

EVERGLADES EXPLORATION EDUCATIONAL OBJECTIVES

Sunshine State Standards following grades 3-12

Students will:

- learn the importance of recording data in a field journal, with an emphasis on the value of each person's contribution to the total body of scientific observations and the effort to compare and contrast their findings with those of other students

SC.3.N.1.3 Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted.

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.

SC.3.N.1.1 Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.4.N.1.1 Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.4.N.1.4 Attempt reasonable answers to scientific questions and cite evidence in support.

SC.4.N.1.6 Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.

SC.4.N.1.7 Recognize and explain that scientists base their explanations on evidence.

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.1.6 Recognize and explain the difference between personal opinion/interpretation and verified observation.

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.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.1.4 Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.

SC.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.1.6 Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.

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.1.6 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.

SS.8.G.6.2 Illustrate places and events in U.S. history through the use of narratives and graphic representations.

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.1.6 Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.

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.

- learn the importance of conducting water testing, understand density, salinity, temperature, turbidity and pH and how these are measured and compare, and interpret the results of their investigations

SC.3.N.1.2 Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.

SC.3.P.8.1 Measure and compare temperatures of various samples of solids and liquids.

SC.3.N.3.1 Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence.

SC.4.E.6.5 Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things.

SC.4.N.1.2 Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.

SC.4.N.1.5 Compare the methods and results of investigations done by other classmates.

SC.4.P.8.2 Identify properties and common uses of water in each of its states.

SC.5.N.1.3 Recognize and explain the need for repeated experimental trials.

SC.8.E.5.10 Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.

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.P.8.8 Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.

SC.8.P.9.2 Differentiate between physical changes and chemical changes.

- understand the concept that the presence of certain trees are an indication of events that are occurring, noting that they have adaptations that allow them to live in certain areas, with a focus on exotic species, like Melaleuca

SC.4.L.17.1 Compare the seasonal changes in Florida plants and animals to those in other regions of the country.

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.

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.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.

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.

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.

SS.5.G.3.1 Describe the impact that past natural events have had on human and physical environments in the United States through 1850.

SS.6.G.3.2 Analyze the impact of human populations on the ancient world's ecosystems.

- understand the predictability and logistics behind the KLOE system, with a focus on the Everglades as a natural and interrupted ecosystem

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.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.

SS.8.G.5.2 Describe the impact of human modifications on the physical environment and ecosystems of the United States throughout history.

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.

SS.912.G.5.6 Analyze case studies to predict how a change to an environmental factor can affect an ecosystem.

- understand the significance of human actions, including their own, in the protection of natural resources such as water and its pollution and redirection in the Everglades area

SC.3.N.1.4 Recognize the importance of communication among scientists.

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

SS.3.C.2.1 Identify group and individual actions of citizens that demonstrate civility, cooperation, volunteerism, and other civic virtues.

SS.3.E.1.3 Recognize that buyers and sellers interact to exchange goods and services through the use of trade or money.

SS.4.A.8.4 Explain how tourism affects Florida's economy and growth.

SS.4.C.2.2 Identify ways citizens work together to influence government and help solve community and state problems

SS.4.E.1.2 Explain Florida's role in the national and international economy and conditions that attract businesses to the state.

SS.5.C.2.5 Identify ways good citizens go beyond basic civic and political responsibilities to improve government and society.

SS.6.G.3.2 Analyze the impact of human populations on the ancient world's ecosystems.

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

SS.8.G.5.1 Describe human dependence on the physical environment and natural resources to satisfy basic needs in local environments in the United States.

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.17.12 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.17.15 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.17.18 Describe how human population size and resource use relate to environmental quality.

SS.912.C.2.4 Evaluate, take, and defend positions on issues that cause the government to balance the interests of individuals with the public good.

SS.912.C.2.8 Analyze the impact of citizen participation as a means of achieving political and social change.

SS.912.G.2.5 Use geographic terms and tools to analyze case studies of debates over how human actions modify a selected region.

SS.912.G.3.3 Use geographic terms and tools to explain differing perspectives on the use of renewable and non-renewable resources in Florida, the United States, and the world.

SS.912.G.5.2 Analyze case studies of how changes in the physical environment of a place can increase or diminish its capacity to support human activity.

SS.912.G.5.4 Analyze case studies of how humans impact the diversity and productivity of ecosystems.

- understand the history and cultural significance of the Miccosukee tribe, with a focus on their traditional relationship with the natural environment

SS.3.G.2.6 Investigate how people perceive places and regions differently by conducting interviews, mental mapping, and studying news, poems, legends, and songs about a region or area.

SS.3.G.3.2 Describe the natural resources in the United States, Canada, Mexico, and the Caribbean.

SS.3.G.4.1 Explain how the environment influences settlement patterns in the United States, Canada, Mexico, and the Caribbean.

SS.3.G.4.2 Identify the cultures that have settled the United States, Canada, Mexico, and the Caribbean.

SS.4.A.2.1 Compare Native American tribes in Florida.

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.

SS.5.A.2.3 Compare cultural aspects of Native American tribes from different geographic regions of North America including but not limited to clothing, shelter, food, major beliefs and practices, music, art, and interactions with the environment.

SS.5.A.3.2 Investigate (nationality, sponsoring country, motives, dates and routes of travel, accomplishments) the European explorers.

SS.5.A.3.3 Describe interactions among Native Americans, Africans, English, French, Dutch, and Spanish for control of North America.

SS.5.A.4.1 Identify the economic, political and socio-cultural motivation for colonial settlement.

SS.5.E.2.1 Recognize the positive and negative effects of voluntary trade among Native Americans, European explorers, and colonists.

SS.6.G.2.6 Explain the concept of cultural diffusion, and identify the influences of different ancient cultures on one another.

SS.6.G.4.1 Explain how family and ethnic relationships influenced ancient cultures.

SS.7.G.2.3 Explain how major physical characteristics, natural resources, climate, and absolute and relative location have influenced settlement, economies, and inter-governmental relations in North America.

SS.8.A.2.5 Discuss the impact of colonial settlement on Native American populations.

SS.912.H.3.1 Analyze the effects of transportation, trade, communication, science, and technology on the preservation and diffusion of culture.