

St. Johns County School District's
MARINE SCIENCE PROGRAM
MIDDLE SCHOOL PROGRAM
(students entering the 8th grade in August)

Students are assigned to small classes of approximately 15 students by grade level. Each class rotates to another instructor every two days. To accommodate the large number of students applying to the program and keep class sizes small, we may add classes. Students may not move groups. Each group will do similar activities but on different days with different instructors. Due to weather or class size activities may change.

KAYAKING SKILLS AND SAFETY III, SALT MARSH ECOLOGY

Students will participate in lectures and activities on detrital energy flow in a salt marsh. The instructor will discuss kayaking skills and safety procedures. Students will then go kayaking on the tidal creeks adjacent to the Intracoastal Waterway in the Marineland area. The emphasis will be on identifying salt and brackish water plants and animals and observing primary and secondary detritus feeders. A short trail walk will also be on identifying coastal plants. Students may use cast nets, seine nets, marine worm suction, and Ponar grab samplers to collect specimens for identification. All specimens will be released on site.

**SNORKELING SKILLS AND SAFETY III, FRESHWATER SPRINGS
ECOLOGY/GEOLOGY**

late returning trip

After a lecture on the underground springs and aquifer system of Florida, the instructor will discuss snorkeling skills and safety procedures. Students will then travel to Blue Springs Park where they will view freshwater plants and animals in their natural habitats while snorkeling. Students will also compare dissolved oxygen content to the presence of aquatic species and collect ongoing water quality data for park biologists. Students will hike the lowland hammock area surrounding the spring and discuss the importance of Florida's aquifer system and freshwater springs. ***The trip will return at approximately 4:45 to GRMS, then have one stop at Creekside High School. Your child will know the first day of the program which day they will attend this late trip.***

WINDSURFING AND SAILING SKILLS AND SAFETY II

Students will discuss the science and history of sailing. They will conduct an experiment demonstrating Bernoulli's Principle showing how the difference between high and low pressure creates suction or lift that is utilized by sails. The instructor will then present and discuss windsurfing and sailing skills and safety procedures. The students will travel to Anastasia State Park where they will participate in sailing and windsurfing lessons taught by Windsurfing St. Augustine instructors.

SURFING SKILLS AND SAFETY, PHYSICAL DYNAMICS OF WAVE ENERGY

The physical dynamics of waves and the generation of wave energy on St. Augustine's beaches will be discussed. Computer generation will show how waves are created through wind transferring energy into the ocean through wind strength, duration, and fetch. Topics will include origins of coastal wave energy, ocean bottom contours and their effects on wave energy, and using Internet sites (NOAA) for forecasting waves through the reading of marine buoys and weather patterns. After a discussion about the

skills, techniques, and safety procedures needed to surf, students will travel to the lifeguard area at Anastasia State Park for surfing lessons with Surf Station instructors.

PLANKTON STUDIES, BIOLOGICAL SAMPLING TECHNIQUES

Students will participate in a lecture and discussion on the ecological importance of plankton's role in the aquatic/global food chain. Students will take plankton tows in the Intracoastal Waterway and the adjacent inlet at Summer Haven. Students will return to the lab to identify and compare their plankton samples under the microscope and videotape microscope scenes of live plankton.

STAND UP PADDLEBOARDING (SUP) III

Students will begin the day with a lecture on the life-long benefits of nutrition and exercise. The emphasis will be on developing strength and athletic skills through recreational water activities. Following a video presentation on the skills and safe use of SUP's, the class will travel to the Matanzas Inlet area where they will practice stand up paddle boarding on the program's set of SUP's. While half the class is on the water with one instructor, the other students with a second instructor will visit Ft. Matanzas National Park and discuss the natural and historical importance of this area. They may take the park service's boat over to the old Spanish fort on Rattlesnake Island. Students in both groups will then rotate activities.

SUSTAINABLE FISHING IDENTIFICATION SKILLS

FRESHWATER ECOSYSTEM COMPARISONS, SAMPLING TECHNIQUES AND DATA COLLECTION

After a discussion of our local fish habitats and best catch-and-release techniques, students will take an all-day trip aboard a coast guard approved vessel to Salt Run and adjacent areas of the Intracoastal Waterway. They will sample for primary and secondary detrital feeders at various points along the Intracoastal Waterway using cast nets, seine nets, recreational fishing gear, Ponar grab samplers, and suction tubes. All specimens will be released on site, but students will record results for an ongoing database.

KAYAKING III/CANOEING III-FRESHWATER ECOLOGY III

Students will participate in lectures and discussions about the connections between the freshwater rivers of Florida and the health of our saltwater ecosystems. Students will then explore McCullough Creek, a freshwater ecosystem that is one of the St. Johns River water recharge areas. They will travel down this historic creek by kayaking. Advanced use of cast nets, and seine nets at various points for comparison with local saltwater species. Variation may be canoeing from Faver Dykes to Princess Place.

ALL CLASSES:

Students may develop skills for using various marine ecology instruments and tools such as: hydrometer, Secchi disk, Kemmerer water sampling bottle, water quality test kits, dissolved oxygen kits, Ponar grab sampler, marine worm suction tubes, YSI flow meter, plankton nets, pH meters, cast and seine nets, plant presses, GPS chart plotter, depth recorder, and quadrat sampling equipment.