



CSS July 6 – August 12, 2021

The Children's School of Science encourages and develops in children a love and appreciation of science. Inquiry, direct observation, and understanding of nature guide our instructional philosophy. Frequent field trips and hands-on classroom study give students the opportunity to explore nature, become adept at observation, and discover the rules that govern natural processes. The world-famous scientific community of Woods Hole offers additional opportunities to learn about research in different fields. The unusual complexity of the waters, geology, and biology of the greater Falmouth area provides a uniquely well suited "live" learning environment.

As a result of the continuing COVID-19 pandemic, we have made many changes for Summer 2021, in order to maintain the core CSS experience while ensuring the health and safety of our students, teachers, assistants, families, and broader community. Our daily schedule has been restructured into three, rather than four, time periods to allow for longer classes as well as more time for transition between periods. This will give time for implementing COVID protocols, allow for longer walking field trips, and minimize traffic bottlenecks. We are also capping class sizes at ten students per class to allow for individualized supplies and greater physical spacing. Classes will meet outside, as much as possible. There will be no driving field trips, and parents will not be asked to work at the front desk.

Courses are organized into three-week sessions. Session A runs from July 6 to July 23, and Session B runs from July 26 to August 12. Classes meet daily Monday through Friday for two hours. Attendance at every class is expected. Courses are organized according to students' interests and age appropriate study. Children may enroll in the youngest class if they reach the age of 7 years by the time they start Science School, and have finished first grade. Early registration will begin in early April. During this time, students may sign up for only one A or one B class, as our goal is to place as many students as possible in a course. After two weeks, students may enroll in additional classes if space is available. In any case, students under 10 are discouraged from enrolling in more than one class per session. A **\$35 fee** is due at the time of registration. **Tuition for each three-week course is \$290.** It is the policy of the Children's School of Science that tuition is non-refundable.

Scholarships: Partial scholarships are available to those truly in need. Please send a written request for financial aid to general@childrenschoolofscience.org.

2021 Calendar

July 6 – Session A Begins

July 7 – Back to School Night 6-7pm

July 21 – Open Board Meeting 7 pm

July 23 – End of Session A

July 26 – Session B Begins

July 27 – Back to School Night 6-7 pm

August 9 – Annual Meeting 7:30 pm

August 12 – End of Session B

Note that some of these events may be held virtually or cancelled, depending on COVID guidelines.



Find us on Facebook

The Children's School of Science is made possible through the cooperation and collective generosity of dedicated parents, teachers and benefactors. CSS gratefully acknowledges all contributions from its many friends and families. CSS also gives thanks to Anonymous Donors, Church of the Messiah of Woods Hole, Clowes Fund, Elaine Noe Memorial Fund, Esther Simon Charitable Trust, The Friendship Fund, Marine Biological Laboratory, Memorial Funds in Honor of Past Presidents and Friends of CSS, NOAA Fisheries Service, Woods Hole Foundation, Woods Hole Historical Museum, Woods Hole Oceanographic Institution, Woods Hole Public Library, Woods Hole Woman's Club.

Visit childrenschoolofscience.org to learn more about the school.

SCHEDULE OF CLASSES 2021

SESSION A July 6 – July 23	SESSION B July 26 – August 12
<p><u>8:30 – 10:30</u> Seashore Life (7-8) Marine Biology (9-10) Physical Oceanography (10-11) Ichthyology (12-13)</p>	<p><u>8:30 – 10:30</u> Seashore Life (7-8) Marine Biology (9-10) Chemical Oceanography (10-11) Vertebrate Biology (12-13) Robotics/ROVs (13-15)</p>
<p><u>11:00 – 13:00</u> Animal Behavior (8-9) Ecological Art (9-10) Embryology (12-13) Robotics/ROVs (13-15)</p>	<p><u>11:00 – 13:00</u> Animal Behavior (8-9) Ecology of the Bike Path (10-11) Environmental Science (12-13) Advanced Marine Biology (14+)</p>
<p><u>13:30 – 15:30</u> Seashore Life (7-8) Botany (9-11) Nautical Science (12-13) Coastal Resilience (14+)</p>	<p><u>13:30 – 15:30</u> Seashore Life (7-8) Geology (9-11) Invertebrate Biology (11-12) Biological Illustration (14+)</p>

CSS ADMINISTRATIVE OFFICERS 2021

Administrative Director (Interim): Aaron Sloboda
Assistant Administrator (Interim): Jessica Rencher
Curriculum Chairs: Naomi Fraenkel Altschul, Karen Dell
Teaching Assistants Chair: Ethan Triestman
Recording Secretary: David Epstein

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2021 COURSE DESCRIPTIONS

Numbers listed in parentheses indicate ages for each class; letters indicate the session(s).

SEASHORE LIFE (7-8) A, B

Students will explore and study the flora and fauna of the seashore, including dunes, marshes, beaches and shallow water. Activities may include setting up aquaria, experiments, art projects and collections.

ANIMAL BEHAVIOR (8-9) A, B

Have you ever wondered why certain animals live where they do, or behave in particular ways? Through collection, observation, and experimentation, this course will study the habits and habitats of local animals.

MARINE BIOLOGY (9-10) A, B

This is a diverse field-oriented course in which students will visit rocky, sandy and marshy ecosystems to study and collect the major groups of animals and plants of the ocean. In the classroom, students will observe marine organisms with microscopes and may make a shell collection.

ECOLOGICAL ART (9-10) A

Students will use various art forms to explore the relationships within Woods Hole ecosystems, as well as their own connections to nature. Each week students will study a different ecosystem such as the beaches, woods and backyards of Woods Hole. Through sketches, sculptures and other projects, students will showcase the connections between, and their ties to, these environments.

BOTANY (9-11) A

Plants provide the foundation for all life on Earth. In botany, we collect and identify local plant species, and learn about their importance in our ecosystem. Through experiments, microscopy, dissection and fieldwork, students gain a hands-on appreciation for botanical concepts and the dynamic role that plants play in the world around us.

GEOLOGY OF CAPE COD (9-11) B

Did you know that Cape Cod and the Islands were formed by a huge ice sheet thousands of years ago? In this class, students will be introduced to the geological history of Cape Cod through field work, experiments and classroom modeling. The class will also cover topics such as fossils, soil and water.

PHYSICAL OCEANOGRAPHY (10-11) A

This class will focus on the physical processes within the ocean such as wave formation, tides, gyres and global ocean circulation. Students may investigate the impact of these processes on beach profiles, coastal erosion and phenomena such as the "Pacific plastic garbage patch". They will learn about the ocean-atmosphere relationship and its importance to weather and climate across the globe.

ECOLOGY OF THE BIKE PATH (10-11) B

Riding bicycles lets students reach the unique aquatic and upland ecosystems along the Shining Sea Bike Path. During daily rides, students will study the ecology of distinct areas on the bike path. *Participants must provide their own bicycles and helmets and be comfortable riding for several miles and in a straight line on the bike path. A skills test will be administered on the first day of class.*

CHEMICAL OCEANOGRAPHY (10-11) B

Students in this class will learn about the chemical properties of sea water such as salinity, temperature and pH. They may investigate how changes to ocean chemistry due to natural processes (such as biological activity or geology) or human activities (such as pollution) may impact both marine and terrestrial life.

INVERTEBRATE BIOLOGY (11-12) B

Invertebrates dominate the animal world. They include sponges, cnidarians, worms, echinoderms, mollusks and arthropods. In this hands-on class, students will study internal and external anatomy, reproduction, feeding, and behavior through observation of live specimens, dissection, classroom experiments, and field trips to local ecosystems. They also will explore the evolutionary relationships between these many groups.

ICHTHYOLOGY (12-13) A

In this class, students will learn about fish species found in local North Atlantic and freshwater habitats. They will study their diverse forms, behaviors and survival strategies. Students will fish from docks, beaches and boats using different baits and lures, as well as by setting traps and using seines.

EMBRYOLOGY (12-13) A

During development, a single cell will divide and produce the many different cell types, with different shapes and jobs, that make up an organism. How does this happen? How long does it take? This course will introduce and explore the changes and stages of embryonic development in organisms through collection and microscopic research.

NAUTICAL SCIENCE (12-13) A

Explore boat design and build a seaworthy model boat, learn to navigate by chart and compass, experiment with the principles of buoyancy and displacement, and delve into nautical terminology and practical seamanship. Classes will take trips to the working waterfront of Woods Hole.

ENVIRONMENTAL SCIENCE (12-13) B

How does the earth support us? How can we support the earth? This course will investigate aquatic and terrestrial ecosystems around Woods Hole to better understand how those systems work. By collecting samples and taking measurements, students will see how humans are impacting local ecosystems. Through experimentation and discussion, students will learn how their local actions can have a global impact.

VERTEBRATE BIOLOGY (12-13) B

Vertebrates make up many of the animals we see daily: birds, reptiles, amphibians, fish and mammals. In this class, we will investigate the anatomy, form, function and behavior of numerous vertebrates to determine which characteristics are common across classes and which are unique to specific groups. We will observe behaviors and the beginning of fall migrations.

ROBOTICS/ROVs (13-15) A, B

Students will focus on the technical, economic, and environmental aspects of real-world marine engineering and electronics. Through project design, data analysis, and field trips to Woods Hole labs, students will explore principles such as buoyancy, propulsion and energy. Students will build a functional remotely operated vehicle (ROV). *This class has a materials fee of \$40.*

ADVANCED MARINE BIOLOGY (14-16) B

Through hands-on exposure, students will delve into the biology and ecology of marine organisms, their evolution and classification, anatomy and physiology, and behaviors and habitats. This course will include snorkeling field trips to different ecosystems around Woods Hole. *Students must provide their own mask, snorkel and fins. A swim test will be administered requiring students to swim 50 feet and tread water for 2 minutes.*

COASTAL RESILIENCE (14-16) A

Climate change and rising sea levels will have big impacts on coastal communities, including Woods Hole. This course examines those impacts and explains the concept of resilience. Students will inventory resources at risk, perform experiments aimed at understanding the meaning of sustainable recovery, and examine the types of actions being taken to minimize the consequences of coastal flooding and other storm effects.

BIOLOGICAL ILLUSTRATION (14-16) B

Illustration can be a useful and beautiful method of recording information. In this class we will become familiar with basic techniques of biological illustration, while examining the structure, anatomy and function of local organisms. This course will also compare historically important methods of illustration with modern techniques such as photomicrographs and data-based animations.