



# Jekyll Island Day Trip: 2014 - Driftwood Education Center



## **Class Description:**

*Study beach ecology, geology, and the marsh, right where it all happens as we explore Jekyll Island! Students will gain a better appreciation for the plants and animals that call these habitats their home.*

Driftwood Education Center  
Po Box 20712 St. Simons Island, GA 31522  
Phone: 912.638.3849 Fax: 912.634.0642  
[www.driftwoodee.org](http://www.driftwoodee.org)

## Table of contents and outline:

### I. Pre-class set-up

1. Be sure to grab seine nets, Tupperware's and lunches.
2. Take backpack with: Water, Sunscreen, Bug repellent, first aid kit and anything else you want.
3. Tell students to dress for weather on Cumberland.

### II. Introduction, overview, and assessment

1. Assess what students know about Jekyll Island.
2. Ask questions and encourage exploration.
3. Let students know what is going to happen.

### III. Beach Walk from Clam Creek Picnic Area

1. Beach Combing
2. Dredging and Long Shore Current
3. Driftwood Beach

### IV. Maritime Forest

#### V. Marsh Walk

1. Exploration of Marsh
2. Activities
3. Succession of forest

### VI. Lunch

### VII. Seining

1. Explanation of how to seine
2. Go seining
3. Discuss organisms caught
4. Clean net

### VIII. Beach Activities at Great Dunes

1. Explanation of the Dunes
2. The Big Picture and Where Georgia Fits in
3. Diversity of the Beach

### IX. Conclusion and Wrap Up

#### X. Additional Information

1. Turtle Hurdles
2. Fish, Shark, Algae Tag

## Concepts:

Focal points of this class are:

1. Georgia's coasts have a large diversity of organisms that depend on the tidal activity for survival.
2. Water and wind change and form landscapes.
3. Human impact is a threat to the plant and animal species that inhabit tidal zones.

## Outcomes:

Upon completion of this class, students will be able to:

1. Give examples of how water and wind change barrier islands.
2. Give examples of plants and animals found on the beach.
3. Explain the importance of a marsh or wetland ecosystem
4. Realize the impact that their daily lifestyle has on local beach ecosystems.

### Georgia Performance Standards met:

**S5CS8.a** Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.

**S5E1. b.** Students will identify surface features of the Earth caused by constructive or destructive processes.

**S6CS9.a.** Scientific investigations are conducted for different reasons.

**S6E3.d.** Explain the causes of waves, currents, and tides.

**S6E5.e.** Explain the effects of physical processes on geological features including oceans.

**S7CS5. a.** Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in community/ecosystem.

**S7L4.c.** Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.

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**S7L4.** Students will examine the dependence of organisms on one another and their environments.

**S7L4.a** Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

**Florida Performance Standards met:**

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

SC.4.L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.

SC.4.L.17.3 Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.

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.L.14.2 Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support.

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.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.

SC.5.E.7.2 Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes.

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.E.6.2 Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida.

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.L.17.1 Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

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.

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.912.L.15.6 Discuss distinguishing characteristics of the domains and kingdoms of living organisms.

SC.912.L.15.7 Discuss distinguishing characteristics of vertebrate and representative invertebrate phyla, and chordate classes using typical examples.

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.17.7 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.17.9 Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic level

**National Standards met:****NS.K-4.1 SCIENCE AS INQUIRY**

As a result of activities in grades K-4, all students should develop

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

**NS.K-4.3 LIFE SCIENCE**

As a result of activities in grades K-4, all students should develop understanding of

- The characteristics of organisms
- Life cycles of organisms
- Organisms and environments

**NS5-8.1 SCIENCE AS INQUIRY**

As a result of activities in grades 5-8, all students should develop

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

**NS.5-8.3 LIFE SCIENCE**

As a result of their activities in grades 5-8, all students should develop understanding

- Structure and function in living systems
- Populations and ecosystems
- Diversity and adaptations of organisms

**NS.9-12.1 SCIENCE AS INQUIRY**

As a result of activities in grades 9-12, all students should develop

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

**NS.9-12.3 LIFE SCIENCE**

As a result of their activities in grades 9-12, all students should develop understanding of

- Interdependence of organisms
- Matter, energy, and organization in living systems
- Behavior of organisms

**NS.9-12.6 PERSONAL AND SOCIAL PERSPECTIVES**

As a result of activities in grades 9-12, all students should develop understanding of

- Personal and community health
- Population growth
- Natural resources
- Environmental quality
- Natural and human-induced hazards

**NSS-US.H.K-4.1 LIVING AND WORKING TOGETHER IN FAMILIES AND COMMUNITIES, NOW AND LONG AGO**

- Understands family life now and in the past, and family life in various places long ago
- Understands the history of the local community and how communities in North America varied long ago

**S. Carolina Performance Standards met:**

**5<sup>th</sup> Grade: Life Science IIA:** All populations live together and the physical factors with which they interact compose an ecosystem.

**6<sup>th</sup> Grade: Life Science IIIC:** An organism's behavior evolves through adaptation to its environment.

**7<sup>th</sup> Grade: Life Science IIA:** All organisms must be able to obtain and use resources, grow, reproduce, and maintain stable internal conditions while living in a constantly changing external environment.