

Science on the Gulf

Correlation of NOAA education Turtle Tour to Next Generation Sunshine State Standards

Kindergarten:

Big Idea 1 The Practice of Science

- SC.K.N.1.5: Recognize that learning can come from careful observation.

Big Idea 14 Organization and Development of Living Organisms

- SC.K.L.14.3: Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.

Grade 1:

Big Idea 1 The Practice of Science

- SC.1.N.1.4: Ask "how do you know?" in appropriate situations.

Big Idea 16 Heredity and Reproduction

- SC.1.L.16.1: Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.

Big Idea 17 Interdependence

- SC.1.L.17.1: Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.

Grade 2

Big Idea 1 The Practice of Science

- SC.2.N.1.3: Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others.
- SC.2.N.1.5: Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).

Big Idea 17 Interdependence

- SC.2.L.17.1: Compare and contrast the basic needs that all living things, including humans, have for survival.

- SC.2.L.17.2: Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.

Grade 3

Big Idea 1 The Practice of Science

- SC.3.N.1.4: Recognize the importance of communication among scientists.
- SC.3.N.1.6: Infer based on observation.
- SC.3.N.1.7: Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena.

Big Idea 17 Interdependence

- SC.3.L.17.1: Describe how animals and plants respond to changing seasons.

Grade 4

Big Idea 1: The Practice of Science

- SC.4.N.1.3 Explain that science does not always follow a rigidly defined method (“the scientific method”) but that science does involve the use of observations and empirical evidence.
- SC.4.N.1.7 Recognize and explain that scientists base their explanations on evidence.

Big Idea 16: Heredity and Reproduction

- SC.4.L.16.2 Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.

Big Idea 17: Interdependence

- SC.4.L.17.4-Recognize ways plants and animals, including humans, can impact the environment.

Grade 5

Big Idea 1: The Practice of Science

- SC.5.N.1.2 Explain the difference between an experiment and other types of investigation.

Big Idea 2: The Characteristics of Scientific Knowledge

- 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.

- SC.5.N.2.2: Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others.

Big Idea 14: Organization and Development of Living Organisms

- SC.5.L.14.2 Compare and contrast the function of organs and other physical structures of plants and animals, including humans.

Big Idea 15: Diversity and Evolution of Living Organisms

- 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.

Big Idea 17: Interdependence

- SC.5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

Grade 6

Big Idea 1: The Practice of Science

- SC.6.N.1.2: Explain why scientific investigations should be replicable.
- SC.6.N.1.3: Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each.
- SC.6.N.1.5: Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.

Big Idea 2: The Characteristics of Scientific Knowledge

- SC.6.N.2.1: Distinguish science from other activities involving thought.
- SC.6.N.2.2: Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.
- SC.6.N.2.3: Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.

Big Idea 7: Earth Systems and Patterns

- SC.6.E.7.3: Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.

Grade 7

Big Idea 1: The Practice of Science

- SC.7.N.1.2: Differentiate replication (by others) from repetition (multiple trials).

- SC.7.N.1.3: Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.
- SC.7.N.1.4: Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.
- SC.7.N.1.6: Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.
- SC.7.N.1.7: Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.

Big Idea 6: Earth Structures

- SC.7.E.6.6 Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.
- SC.7.L.17.3 Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.

Big Idea 17: Interdependence

- SC.7.L.17.2 Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.
- SC.7.L.17.3 Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.

Grade 8

Big Idea 1: The Practice of Science

- 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.1.6: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.

Big Idea 2: The Characteristics of Scientific Knowledge

- SC.8.N.2.1: Distinguish between scientific and pseudoscientific ideas.
- SC.8.N.2.2: Discuss what characterizes science and its methods.

Grade 9-12

Big Idea 1 The Practice of Science

- SC.912.N.1.2: Describe and explain what characterizes science and its methods.
- 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.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.1.6: Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.
- SC.912.N.1.7: Recognize the role of creativity in constructing scientific questions, methods and explanations.
- 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).
- 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.N.2.5: Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations) of scientists are a strength of science as they are a source of new, testable ideas that have the potential to add new evidence to support one or another of the explanations.
- SC.912.N.3.5: Describe the function of models in science, and identify the wide range of models used in science.
- 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.

Big Idea 15: Diversity and Evolution of Living Organisms

- SC.912.L.15.13: Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.

Big Idea 17: Interdependence

- SC.912.L.17.1: Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.
- SC.912.L.17.2: Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.

- SC.912.L.17.3: Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.
- SC.912.L.17.4: Describe changes in ecosystems resulting from seasonal variations, climate change and succession.
- SC.912.L.17.5: Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.
- SC.912.L.17.6: Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.
- SC.912.L.17.7: Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.
- SC.912.L.17.8: Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.
- SC.912.L.17.11: Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.
- SC.912.L.17.13: Discuss the need for adequate monitoring of environmental parameters when making policy decisions.
- 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.17.19: Describe how different natural resources are produced and how their rates of use and renewal limit availability.
- SC.912.L.17.20: Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.