

2009 Submerged Grassbeds of the Northern Gulf of Mexico Workshop
Dauphin Island Sea Lab
Alabama Course of Study: Science Objectives Met

Grade K, Life Science, Content Standard 6

Compare size, shape, structure, and basic needs of living things.

Grade K, Life Science, Content Standard 8

Identify features of Earth as landmasses or bodies of water.

1st Grade, Life Science, Content Standard 4

Describe survival traits of living things, including color, shape, size, texture, and covering.

1st Grade, Life Science, Content Standard 7

Identify components of Earth's surface, including soil, rocks, and water.

2nd Grade, Life Science, Content Standard 5

Identify the relationship of structure to function in plants, including roots, stems, leaves, and flowers.

2nd Grade, Life Science, Content Standard 6

Identify characteristics of animals, including behavior, size, and body covering

2nd Grade, Life Science, Content Standard 7

Identify geological features as mountains, valleys, plains, deserts, lakes, rivers, and oceans.

3rd Grade, Life Science, Content Standard 7

Describe the life cycle of plants, including seed, seed germination, growth, and reproduction.

3rd Grade, Life Science, Content Standard 10

Determine habitat conditions that support plant growth and survival.

3rd Grade, Life Science, Content Standard 12

Identify conditions that result in specific weather phenomena, including thunderstorms, tornadoes, and hurricanes.

4th Grade, Life Science, Content Standard 5

Describe the interdependence of plants and animals.

4th Grade, Life Science, Content Standard 7

Describe geological features of Earth, including bodies of water, beaches, ocean ridges, continental shelves, plateaus, faults, canyons, sand dunes, and ice caps.

5th Grade, Life Science, Content Standard 9

Describe the relationship of populations within a habitat to various communities and ecosystems.

6th Grade, Life Science, Content Standard 2

Describe factors that cause changes to Earth's surface over time.

6th Grade, Life Science, Content Standard 5

Describe layers of the oceanic hydrosphere, including the pelagic zone, benthic zone, abyssal zone, and intertidal zone.

6th Grade, Life Science, Content Standard 7

Describe Earth's biomes.

7th Grade, Life Science, Content Standard 7

Describe biotic and abiotic factors in the environment.

9th – 12th, Aquascience Elective Core, Content Standard 1

Differentiate among freshwater, brackish water, and saltwater ecosystems.

9th – 12th, Aquascience Elective Core, Content Standard 2

Relate geological and hydrological phenomena and fluid dynamics to aquatic systems.

9th – 12th, Aquascience Elective Core, Content Standard 3

Explain the importance of biogeochemical cycles in an aquatic environment.

9th – 12th, Aquascience Elective Core, Content Standard 6

Describe adaptations that allow organisms to exist in specific aquatic environments.

9th – 12th, Aquascience Elective Core, Content Standard 8

Determine effects of the fishing industry on the aquatic environment.

9th – 12th, Biology Core, Content Standard 12

Describe protective adaptations of animals, including mimicry, camouflage, beak type, migration, and hibernation.

9th – 12th, Environmental Science Elective Core, Content Standard 7

Identify reasons coastal waters serve as an important resource.

9th – 12th, Environmental Science Elective Core, Content Standard 8

Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture.

9th – 12th, Environmental Science Elective Core, Content Standard 11

Describe agents of erosion, including moving water, gravity, glaciers, and wind.

9th – 12th, Environmental Science Elective Core, Content Standard 12

Identify positive and negative effects of human activities on biodiversity.

9th – 12th, Geological Elective Core, Content Standard 3

Explain natural phenomena that shape the surface of Earth, including rock cycles, plate motions and interactions, erosion and deposition, volcanism, earthquakes, weathering, and tides.

9th – 12th, Geological Elective Core, Content Standard 14

Explain the interaction of the continuous processes of waves, tides, and winds with the coastal environment.

9th – 12th, Marine Biology Elective Core, Content Standard 6

Describe components of major marine ecosystems, including estuaries, coral reefs, benthic communities, and open-ocean communities.

9th – 12th, Marine Biology Elective Core, Content Standard 7

Identify patterns and interrelationships among producers, consumers, scavengers, and decomposers in a marine ecosystem.

9th – 12th, Marine Biology Elective Core, Content Standard 11

Describe positive and negative effects of human influence on marine environments.

Ocean Literacy: Essential Principles and Fundamental Concepts

1. The Earth has one big ocean with many features.
 - g. The ocean is connected to major lakes, watersheds, and waterways because all major watersheds on Earth drain to the ocean. Rivers and streams transport nutrients, salts, sediments and pollutants from watersheds to estuaries and to the ocean.

2. The ocean and life in the ocean shape the features of the Earth.
 - c. Erosion – the wearing away of rock, soil and other biotic and abiotic earth materials – occurs in coastal areas as wind, waves, and currents in rivers and the ocean move sediments.

 - e. Tectonic activity, sea level changes, and force of waves influence the physical structure and landforms of the coast.

5. The ocean supports a great diversity of life and ecosystems.
 - f. Ocean habitats are defined by environmental factors. Due to interactions of abiotic factors such as salinity, temperature, oxygen, pH, light, nutrients, pressure, substrate and circulation, ocean life is not evenly distributed temporally or spatially, i.e., it is “patchy”. Some regions of the ocean support more diverse and abundant life than anywhere on Earth, while much of the ocean is considered a desert.

 - i. Estuaries provide important and productive nursery areas for many marine and aquatic species.

6. The ocean and humans are inextricably interconnected.
 - f. Coastal regions are susceptible to natural hazards (tsunamis, hurricanes, cyclones, sea level change, and storm surges).