



## **Dive into the Ocean 2015**

### **Virginia 5<sup>th</sup> grade**

Dive into the Ocean, Inc is a 501c3 non-profit organization, focused on providing students access to the ocean sciences. We offer shows for large assembly and classroom groups specifically tailored toward Virginia 5th grade students and based around the science ocean SOLs. The fun and entertaining shows provide real-life examples of science concepts through storytelling and hands-on activities. In the classroom lessons, students will also collect data using real scientific tools, analyze their results, and present their conclusions to the group.

Dr. Leslie has a PhD in Oceanography. When she is not visiting schools, she can be found on a research vessel, analyzing oceanographic data, or communicating scientific research results to the public. Dr. Leslie has been diving into the ocean with student groups in Virginia and Tennessee since 2011.

#### **Large Assembly with Demonstration: 1-hr; \$150**

A lively, interactive discussion about the ocean sciences presenting science curriculum through the adventures of Dr Leslie and her oceanographic colleagues. The assembly will culminate in a hands-on, inquiry based demonstration of real oceanographic tools to analyze water samples and compare them to near-real time ocean data.

#### **Classroom Lesson with Small Group Activity (up to 50 students): 2 hours, \$300\***

The same great adventures from the large assembly combined with small group based hands-on science experiments. Each group will receive a unique water sample. They will use oceanography tools and the information they learned in the presentation to "Dive In" and answer questions about their water sample.

**\*Note:** multiple classroom lessons may be booked for the same day or consecutive days at \$250/ lesson

#### **Girls In Science Assembly: 45 min; \$100**

Perfect for GEMS, Girl Scouts, or other girl centered after-school clubs, this assembly talks about how Dr. Leslie, a Fairfax County native, chose to become a scientist and empowers girls to focus on math and science to realize their career dreams.



## Virginia Standards Addressed

### Standard 5.6

The student will investigate and understand characteristics of the ocean environment. Key concepts include

- a) geological characteristics;
- b) physical characteristics; and
- c) ecological characteristics.

### Overview

This standard extends the study of ecosystems to the ocean environment. It focuses on the major descriptive characteristics of oceans. Among the concepts are the geological characteristics of the ocean floor, the physical characteristics of ocean water, and the ecological characteristics of communities of marine organisms. Connections can be made to standards 5.2, 5.3, 5.4, 5.5, and 5.7. It is intended that students will actively develop and utilize scientific investigation, reasoning, and logic skills (5.1) in the context of the key concepts presented in this standard.

### Understanding the Standard

- Oceans cover about 70 percent of the surface of Earth.
- Important features of the ocean floor near the continents are the continental shelf, the continental slope, and the continental rise. These areas are covered with thick layers of sediments (sand, mud, rocks).
- The depth of the ocean varies. Ocean trenches are very deep, and the continental shelf is relatively shallow.
- Ocean water is a complex mixture of gases (air) and dissolved solids (salts, especially sodium chloride). Marine organisms are dependent on dissolved gases for survival. The salinity of ocean water varies in some places depending on rates of evaporation and amount of runoff from nearby land.
- The basic motions of ocean water are the waves, currents, and tides.
- Ocean currents, including the Gulf Stream, are caused by wind patterns and the differences in water densities (due to salinity and temperature differences). Ocean currents affect the mixing of ocean waters. This can affect plant and animal populations. Currents also affect navigation routes.
- As the depth of ocean water increases, the temperature decreases, the pressure increases, and the amount of light decreases. These factors influence the type of life forms that are present at a given depth.
- Plankton are tiny free-floating organisms that live in water. Plankton may be animal-like or plant-like. Animal-like plankton are called zooplankton. Plant-like plankton (phytoplankton) carry out most of the photosynthesis on Earth. Therefore, they provide much of Earth's oxygen. Phytoplankton form the base of the ocean food web. Plankton flourish in areas where nutrient-rich water upwells from the deep.