GET WET! Project

CPalms Florida Science Standards
(Adapted from http://www.cpalms.org/Public/)

I. Grade 5

SC.5.N.1.1: Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

SC.5.N.2.1: Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.

C.5.E.7.1: Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to another.

SC.5.P.9.1: Investigate and describe that many physical and chemical changes are affected by temperature.

B. Matter can be changed physically or chemically.

SC.5.L.15.1: Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.

II. Grade 6

SC.6.N.1.1: Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

SC.6.N.2.1: Distinguish science from other activities involving thought.

A: Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

SC.6.N.3.1: Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life.

SC.6.E.6.1: Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.

SC.6.L.14.1: Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms.

III. Grade 7

C.7.N.1.1: Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

SC.7.N.2.1: Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.

A: Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

IV. Grade 8

SC.8.N.1.1: Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

SC.8.N.1.2: Design and conduct a study using repeated trials and replication.

SC.8.N.1.3: Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.

SC.8.N.1.4: Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.

SC.8.N.1.5: Analyze the methods used to develop a scientific explanation as seen in different fields of science.

SC.8.N.2.2: Discuss what characterizes science and its methods.

SC.8.N.3.1: Select models useful in relating the results of their own investigations.

SC.8.N.4.1: Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.

SC.8.N.4.2: Explain how political, social, and economic concerns can affect science, and vice versa.

V. Grade 6-8

SC.68.CS-PC.1.1: Recognize and describe legal and ethical behaviors when using information and technology and describe the consequences of misuse.

SC.68.CS-CC.1.1: Demonstrate an ability to communicate appropriately through various online tools.

SC.68.CS-CS.1.1: Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions.

SC.68.CS-CP.1.2: Select and use data-collection technology (e.g., probes, handheld devices, geographic mapping systems and output from multiple runs of a computer program) to gather, view, organize, analyze, and report results for content-related problems, individually and collaboratively.

SC.68.CS-CC.1.3: Design, develop, and publish a collaborative digital product using a variety of digital tools and media-rich resources that demonstrate and communicate concepts to inform, persuade, and/or entertain.

SC.68.CS-CS.2.1: Create, modify, and use a database (e.g., define field formats, adding new records, manipulate data) to analyze data and propose solutions for a task/problem, individually and collaboratively.

SC.68.CS-CP.2.1: Develop problem solutions using visual representations of problem states, structures and data.

SC.68.CS-PC.2.1: Analyze the positive and negative impacts of computing, social networking and web technologies on human culture.

SC.68.CS-CS.2.2: Solve real-life issues in science and engineering (i.e., generalize a solution to open-ended problems) using computational thinking skills.

SC.68.CS-CS.2.4: Organize and display information in a variety of ways such as number formats (e.g., scientific notation, percentages, and exponents), charts, tables and graphs.

SC.68.CS-PC.2.6: Identify and discuss the technology skills needed in the workplace.

SC.68.CS-PC.3.1: Answer research questions using digital information resources.

SC.68.CS-CP.3.2: Create online content (e.g., webpage, blog, digital portfolio, multimedia), using advanced design tools.

SC.68.CS-PC.3.5: Identify resources such as city, state, and federal government websites and explain that these resources can be used for communication between citizens and government.

SC.68.CS-PC.4.1: Explain the guidelines for the fair use of downloading, sharing or modifying of digital materials.

SC.68.CS-CS.6.1: Explain why some tasks can be accomplished more easily by computers.

SC.68.CS-CS.6.2: Describe how humans and machines interact to accomplish tasks that cannot be accomplished by either alone.

VI. Grade 9 -12

SC.912.N.1.1: Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:

1. **Pose questions about the natural world,** (Articulate the purpose of the investigation and identify the relevant scientific concepts).
2. **Conduct systematic observations,** (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).
3. **Examine books and other sources of information to see what is already known,**
4. **Review what is known in light of empirical evidence,** (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models).
5. **Plan investigations,** (Design and evaluate a scientific investigation).
6. **Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs),** (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).
7. **Pose answers, explanations, or descriptions of events,**
8. **Generate explanations that explicate or describe natural phenomena (inferences),**
9. **Use appropriate evidence and reasoning to justify these explanations to others,**
10. **Communicate results of scientific investigations, and**
11. **Evaluate the merits of the explanations produced by others.**

SC.912.CS-CS.1.1: Analyze data and identify real-world patterns through modeling and simulation.

SC.912.N.1.2: Describe and explain what characterizes science and its methods.

SC.912.CS-CC.1.2: Select appropriate tools within a project environment to communicate with project team members.

SC.912.CS-CS.1.2: Formulate, refine, and test scientific hypotheses using models and simulations.

SC.912.CS-CP.1.2: Perform advanced searches to locate information and/or design a data-collection approach to gather original data (e.g., qualitative interviews, surveys, prototypes, and simulations).

SC.912.N.1.3: Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented.

SC.912.CS-CS.1.3: Explain how data analysis is used to enhance the understanding of complex natural and human systems.

SC.912.CS-CP.1.3: Analyze and manipulate data collected by a variety of data collection techniques to support a hypothesis.

SC.912.N.1.4: Identify sources of information and assess their reliability according to the strict standards of scientific investigation.

SC.912.N.1.5: Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.

SC.912.N.2.1: Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).

A: Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

SC.912.N.2.2: Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.

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B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

SC.912.CS-PC.2.2: Identify ways to use technology to support lifelong learning.

SC.912.N.2.4: Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scientific knowledge becomes stronger, leading to its durability.

SC.912.CS-PC.2.9: Explain how societal and economic factors are affected by access to critical information.

SC.912.CS-PC.2.10: Describe and evaluate the challenges (e.g., political, social, and economic) in providing equal access and distribution of technology in a global society.

SC.912.CS-CS.2.10: Design and implement a simple simulation algorithm to analyze, represent, and understand natural phenomena.

SC.912.CS-PC.3.4: Analyze and evaluate public/government resources and describe how using these resources for communication can affect change.

SC.912.N.4.1: Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making

SC.912.N.4.2: Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.

SC.912.CS-PC.4.2: Explain how access to information may not include the right to distribute the information.

SC.912.E.6.4: Analyze how specific geologic processes and features are expressed in Florida and elsewhere.

SC.912.E.6.6: Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.

SC.912.E.7.4: Summarize the conditions that contribute to the climate of a geographic area, including the relationships to lakes and oceans.

SC.912.E.7.8: Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.

SC.912.P.8.11: Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.

SC.912.P.12.12: Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.

SC.912.L.16.10: Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.

SC.912.L.17.4: Describe changes in ecosystems resulting from seasonal variations, climate change and succession.

SC.912.L.17.12: Discuss the political, social, and environmental consequences of sustainable use of land.

SC.912.L.17.13: Discuss the need for adequate monitoring of environmental parameters when making policy decisions.

SC.912.L.17.14: Assess the need for adequate waste management strategies.

SC.912.L.17.15: Discuss the effects of technology on environmental quality.

SC.912.L.17.16: Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.

SC.912.L.17.17: Assess the effectiveness of innovative methods of protecting the environment.

SC.912.L.17.18: Describe how human population size and resource use relate to environmental quality.

SC.912.L.17.20: Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

SC.912.L.18.12: Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.