals.	Student Handbook: 076-078

Standard 2

The student understands the process and importance of genetic diversity.

Benchmark SC.F.2.2.1

The student knows that many characteristics of an organism are inherited from the parents of the organism, but that other characteristics are learned from an individual's interactions with the environment.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that many characteristics of an organism are inherited from the genetic ancestors of the organism (for example, eye color, flower color).	Student Handbook: 115, 116, 121, 122
2. knows that some characteristics result from the organism's interactions with the environment (for example, flamingos eat a certain crustacean that causes their feathers to be pink).	Student Handbook: 121

Strand G: How Living Things Interact with Their Environment

Standard 1

The student understands the competitive, interdependent, cyclic nature of living things in the environment.

Benchmark SC.G.1.2.1

The student knows ways that plants, animals, and protists interact.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands the various roles of single-celled organisms in the environment.	Student Handbook: 076, 135, 138, 139, 155, 156, 157, 160, 330
2. knows ways in which protists interact with plants and animals in the environment.	Student Handbook: 156, 330

Benchmark SC.G.1.2.2

The student knows living things compete in a climatic region with other living things and that structural adaptations make them fit for an environment.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands how changes in the environment affect organisms (for example, some organisms move in, others move out; some organisms survive and reproduce, others die).	Student Handbook: 129-132, 133-135

Benchmark SC.G.1.2.3

The student knows that green plants use carbon dioxide, water, and sunlight energy to turn minerals and nutrients into food for growth, maintenance, and reproduction.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that green plants use carbon dioxide, water, and sunlight energy to turn minerals and nutrients into food for growth, maintenance, and reproduction.	Student Handbook: 079, 107, 138, 330

Standard 2

The student understands the consequences of using limited natural resources.

Benchmark SC.G.2.2.1

The student knows that all living things must compete for Earth's limited resources; organisms best adapted to compete for the available resources will be successful and pass their adaptations (traits) to their offspring.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows that adaptations to their environment may increase the survival of a species.	Student Handbook: 109, 127

Strand H: The Nature of Science

Standard 1

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

Benchmark S.C.H.1.2.1

The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
<p>The student:</p> <ol style="list-style-type: none">1. understands that although the same scientific investigation may give slightly different results when it is carried out by different persons or at different times or places, the general evidence collected from the investigation should be replicable by others.	<p>Student Handbook: 005</p>

Benchmark S.C.H.1.2.2

The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
<p>The student:</p> <ol style="list-style-type: none">1. understands that scientists use different kinds of investigations (for example, observations of events in nature, controlled experiments) depending on the questions they are trying to answer.	<p>Student Handbook: 002, 009</p>
<ol style="list-style-type: none">2. understands the importance of accuracy in conducting measurements, and uses estimation when exact measurements are not possible.	<p>Student Handbook: 053, 054</p>

Benchmark S.C.H.1.2.3

The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
<p>The student:</p> <ol style="list-style-type: none">1. understands the importance of communication among scientists (for example, informing and becoming informed about scientific investigations in progress and the work of others; exposing ideas to the criticism of others).	<p>Student Handbook: 014, 015, 017</p>

Benchmark S.C.H.1.2.4

The student knows that to compare and contrast observations and results is an essential skill in science.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. uses strategies to review, compare and contrast, and critique scientific investigations.	Student Handbook: 005, 014, 015
2. knows that an experiment must be repeated many times and yield consistent results before the results are accepted.	Student Handbook: 014, 015

Benchmark S.C.H.1.2.5

The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. uses sketches and diagrams to propose scientific solutions to problems.	Student Handbook: 015
2. constructs models to compare objects in science.	Student Handbook: 006, 013, 018

Standard 2

The student understands that most natural events occur in comprehensible, consistent patterns.

Benchmark S.C.H.2.2.1

The student knows that natural events are often predictable and logical.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. makes a prediction for a new investigation using the data from a previous investigation.	Student Handbook: 002
2. understands that change is constantly occurring and uses strategies to analyze different patterns of change.	Student Handbook: 002, 016

Standard 3

The student understands that science, technology, and society are interwoven and interdependent.

Benchmark S.C.H.3.2.1

The student understands that people, alone or in groups, invent new tools to solve problems and do work that affects aspects of life outside of science.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. knows areas in which technology has improved human lives (for example, transportation, communication, nutrition, sanitation, health care, entertainment).	Student Handbook: 354, 355, 356, 363
2. knows that new inventions often lead to other new inventions and ways of doing things.	Student Handbook: 357, 363, 365

Benchmark S.C.H.3.2.2

The student knows that data are collected and interpreted in order to explain an event or concept.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. selects appropriate graphical representations (for example, graphs, charts, diagrams) to collect, record, and report data.	Student Handbook: 012, 015, 385, 390-394, 397

Benchmark S.C.H.3.2.3

The student knows that before a group of people build something or try something new, they should determine how it may affect other people.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. understands how a solution to one scientific problem can create another problem.	Student Handbook: 361, 367, 369

Benchmark S.C.H.3.2.4

The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas.

Grade Level Expectations, Grade 5	ScienceSaurus, Grades 6-8
The student: 1. extends and refines knowledge of ways that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas.	Student Handbook: 355, 356, 357, 363, 366, 369, 370



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