



Cape Eleuthera Island School Curriculum Guide

The Island School is an independent academic program in The Bahamas for high school sophomores or juniors initially founded by The Lawrenceville School in 1999. The 14-week academic course of study includes honors classes in science, field research (a laboratory course), history, math, art, and English literature, as well as physical/outdoor education and a weekly community service component.

The interdisciplinary curriculum links student classroom learning directly to field experience. In addition to traditional classroom assessments through tests, papers, and daily homework assignments, students conduct original, primary research on mangrove communities, coastal management, artificial reefs, permaculture, aquaculture, and marine protected areas. These projects support national research and are conducted under the auspices of the Bahamian government. At the conclusion of the semester, students present their work to a panel of visiting scientists and educators including local and national government officials from The Bahamas. Students apply their investigative, interpretive, and problem solving skills during four-day and eight-day kayaking expeditions, SCUBA diving opportunities, teaching environmental issues to local students, and in daily life at the School. All of our courses are place-based and explicitly linked, taking advantage of our surroundings to both deepen understandings of complex academic and social issues and to make those understandings lasting by connecting course content with experience.

The opportunity to interact with the local community through research, outreach, and the rigorous physical and academic schedule create a transformative experience for our students. All students enjoy homestays with families in the local community for a more intimate connection to their temporary island home. Our admissions process is competitive and selected students demonstrate solid academic performance, leadership potential, and a high degree of self-motivation. Please contact us for more information.

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CURRICULUM

Applied Ecological Science Course & Research Program

Course Description

The Science program at The Island School is composed of ecological science and environmental issues. Throughout the term, students investigate a set of questions to determine: “What are the factors that affect the distribution and dispersion of organisms in a given area?” Using that set of established questions, the students then evaluate pertinent local environmental issues with global implications. Through this investigation, students develop a sense of effective solutions and management strategies derived from multiple perspectives and effective on a variety of scales. The overall goal of the course is to make our students better global citizens from an ecological perspective: question askers and problem-solvers with a strong foundation of useful, applicable skills and the ability to empathize from many viewpoints.

Our unique location and emphasis on fieldwork allows students opportunities to immediately apply the skills and concepts learned in class to the world around them. The authentic, field-based research projects are a unique opportunity for Island School students to investigate the environment they are living in. Our emphasis is on local environmental issues and the development of problem-solving skills that students will be able to transfer to other situations and environments. In many cases, students add to long-term data sets, which increases our ability to offer solutions to local government agencies. The research projects are conducted in collaboration with the Bahamas Department of Fisheries and other scientists actively working in associated fields.

Currently, the research being conducted by Island School students includes: evaluating patch reefs and their economically important fish assemblages; population dynamics of queen conch in a proposed marine protected area off of south Eleuthera; permaculture theory and how it can be applied to Eleuthera; coastal development, rehabilitation, and restoration; and, an environmental impact assessment of a demonstration deep-sea aquaculture project. Throughout the semester, students also investigate their research question from historical, socio-economic, and political perspectives to enhance the depth of their understanding. The longevity and interdisciplinary nature of the projects allows students to recognize that the work they are doing can make a difference locally while understanding environmental issues in a larger context. As such, students take ownership over their projects with motivation sparked by the ability to make a difference rather than simply the drive to earn a higher grade.

Learning Objectives:

- Students will understand that the world is made up of complex natural systems that have predictable patterns; and that,
- Today, the human species is a part of those systems and our actions/decisions can significantly affect them.
- Finally, students will understand that individuals can affect change both locally and globally.
- If students understand these 3 points then they should be able to explain how:
 - Natural systems have predictable patterns that can be observed and surveyed, and how the same tools and collection of questions used here can also be used to interpret systems in other locations;
 - There are many perspectives on environmental issues and to truly understand and successfully manage an issue, one must assess it and empathize from many different perspectives (physical, chemical, biological, and cultural, economic, and political); and
 - Humans can affect positive or negative changes on many different scales, affecting organisms and environments from the individual level up to entire global systems.

Priority Skills – By the completion of the course:

- Students will be able to apply their knowledge on many levels, from individuals to global systems;
- Students will be able to select a survey technique appropriate to answer a specific question or to make an observation quantitative;
- Students will be able to recognize multiple perspectives on global environmental issues; and
- Students will ask “why?” after making an observation or learning of a natural event, and answer that question with another observation or an appropriate line of questioning.

Integrated Humanities Program

English Literature: Derek Walcott’s *Omeros* and The Writing Process

History: Bahamian History, African Diaspora Cultures, and Development Issues

Cultural Immersion: Home-Stays, Journaling, and the Community Outreach Program

Course Description

The Humanities Program guides students in an exploration of the human world around them during their time at The Island School. The course poses to students three major questions: How do we know what we know? What is culture? What forces shape cultures? The course then attempts to guide students in finding answers to these questions by intertwining an exploration of Derek Walcott’s epic poem *Omeros*, an investigation of Bahamian history, and immersion experiences within the local community. The Humanities Program is designed so that learning about others engenders learning about self. A Journaling Program accompanies the Home-stay and Community Outreach Programs, encouraging students to reflect on how new experiences at The Island School and within the South Eleuthera community have an impact on their own worldviews and self-understandings.

Learning Objectives

- Students will appreciate the complexity of cultures. By studying the concept of culture and the forces that shape cultures, students will come to know that cultures are not inherent to a people. Thus, they will begin to challenge cultural assumptions and examine race as a social construct. Students will focus on how cultures affect perspective on the relationship between humans and nature, the individual and his community;
- Students will understand how experiences shape both their own and others’ perceptions, biases, and interpretations of the world around them. Students will also understand that their location within a culture’s power structure informs their self-identities and be able to recognize and challenge assumptions stemming from positions of power within a culture;
- Students will understand that history is constructed; and
- Students will appreciate writing as a means for self-discovery and as an empowering vehicle for finding and expressing voice.

Priority Skills – By the completion of the course:

- Students will be able to seek out and wrestle with multiple perspectives, so that they can recognize their own and others’ bias, thus deepening their self-understanding and their ability to empathize with others;
- Students will be able to independently compose well thought-out, well supported, tightly constructed arguments that are a product of decision making, problem solving, and self-adjusting; and
- Students will be able to successfully engage in intellectual discourse with peers, asking questions and seeking understanding of alternate perspectives before judging and responding.

Island School Mathematics

Program Overview

The Island School Mathematics program seeks to fully utilize the resources inherent to our special place. We aim to produce capable, creative problem solvers who can understand the world through the lens of mathematics. Specifically, our mathematics program is guided by four enduring understandings we strive to instill in each of our students:

- Mathematics is the study of how to think;
- Mathematics is a skill that needs to be practiced;
- Everyone is capable of learning and mastering mathematics;
- Mathematics explains the universe in which we live.

We hope to show students that mathematics is a creative, thoughtful enterprise that leads directly to understanding our world. In accordance with these aims and The Island School's commitment to fostering an experience that is truly place-based, our mathematics program teaches the theory and practice of celestial navigation.

The Island School Mathematics course in celestial navigation seeks to develop an appreciation for the power of mathematics to analyze the world in which we live, as well as nurture a sense of wonder about the night sky and the ocean. Our program focuses on challenging students to solve the classic problems from the history of science, mathematics and navigation: What is the circumference of the Earth? How do we find the longitude? What does the altitude of a celestial body at my meridian indicate about my latitude? What is the angular speed of the moon's revolution around the Earth? What is the arc-measure between any two points on the surface of a sphere? Where am I? These questions, and others like them, are explored in detail during the 13-week Island School term.

Celestial navigation connects the most interesting problems in modern geometry and trigonometry to the practice of determining one's location on the surface of the Earth. In addition, celestial navigation links the study of mathematics to the artistic, scientific and philosophical musings about the night sky that are ancient as human history. In this way, the course becomes a multidisciplinary synergy of mathematics with the other partitions of the academy. We are pleased to offer our students this exciting opportunity that is fully integrated with our special place.

Celestial Navigation

Course Description

Celestial navigation is an applied trigonometry course that teaches students the theory and practice of navigation by starlight. Until the advent of GPS, celestial navigation was the bedrock of all navigation science because it is failsafe, elegant and remarkably accurate. A skilled navigator, in optimal conditions, working only with a sextant and a watch, can determine the location of his or her ship to within .2 minutes of arc—a position error of only 400 yards. The scientific theory at the foundation of celestial navigation teaches students about the motion of the Earth, the seasons, the wandering daylight problem, the stars, the planets and the celestial sphere. Within this rich conceptual framework, students develop spherical geometry and spherical trigonometry in order to model the surface of the Earth and its luminous container, the night sky. In addition, students learn the practice of celestial navigation; our campus features uninterrupted views of the Northern, Southern, and Western horizons, allowing students the opportunity to develop skill using a sextant to find the altitude of a range of celestial bodies. They are taught to use a nautical almanac to find ephemeris data, to reduce sights with and without the use of H.O. tables and to plot the position of a vessel at sea on a chart. In particular, the practical skills students acquire include:

- Charting a dead reckon track
- The Use, Maintenance and Correction of a Mariner's Sextant
- Shooting the noon sun
- Shooting a dusk star (or planet)

- Shooting a twilight star (or planet)
- Taking a bearing with a compass
- Correcting a compass for magnetic deviation
- Plotting a position fix on a chart

The mathematical component of the course is driven by world problems that develop the geometry and trigonometry required for celestial navigation. Problem sets are preceded by readings that equip students with the conceptual framework to create the mathematics necessary to answer a particular problem. Through this process students develop their mathematical modeling and problem solving skills. The aim is to graduate students who are confident, mature problem solvers.

The course is an applied geometry and trigonometry course. While many ideas from the plane geometry of Euclid are useful when modeling navigation problems, such as finding the distance to the horizon, students are also introduced to the geometry of curved surfaces. The familiar properties of lines and shapes inherent to figures incident with a plane do not hold for figures lying on a sphere. In particular, students study non-Euclidean geometry including great circles, loxodromes, spherical triangles and tangent planes. The specific list of mathematics topics covered during the course includes:

I. Coordinate systems:

- Definition of a coordinate system;
- Coordinates on a plane;
- Coordinates on the surface of a sphere;

II. Spherical Geometry:

- The elliptical parallel postulate;
- Great circles, small circles and defining distance;
- Arc measure, arc length, central angles, latitude angles;

III. Tangents and parallel lines:

- Definitions of parallel lines;
- Definitions of tangent lines;
- Relations between tangents to a circle and parallel lines;

IV. Introduction to trigonometry:

- Special right triangles;
- Trigonometric ratios defined on a right triangle;
- Trigonometric ratios defined on the unit circle;
- Solving triangles;
- Inverse trigonometry;

V. Constructions:

- Introduction to the history, theory of compass and straightedge constructions.
- Constructing line segments and circles;
- Bisecting angles and segments;
- Constructing perpendiculars, parallels, similar triangles;
- Constructing the trigonometric ratios;

VI. Applied trigonometry:

- Law of sines;
- Law of cosines;
- Problems relating angular diameter, parallax angle and distance;

VII. Spherical Trigonometry:

- The angle-arc relations of spherical triangles;
- The Navigational Triangle;
- The spherical law of sines;
- The spherical law of cosines;

Other mathematics topics may include vector algebra, systems of linear and non-linear equations, the geometry of map projections and a comparison of orthodromes to loxodromes. The problem sets sample a broad spectrum of assumed mathematical knowledge; this wide range allows students to be challenged at their individual level of mathematics.

In addition to hours spent in the classroom and during study hall, the course includes frequent opportunities for students to take their mathematics education in their own hands, into the world. To better understand the movements of the celestial sphere, students often appeal to the night sky to illustrate the spherical coordinate systems that describe the positions of objects in the sky. Field trips include excursions to a nearby sandbar to investigate the distance to the horizon, afternoons with sextants on the beach and on boats to develop skill shooting stars and treks to chart the latitude and longitude of uninhabited cays. Through connecting mathematical theory to the practice of answering interesting, available questions, the course cultivates the students' ability to solve problems that require creativity, patience and persistent effort.

Land and Environmental Art

Course Description

The art course encourages students to develop their own individual relationship to their surroundings. While developing this relationship, they will be challenged to express their journey through various artistic media. Part of this course will focus on artistic skills and improving the skill of observation and seeing the land or objects in the land. These tools will provide the foundation for the introduction of conceptual art with a focus on thinking about and relating to the natural world. Students will be challenged to create art projects that express these thoughts and ideas. Themes may include reflection on the natural world as a home, a political issue, a resource, and as a subject to be studied.

From the start of the semester, students view and discuss professional environmental artworks. They learn formal principles of design and practice critiquing a variety of art forms. Students also experiment with the power of symbols and associations to help them express their ideas. Island School students produce environmental artwork in a variety of forms and may use natural or manmade materials. Land and Environmental artworks are most often sculptural, although they may also be performances or experiences documented with images, text, maps, or proposals. Students learn digital photography as a method of documenting their artworks for display and as a record of the (often ephemeral) work they have done. Final pieces are presented in a student art gallery during Parents' Weekend.

Throughout the semester, students' listening, speaking and critical assessment skills are assessed in seminar discussions of the definition of art and of different trends in environmental art. They read art history texts and learn to write art critiques. They receive written feedback from the teacher on each of their assignments. They also share feedback with other students in peer critiques. For the final assessment, students submit a portfolio of their semester's work. This portfolio documents improvement in the students' artwork during the semester.

Learning Objectives:

- Students will develop their understandings of personal connections with the natural world;
- Learn basic visual elements of art and understand how to express a concept;
- Develop tools to understand, interpret and critique art;
- Develop connections between art and other disciplines in which students observe, describe and interpret the things they are studying; and
- Spend time alone in the natural environment and to enjoy privacy, reflection, and observation there.

Priority Skills – By the completion of the course:

- Students will be able to approach a work of art and think about the esthetic choices the artist made, the reasoning behind those choices, and how well the artist communicates to the viewer, and effectively communicate those thoughts.

Island School Interdisciplinary Seminar

Course Description

This specialized academic offering is part of an integrated academic and social effort to broaden student understanding of how education can be most effective while providing context and perspective to The Island School experience. Bridging the gap between academic disciplines and the complex reality of current issues, we aim to teach students to think and act mindfully. Our ultimate goal is to cultivate mindful actions, through examination of community, education, current events, and leadership that improve the quality and impact of the way we live our lives.

Learning Objectives:

- To enhance the overall educational experience of The Island School through reflection, reading, writing and discussion of the major school themes: connection to place and community, education, and sustainability;
- To enhance student's understanding of the transferability of the skills and experiences gained here to the world around us; and
- Students should understand how change comes from the individual, and that each of them can have a powerful voice with real consequences to their actions.

Priority Skills – By the completion of the course:

- Students should be able to recognize and discuss the complexity of real-world issues, and work toward solutions in a holistic, academically integrated approach; and
- Students should be able to recognize and draw on many of the skills learned through other facets of The Island School experience (e.g. observation and analysis skills, awareness of lens and bias, and leadership and communication skills) to examine complex human issues.

Demonstration of Learning Presentations

Course Description

At the end of the semester, The Island School students are tasked with composing presentations that outline what they have learned over the course of the term. In essence, the assignment asks the students to reflect on the school's desired learning outcomes, to showcase what was significant to them, and to illustrate how that knowledge connects to their lives at school, at home, and in the world. The Demonstration of Learning is an opportunity for students to appreciate the intrinsic worth of learning.

The structure is formal, and presentations are made to a panel composed of the student's advisory group, and two teachers from different academic departments. Additionally, the audience is open to other students, teachers, and administrators. There are three guiding questions for the students to address, covering topics that encourage students to evaluate the effect of their Island School experience on their worldview regarding biological and cultural complexity, their conception of themselves as individual members of a larger community, and the merits of place-based and experiential learning. After making a 15-20 minute presentation, the student must field questions from the panel and audience. Finally, the presentations are assessed by the panel.

Community Outreach

Course Description

Students who attend The Island School on Eleuthera, The Bahamas earn at least 30 hours of community service. Their primary work is in a one-on-one mentoring relationship with the local primary and middle school children from the settlement of Deep Creek, South Eleuthera. Main responsibilities include:

- Teaching students about the marine or terrestrial environment.
- Mentoring students with basic academic work (reading and writing) and also teaching new skills (computer and presentation skills).
- Presenting their projects at the final Community Outreach Fair.

Island School students work with local Bahamian children from grade 3 through 7 for 10 two-hour meetings over the course of the semester. Some meetings take place at the Island School and others at the local schools in Deep Creek. Associated with these meetings is allotted time for preparation and reflection each week. Additional community service hours are earned through special community work projects and the final Community Outreach Fair, bringing each student's total to over 30 hours of Community Service earned.

Physical Education Program

Course Description

The Island School's Physical Education Program is composed of the morning exercise and outdoor programs. All students participate for a minimum of an hour, five days per week in various workouts on land and sea in order to increase their fitness, stamina, strength, and flexibility. In the second week of the semester, students decide whether they will set their sights on swimming a 4 mile ocean route or running 13.1 miles, a half marathon. Students spend two exercises a week focusing on building endurance toward their respective goal while the other three morning workouts include a combination of running, swimming, yoga, strength training, or team sports. In the final weeks of the semester, students participate in either the Deep Creek Half Marathon or the Super Swim. The community then focuses its combined strengths on the Monster Mash, The Island School's version of a 5-mile triathlon that includes running, swimming, and kayaking.

The outdoor programs are split into two components: SCUBA training and sea kayak expeditions. By mid-term, most students have completed the basic SCUBA Diver certification that includes five open water dives on local reefs. In addition, many students achieve Advanced Open Water certification by completing several more dives including night dives, deep dives, a naturalist dive, a navigation dive, a rescue diver workshop, and take on a leadership role on the water at least once.

Students participate in both three-day and eight-day kayak trips. During the first month of school, the three-day trip focuses on basic elements of sea kayaking and "Leave No Trace" minimum impact camping. Two months into the semester, the students depart on their eight-day kayak trips - a thirty nautical mile journey around the southern coast of Eleuthera. Students continue to improve the basic skills needed to paddle and camp in this type of terrain. They also develop leadership skills and gain self-confidence as they work through this rigorous expedition that includes a forty-eight hour solo experience.

Overall, The Island School Physical Education Program pushes students to learn about their physical and mental limits both in individual and group settings. In this way, students learn more about their surroundings, their abilities, and their role in helping their peers recognize their physical potential.

Skill-Based Grading At The Island School

We are fortunate to have a dedicated group of educators and small enough class size at the Island School to be able to provide a detailed and thorough assessment. The format of this assessment is probably very different and more extensive than what students have received in the past; at midterm, students receive written feedback in each of their academic subjects in up to four different skill areas: Organization, Writing, Reasoning, and Speaking & Listening.

Students' final assessments will also include one overall grade in each subject area to make it easier for sending schools to integrate our grading system with their own. We realize that students take a little while to become accustomed to the new expectations here. Since we are focused on learning and improvement, we weight our grades more heavily during the second half of the semester.

The idea of a skill-based grading system is not new – some of our sending schools have been using such systems very successfully for a number of years already, and many schools (both public and private) are currently investigating the possibility of incorporating this kind of system. Skill-based grading gives students specific feedback on different areas of their academic abilities. At The Island School, we have adopted the idea of skill-based grading because of the specific feedback it gives students about their academic abilities. It allows students the opportunity to focus their attention on the areas that they need to work on at the same time as giving them positive feedback on those areas in which they are doing well.

The four different skill areas that we grade are:

- **Organization:** This area deals with how well the students are able to organize their studies and their time. Grades in this area might be given for how well the students are able to follow directions or perform on test questions that require straight recall of class or reading content.
- **Writing:** This area deals with the mechanics of the students' writing. Grades are assessed based on sentence and paragraph structure, grammar, and proofreading.
- **Reasoning:** This area deals with how well the students are able to understand and apply the more difficult concepts they are learning. Specific grades in this area might be given for how well students are able to use specific evidence to back up their ideas, or how well students are able to actually apply concepts learned to novel situations.
- **Listening and Speaking:** This area deals both with how well students are able to communicate their ideas in more formal situations, such as seminars and presentations, as well as participation in classes and group discussions.

This system is challenging and new for most students. In some cases the individual skill area grades are lower than expected at midterm. If students take good note of their early feedback and midterm comments, focusing on the specific areas requiring attention, we find that their grades are often significantly higher by the end of the semester.