ROVing the Gulf of Mexico

Alabama Course of Study

5th Grade, Physical Science, Content Standard 2

Define mass, volume, and density.

5th Grade, Life Science, Content Standard 9

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

5th Grade, Earth and Space Science, Content Standard 10

Identify spheres of Earth, including the geosphere, atmosphere, and hydrosphere. Describing technology used to investigate Earth

6th Grade, Earth and Space Science, Content Standard 5

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

6th Grade, Earth and Space Science, Content Standard 6

Describe regions of the oceanic lithosphere, including the continental shelf, continental slope, and abyssal plain.

9th – 12th Grade, Physical Science Core, Content Standard 7

Relate velocity, acceleration, and kinetic energy to mass, distance, force, and time.

9th – 12th Grade, Biology Core, Content Standard 5

Identify cells, tissues, organs, organ systems, organisms, populations, communities, and ecosystems as levels of organization in the biosphere.

9th – 12th Grade, Physics Core, Content Standard 4

Describe quantitative relationships for velocity, acceleration, force, work, power, potential energy, and kinetic energy.

9th – 12th Grade, Earth and Space Science Elective Core, Content Standard 12

Describe challenges and required technologies for exploration.

9th – 12th Grade, Marine Science Elective Core, Content Standard 3

Describe physical characteristics of oceans, including topography of the ocean floor, plate tectonics, wave motion, depth, and pressure.

9th – 12th Grade, Marine Science Elective Core, Content Standard 12

Identify various careers related to marine science.

Ocean Literacy: Essential Principles and Fundamental Concepts

1. The Earth has one big ocean with many features.
5. The ocean supports a great diversity of life and ecosystems.
7. The ocean is largely unexplored.

During the ROV class participants will:

- Build a fully functional small scale Remotely Operated Vehicle (ROV)
- Gain an understanding of the unique challenges presented by the underwater environment
- Learn methods of propulsion and control in a three dimensional space
- Resolve issues of buoyancy and weight
- Test the ROV by performing certain pre-determined tasks underwater
- Describe the differences between submarines, ROVs, and Autonomous Underwater Vehicles (AUV)
- Participate in a hands-on activity to help further understand buoyancy
- Be introduced to the bathymetry and topography of the seafloor in the Gulf of Mexico and our planet's oceans
- Gain an understanding of the divisions of different sea levels from the sunlight zone to the hadal zone
- Discuss the history and many different uses of submersibles