

**MarineLab Program Components Matched to
North Carolina Standard Course of Study - Science
Grade 8 - Adopted 2004**

COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.														
COMPETENCY GOAL / OBJECTIVE	1.02.	Develop appropriate experimental procedures for:														
OBJECTIVE / EXPECTATION	1.02.b.	<p>Student generated questions</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Astronomy/Plankton Tow</td> <td style="width: 50%;">Mangrove ecology</td> </tr> <tr> <td>Cassiopeia</td> <td>Rodriguez Key zonation</td> </tr> <tr> <td>Coral Reef Ecology</td> <td>Sea Turtle Stranding Activity</td> </tr> <tr> <td>Everglades Hydrology</td> <td>Seagrass ecology</td> </tr> <tr> <td>Field Identification of Reef Fish</td> <td>Sponge Spicule Identification</td> </tr> <tr> <td>Invertebrate Diversity</td> <td>Water Quality Lab</td> </tr> <tr> <td colspan="2">Keys Habitats - Introduction and Summary</td> </tr> </table>	Astronomy/Plankton Tow	Mangrove ecology	Cassiopeia	Rodriguez Key zonation	Coral Reef Ecology	Sea Turtle Stranding Activity	Everglades Hydrology	Seagrass ecology	Field Identification of Reef Fish	Sponge Spicule Identification	Invertebrate Diversity	Water Quality Lab	Keys Habitats - Introduction and Summary	
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COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.														
COMPETENCY GOAL / OBJECTIVE	1.03.	Apply safety procedures in the laboratory and in field studies:														
OBJECTIVE / EXPECTATION	1.03.b.	<p>Safely manipulate materials and equipment</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Astronomy/Plankton Tow</td> <td style="width: 50%;">Mangrove ecology</td> </tr> <tr> <td>Cassiopeia</td> <td>Rodriguez Key zonation</td> </tr> <tr> <td>Coral Reef Ecology</td> <td>Sea Turtle Stranding Activity</td> </tr> <tr> <td>Everglades Hydrology</td> <td>Sponge Spicule Identification</td> </tr> <tr> <td>Field Identification of Reef Fish</td> <td>Water Quality Lab</td> </tr> <tr> <td>Invertebrate Diversity</td> <td></td> </tr> </table>	Astronomy/Plankton Tow	Mangrove ecology	Cassiopeia	Rodriguez Key zonation	Coral Reef Ecology	Sea Turtle Stranding Activity	Everglades Hydrology	Sponge Spicule Identification	Field Identification of Reef Fish	Water Quality Lab	Invertebrate Diversity			
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OBJECTIVE / EXPECTATION	1.03.c.	<p>Conduct appropriate procedures</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Astronomy/Plankton Tow</td> <td style="width: 50%;">Mangrove ecology</td> </tr> <tr> <td>Cassiopeia</td> <td>Rodriguez Key zonation</td> </tr> <tr> <td>Coral Reef Ecology</td> <td>Sea Turtle Stranding Activity</td> </tr> <tr> <td>Everglades Hydrology</td> <td>Sponge Spicule Identification</td> </tr> <tr> <td>Field Identification of Reef Fish</td> <td>Water Quality Lab</td> </tr> <tr> <td>Invertebrate Diversity</td> <td></td> </tr> </table>	Astronomy/Plankton Tow	Mangrove ecology	Cassiopeia	Rodriguez Key zonation	Coral Reef Ecology	Sea Turtle Stranding Activity	Everglades Hydrology	Sponge Spicule Identification	Field Identification of Reef Fish	Water Quality Lab	Invertebrate Diversity			
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COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.														
COMPETENCY GOAL / OBJECTIVE	1.05.	Analyze evidence to:														
OBJECTIVE / EXPECTATION	1.05.a.	<p>Explain observations</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Astronomy/Plankton Tow</td> <td style="width: 50%;">Mangrove ecology</td> </tr> <tr> <td>Cassiopeia</td> <td>Rodriguez Key zonation</td> </tr> <tr> <td>Coral Reef Ecology</td> <td>Sea Turtle Stranding Activity</td> </tr> <tr> <td>Everglades Hydrology</td> <td>Sponge Spicule Identification</td> </tr> <tr> <td>Field Identification of Reef Fish</td> <td>Water Quality Lab</td> </tr> <tr> <td>Invertebrate Diversity</td> <td></td> </tr> </table>	Astronomy/Plankton Tow	Mangrove ecology	Cassiopeia	Rodriguez Key zonation	Coral Reef Ecology	Sea Turtle Stranding Activity	Everglades Hydrology	Sponge Spicule Identification	Field Identification of Reef Fish	Water Quality Lab	Invertebrate Diversity			
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OBJECTIVE / EXPECTATION	1.05.c.	Develop the relationship between evidence and explanation Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Seagrass ecology Sponge Spicule Identification Water Quality Lab
COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.
COMPETENCY GOAL / OBJECTIVE	1.06.	Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations:
OBJECTIVE / EXPECTATION	1.06.a.	Measurement Sea Turtle Stranding Activity
OBJECTIVE / EXPECTATION	1.06.b.	Analysis of data Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Sponge Spicule Identification Water Quality Lab
OBJECTIVE / EXPECTATION	1.06.c.	Graphing Keys Habitats - Introduction and Summary Sea Turtle Stranding Activity
COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.
COMPETENCY GOAL / OBJECTIVE	1.08.	Use oral and written language to:
OBJECTIVE / EXPECTATION	1.08.a.	Communicate findings Sea Turtle Stranding Activity
COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.
COMPETENCY GOAL / OBJECTIVE	1.09.	Use technologies and information systems to:
OBJECTIVE / EXPECTATION	1.09.b.	Gather and analyze data Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Rodriguez Key zonation Sea Turtle Stranding Activity Sponge Spicule Identification Water Quality Lab Invertebrate Diversity

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COURSE / COMPETENCY GOAL	NC.1.	The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.
COMPETENCY GOAL / OBJECTIVE	1.10.	Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing:
OBJECTIVE / EXPECTATION	1.10.a.	Scientific text Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Keys Habitats - Introduction and Summary Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Seagrass ecology Sponge Spicule Identification Water Quality Lab
COURSE / COMPETENCY GOAL	NC.2.	The learner will demonstrate an understanding of technological design.
COMPETENCY GOAL / OBJECTIVE	2.02.	Use information systems to:
OBJECTIVE / EXPECTATION	2.02.a.	Identify scientific needs, human needs, or problems that are subject to technological Seagrass ecology
COURSE / COMPETENCY GOAL	NC.3.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.
COMPETENCY GOAL / OBJECTIVE	3.02.	Explain the structure of the hydrosphere including:
OBJECTIVE / EXPECTATION	3.02.b.	Local river basin Keys Habitats - Introduction and Summary
COURSE / COMPETENCY GOAL	NC.3.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.
COMPETENCY GOAL / OBJECTIVE	3.03.	Evaluate evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms:
OBJECTIVE / EXPECTATION	3.03.a.	Estuaries Invertebrate Diversity Mangrove ecology Keys Habitats - Introduction and Summary Rodriguez Key zonation Seagrass ecology
OBJECTIVE / EXPECTATION	3.03.b.	Marine ecosystems Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Keys Habitats - Introduction and Summary Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Seagrass ecology Sponge Spicule Identification Water Quality Lab
OBJECTIVE / EXPECTATION	3.03.d.	Behavior of gases in the marine environment Coral Reef Ecology Keys Habitats - Introduction and Summary Water Quality Lab

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OBJECTIVE / EXPECTATION	3.03.e.	Value and sustainability of marine resources Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Keys Habitats - Introduction and Summary	Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Seagrass ecology Sponge Spicule Identification Water Quality Lab
OBJECTIVE / EXPECTATION	3.03.f.	Deep ocean technology and understandings gained Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Keys Habitats - Introduction and Summary	Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Seagrass ecology Sponge Spicule Identification Water Quality Lab
COURSE / COMPETENCY GOAL	NC.3.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.	
COMPETENCY GOAL / OBJECTIVE	3.04.	Describe how terrestrial and aquatic food webs are interconnected. Astronomy/Plankton Tow Mangrove ecology Seagrass ecology	
COURSE / COMPETENCY GOAL	NC.3.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.	
COMPETENCY GOAL / OBJECTIVE	3.05.	Analyze hydrospheric data over time to predict the health of a water system including:	
OBJECTIVE / EXPECTATION	3.05.a.	Temperature Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab	
OBJECTIVE / EXPECTATION	3.05.b.	Dissolved oxygen Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab	

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OBJECTIVE / EXPECTATION	3.05.c.	pH Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab
OBJECTIVE / EXPECTATION	3.05.d.	Nitrates Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab
OBJECTIVE / EXPECTATION	3.05.e.	Turbidity Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab
OBJECTIVE / EXPECTATION	3.05.f.	Bio-indicators Astronomy/Plankton Tow Coral Reef Ecology Invertebrate Diversity Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab
COURSE / COMPETENCY GOAL	NC.3.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.
COMPETENCY GOAL / OBJECTIVE	3.07.	Describe how humans affect the quality of water:
OBJECTIVE / EXPECTATION	3.07.a.	Point and non-point sources of water pollution in North Carolina Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Sponge Spicule Identification Water Quality Lab

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OBJECTIVE / EXPECTATION	3.07.b.	Possible effects of excess nutrients in North Carolina waters Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity	Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Sponge Spicule Identification Water Quality Lab
OBJECTIVE / EXPECTATION	3.07.c.	Economic trade-offs Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity Keys Habitats - Introduction and Summary	Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Seagrass ecology Sponge Spicule Identification Water Quality Lab
OBJECTIVE / EXPECTATION	3.07.d.	Local water issues Astronomy/Plankton Tow Cassiopeia Coral Reef Ecology Everglades Hydrology Field Identification of Reef Fish Invertebrate Diversity	Mangrove ecology Rodriguez Key zonation Sea Turtle Stranding Activity Sponge Spicule Identification Water Quality Lab
COURSE / COMPETENCY GOAL	NC.3.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.	
COMPETENCY GOAL / OBJECTIVE	3.08.	Recognize that the good health of environments and organisms requires:	
OBJECTIVE / EXPECTATION	3.08.a.	Monitoring of the hydrosphere Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology	Water Quality Lab
OBJECTIVE / EXPECTATION	3.08.b.	Water quality standards Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab	
OBJECTIVE / EXPECTATION	3.08.c.	Methods of water treatment Keys Habitats - Introduction and Summary Water Quality Lab	

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OBJECTIVE / EXPECTATION	3.08.d.	Maintaining safe water quality Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Seagrass ecology Water Quality Lab
OBJECTIVE / EXPECTATION	3.08.e.	Stewardship Coral Reef Ecology Keys Habitats - Introduction and Summary Mangrove ecology Sea Turtle Stranding Activity Seagrass ecology Water Quality Lab
COURSE / COMPETENCY GOAL	NC.4.	The learner will conduct investigations and utilize technology and information systems to build an understanding of chemistry.
COMPETENCY GOAL / OBJECTIVE	4.06.	Describe and measure quantities related to chemical/physical changes within a system:
OBJECTIVE / EXPECTATION	4.06.a.	Temperature Water Quality Lab
COURSE / COMPETENCY GOAL	NC.4.	The learner will conduct investigations and utilize technology and information systems to build an understanding of chemistry.
COMPETENCY GOAL / OBJECTIVE	4.08.	Identify evidence that some chemicals may contribute to human health conditions including:
OBJECTIVE / EXPECTATION	4.08.a.	Cancer Cassiopeia
COURSE / COMPETENCY GOAL	NC.4.	The learner will conduct investigations and utilize technology and information systems to build an understanding of chemistry.
COMPETENCY GOAL / OBJECTIVE	4.09.	Describe factors that determine the effects a chemical has on a living organism including:
OBJECTIVE / EXPECTATION	4.09.a.	Exposure Water Quality Lab
OBJECTIVE / EXPECTATION	4.09.b.	Potency Water Quality Lab
OBJECTIVE / EXPECTATION	4.09.c.	Dose and the resultant concentration of chemical in the organism Water Quality Lab
OBJECTIVE / EXPECTATION	4.09.d.	Individual susceptibility Water Quality Lab
OBJECTIVE / EXPECTATION	4.09.e.	Possible means to eliminate or reduce effects Water Quality Lab

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COURSE / COMPETENCY GOAL	NC.5.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of evidence of evolution in organisms and landforms.
COMPETENCY GOAL / OBJECTIVE	5.01.	Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life including:
OBJECTIVE / EXPECTATION	5.01.g.	Catastrophic events Mangrove ecology
COURSE / COMPETENCY GOAL	NC.5.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of evidence of evolution in organisms and landforms.
COMPETENCY GOAL / OBJECTIVE	5.03.	Examine evidence that the geologic evolution has had significant global impact including:
OBJECTIVE / EXPECTATION	5.03.a.	Distribution of living things Keys Habitats - Introduction and Summary Mangrove ecology
OBJECTIVE / EXPECTATION	5.03.b.	Major geological events Keys Habitats - Introduction and Summary Mangrove ecology
OBJECTIVE / EXPECTATION	5.03.c.	Mechanical and chemical weathering Keys Habitats - Introduction and Summary Mangrove ecology
COURSE / COMPETENCY GOAL	NC.5.	The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of evidence of evolution in organisms and landforms.
COMPETENCY GOAL / OBJECTIVE	5.05.	Use maps, ground truthing and remote sensing to make predictions regarding:
OBJECTIVE / EXPECTATION	5.05.a.	Changes over time Everglades Hydrology Keys Habitats - Introduction and Summary Sea Turtle Stranding Activity
OBJECTIVE / EXPECTATION	5.05.b.	Land use Everglades Hydrology Keys Habitats - Introduction and Summary Sea Turtle Stranding Activity
OBJECTIVE / EXPECTATION	5.05.c.	Urban sprawl Everglades Hydrology Keys Habitats - Introduction and Summary Sea Turtle Stranding Activity
OBJECTIVE / EXPECTATION	5.05.d.	Resource management Everglades Hydrology Keys Habitats - Introduction and Summary Sea Turtle Stranding Activity

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COURSE / COMPETENCY GOAL	NC.6.	The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of cell theory.
COMPETENCY GOAL / OBJECTIVE	6.01.	Describe cell theory:
OBJECTIVE / EXPECTATION	6.01.c.	Some organisms are single cell; other organisms, including humans, are multi-cellular Sponge Spicule Identification
COURSE / COMPETENCY GOAL	NC.6.	The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of cell theory.
COMPETENCY GOAL / OBJECTIVE	6.02.	Analyze structures, functions, and processes within animal cells for:
OBJECTIVE / EXPECTATION	6.02.a.	Capture and release of energy Seagrass ecology
COURSE / COMPETENCY GOAL	NC.6.	The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of cell theory.
COMPETENCY GOAL / OBJECTIVE	6.03.	Compare life functions of protists:
OBJECTIVE / EXPECTATION	6.03.a.	Euglena Seagrass ecology
OBJECTIVE / EXPECTATION	6.03.b.	Amoeba Seagrass ecology
OBJECTIVE / EXPECTATION	6.03.c.	Paramecium Seagrass ecology
OBJECTIVE / EXPECTATION	6.03.d.	Volvox Seagrass ecology