



**MYSTIC  
AQUARIUM**

## Teaching Standards Addressed in Classroom Programs

### PreK-Kindergarten Programs

Mystic Aquarium educators encourage young students to observe the natural world, ask questions, and look for patterns to describe needs that animals have to live and grow. They discover sources for those needs along with comparisons to our own. We also reinforce the important concept of cause and effect and how to respect each other and the environment we all share. All Pre-K & K programs include a literacy focus through vocabulary building and hands-on activities. We offer three specific programs for PreK and Kindergarten classes: *Suitcase of Surprises*, *Ocean Motions*, or *Hermit Crab Hideaway*.

#### Standards Addressed –

PreK CT ELDS Strands A, C, D & E

Kindergarten CT: PK.2, K.2

Kindergarten RI: LS1, LS4

Kindergarten NGSS: Structure & Function, Stability & Change; LS1, ESS2, ESS3; Asking Questions, Obtaining Information

### Grades 1 to 12 Classroom Programs

Each grade of 1 to 9 has four class options, one for each topic aligned with crosscutting concepts (CCC) of the Next Generation Science Standards (NGSS). Those topics include: Animal Adaptations, Classification, Habitats & Ecosystems, and Humans & the Ocean. Additionally, each program within a topic is adapted, making use of the appropriate science and engineering practices (S&EP) to address disciplinary core ideas (DCI) for the corresponding grade groups. Note that Mystic Aquarium also embraces the pedagogy of NGSS, where the teacher becomes more of a guide, and students are encouraged to lead each other through their inquiries. See below for grades 10-12.

#### The crosscutting concepts (CCCs) addressed within the four topics include:

- Patterns
- Structure and Function
- Energy and Matter
- Systems and System Models
- Stability and Change
- Cause and Effect

### GRADES 1 to 3

Students observe and construct ideas based on patterns they discover within the biodiversity and adaptations of animals. Water in many forms is featured through a variety of aquatic habitats. Many class options compare the structures and functions of animals and their young, as well as behaviors that help them survive. Programs also introduce concepts of how humans, especially children, can make choices that help reduce their impact on our environment. All grade 1-3 programs promote STEM education through science literacy, inquiry, problem solving, and hands-on activities.

#### Standards Addressed –

CT: 1.2, 3.2

RI: LS1, LS2

NGSS: Patterns, Cause & Effect, Structure & Function; Stability & Change; LS1, LS2, LS3, LS4, ESS2, ESS3; Asking Questions, Obtaining & Communicating Information, Analyzing & Interpreting, Engaging from Evidence

## GRADES 4 to 6

Students dive deeper into understanding biodiversity and the relationships between living things and their environments, especially how they relate to watersheds and the ocean. Students will construct explanations from evidence that they gather and observe about structural and behavioral adaptations, the flow of energy within ecosystems, and solutions to problems that aquatic environments face resulting from human impacts, especially overuse of limited resources. All grade 4-6 programs promote STEM education through scientific literacy, inquiry, problem solving, and hands-on activities.

### **Standards Addressed –**

CT: 4.2, 5.1, 5.2, 6.2

RI: LS1, LS2, LS3, PS2

NGSS: Patterns, Structure & Function, Cause & Effect, Energy & Matter, Stability & Change; LS1, LS3, ESS2, ESS3, ETS; Asking & Defining, Analyzing & Interpreting, Engaging from Evidence, Evaluating & Communicating Information

## GRADES 7 to 9

Students use models to describe aquatic phenomena. Specific programs highlight ecology and engage students in evidence-based ideas about aquatic ecosystem dynamics, energy transfer and the interdependent relationships within them. Other classes focus on the processes of adaptation by natural selection and the evidence of common ancestry and biodiversity through patterns that emerge in scientific classification. Through evidence presented about human impacts on the ocean, students will construct explanations for cause and effect and develop solutions to help lessen those impacts. All grade 7-9 programs promote STEM education through scientific literacy, inquiry, problem solving, and hands-on activities.

### **Standards Addressed –**

CT 7.2, 8.2, 9.2, 9.3, 9.6, 9.8

RI: LS1, LS3

NGSS: Patterns, Structure & Function, Cause & Effect, Energy & Matter, Stability & Change; LS1, LS2, LS3, LS4, ESS2, ESS3, ETS; Asking & Defining, Analyzing & Interpreting, Engaging from Evidence, Evaluating & Communicating Information

## GRADES 10 to 12

Students will conduct scientific investigations and construct explanations, some with a focus on molecular structures and functions, to understand more about the inheritance and variation of traits. Other programs encourage them to analyze and interpret data on energy flow, ecosystem dynamics, and adaptations using detailed evidence of environmental influences in natural selection. Students will also develop possible solutions to help sustain biodiversity so that ecosystem functions and productivity are maintained to support and enhance life on Earth. All grade 10-12 programs promote interest in STEM through scientific literacy, active investigations, problem solving, and discussion of evidence and results. *Please note* that due to the resources needed for lab-based programs that we offer to the Honors/AP-level audiences, those programs can only be conducted at the Aquarium, and some may also be conducted in a distance learning format.

### **Standards Addressed –**

CT: 10.3, 10.6, 10.8/CT Enrichment: Evolution, Physiology, 10.6/CT Enrichment: Ecology

NGSS: Patterns, Structure & Function, Cause & Effect, Energy & Matter, Stability & Change; LS2, LS3, LS4, ESS3, ETS1; Asking & Defining, Analyzing & Interpreting, Engaging from Evidence, Evaluating & Communicating Information