

Manatee/Florida Spring Diorama



Grade Level: 2-3

Subject Area: Science, Art

Duration: Teach: 15 minutes, Research: 2 hours, Activity: take home project, Presentation: 5 minutes, Classroom Wrap-up Discussion: 10 minutes

Setting: Classroom or Home

Sunshine State Standards: see Appendix A

FCAT Prompt: What needs to be in a habitat for a manatee to live there?

Objectives: To showcase knowledge on manatees and Florida spring environments. Students will demonstrate an understanding of what a manatee needs in a spring habitat, including proper food, shelter, space, and water temperature. Students will also learn that a diorama is a 3D recreation of organisms in their habitat.

Materials: Construction paper, glue, shoeboxes, scissors, old magazines, markers, old wrapping paper, moss, string, blue cellophane, sand, green yarn or string, other craft materials useful in recreating a spring habitat.

Vocabulary: adaptation, carnivore, community, conservation, consumer, decomposer, density, ecosystem, endangered species, energy, energy pyramid, environment, food chain, habitat, heat, herbivore, life cycle, light, liquid, organism, photosynthesis, pollution, population, predator, prey, producer, water cycle

Background/Preparation: See Volusia County's manatee website (<http://www.volusiamanatees.org>) and http://www.floridagovernorsmansion.com/lesson/manatee_teaching_plan.pdf for basic background information and resource lists. These will help you to be sure your students understand the needs of all animals to survive in their respective environments.

Suggestions on Ocean/ Sea Life Diorama Construction:

http://www.mckinneyisd.net/campuses/school_websites/walker/Library/Project_ideas.htm

<http://www.enchantedlearning.com/crafts/Oceandiorama.shtml>

http://www.wasd.k12.pa.us/schools/hoovertime/WebSites/Grade%201/Ocean%20Webquest/Deb_Stine_Ocean_WQ/student/student_page.htm

http://www.scholastic.com/schoolage/activities/k_2/deepsea.htm



Teach/Activities: Students can work in pairs to construct a diorama in a shoebox, or construct the diorama as a take home project. Students should highlight plant and animal species present in a spring environment, and examples of factors that effect survival in the environment (energy source, food source, pollution, human interaction). Students will then give a 5-minute oral presentation explaining their diorama.

Assess: - Use a rubric to evaluate the diorama presentation. Students must include at least one of each:

Food supply –a native plant (such as water lettuce or alligator weed) and a non-native plant (such as hydrilla or water hyacinth)

Animals sharing the environment with the manatee –a native animal (such as an otter or an alligator), and a non-native animal (such as tilapia or armored catfish).

Extension: Show a video on manatees in their habitats:

FWC-“The State of Manatees”

<http://www.savethemanatee.org/video.htm>

<http://www.crystalriverflorida.com/downloads/manatee/>

http://www3.nationalgeographic.com/animals/video/manatee_detection.html

Visit www.volusia.org/environmental for more information.

Example Pictures (to use as cut-outs)

Examples of Native Plants

Water lettuce



Alligator weed



Examples of Non- Native Plants

Hydrilla



Water hyacinth



Examples of Native Animals

American Alligator



Florida manatee



Examples of Non-native Animals

Armored catfish



Walking catfish



Spotted tilapia



Vocabulary

adaptation: A characteristic of an organism that increases its chance of survival in its environment

carnivore: An animal or plant that consumes or obtains nutrients from animals

community: All the populations of organisms belonging to different species and sharing the same geographical area

conservation: Controlled use and/or maintenance of natural resources; various efforts to preserve or protect natural resources

consumer: An organism that feeds on other organisms for food

decomposer: Any organism that feeds or obtains nutrients by breaking down organic matter from dead organisms

density: Concentration of matter of an object; number of individuals in the same species that live in a given area; the mass per unit volume of a substance in a given area

ecosystem: An integrated unit of a biological community, its physical environment, and interactions

endangered species: A species of plant or animal of which numbers are decreasing at an alarming rate and is threatened with extinction by human-made or natural changes in the environment.

energy: A quantity that describes the capacity to do work; a source of usable power

energy pyramid: A pyramidal diagram that compares the amount of energy available at each position, or level, in the feeding order

environment: The sum of conditions affecting an organism, including all living and nonliving things in an area, such as plants, animals, water, soil, weather, landforms, and air

food chain: Transfer of energy through various stages as a result of feeding patterns of a series of organisms

habitat: A place in an ecosystem where an organism normally lives

heat: A form of energy resulting from the temperature difference between a system and its surroundings

herbivore: An animal that feeds on plants

life cycle: The entire sequence of events in an organism's growth and development

light: Electromagnetic radiation that lies within the visible range

liquid: One of the fundamental states of matter with a definite volume but no definite shape

organism: Any living plant, animal, or fungus that maintains various vital processes necessary for life

photosynthesis: A chemical process by which plants trap light energy to convert carbon dioxide and water into carbohydrates (sugars)

pollution: Any alteration of the natural environment producing a condition harmful to living organisms; may occur naturally or as a result of human activities

population: A group of organisms of the same species living in a specific geographical area

predator: An organism that preys on and consumes animals; usually an animal

prey: An organism caught or hunted for food by another organism

producer: An organism that makes its own food from the environment; usually a green plant

water cycle: The path water takes as it is being cycled through the environment, including condensation, evaporation, and precipitation

Appendix A

SC.A.1.1.1 - Know that objects can be described, classified, and compared by their composition (e.g., wood or metal) and their physical properties (e.g., color, size, and shape).

SC.B.1.1.1 - Know that the Sun supplies heat and light energy to Earth.

SC.B.1.1.2 - Know that light can pass through some objects and not others.

SC.B.1.1.3 - Describe a model energy system (e.g., an aquarium or terrarium).

SC.B.1.2.1 - Know how to trace the flow of energy in a system (e.g., as in an ecosystem).

SC.B.2.1.1 - Recognize systems of matter and energy.

SC.B.2.2.1 - Know that some source of energy is needed for organisms to stay alive and grow

SC.B.2.2.2 - Recognize the costs and risks to society and the environment posed by the use of nonrenewable energy.

SC.D.1.2.3 - Know that the water cycle is influenced by temperature, pressure, and the topography of the land.

SC.D.1.3.3 - Know how conditions that exist in one system influence the conditions that exist in other systems

SC.D.1.3.4 - Know the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).

SC.D.1.4.4 - Know that Earth's systems and organisms are the result of a long, continuous change over time.

SC.D.2.2.1 - Know that reusing, recycling, and reducing the use of natural resources improve and protect the quality of life.

VA.A.1.1.1 - Use two-dimensional and three-dimensional media, techniques, tools, and processes to depict works of art from personal experiences, observation, or imagination.

VA.A.1.1.2 - Use art materials and tools to develop basic processes and motor skills, in a safe and responsible manner.

VA.A.1.1.3 - Distinguish the differences within and among art materials, techniques, processes, and organizational structures, such as elements and principles of design.

VA.A.1.1.4 - Use good craftsmanship when producing works of art.

VA.A.1.2.1 - Use and organize two-dimensional and three-dimensional media, techniques, tools, and processes to produce works of art that are derived from personal experience, observation, or imagination.

VA.A.1.2.3 - Know the effects and functions of using various organizational elements and principles of design when creating works of art.

VA.A.1.2.4 - Use good craftsmanship in a variety of two-dimensional and three-dimensional media.

VA.B.1.1.3 - Know a variety of purposes for creating works of art.

VA.B.1.2.1 - Understand that subject matter used to create unique works of art can come from personal experience, observation, imagination, and themes.

VA.B.1.1.4 - Know how the elements of art and the principles of design can be used and solve specific visual-art problems at a proficient level.