



# Student Drifters High School Outreach Lessons

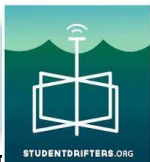


This document is a **complete collection** of Student Drifter lessons you can use with your high school students (9-12) in tandem with your Drifter Kit. It provides lessons that will give your students **background information** on topics involving Earth Science, Oceanography, Marine Biology, Data Manipulation and Analysis, and much more! Each lesson **outlines the standards** associated with the content provided (i.e. [Next Generation Science Standards](#) and [Ocean Literacy Principles](#)). Feel free to pick lessons of interest OR go through the complete unit! **Thank you** for your interest and support of Student Drifters!

For a complete **Teacher Lesson Book** from the table below → [Link](#)

For a complete **Student Workbook** from the lessons below → [Link](#)

TOPIC	LESSON DESCRIPTION
Introduction to Student Drifters	<p><b>Experimental Design</b> Students design their own experiment to investigate if ocean currents affect distribution of plankton. Student then compares their project to research projects investigating the same question: <b>Student Worksheets</b> → <a href="#">Part I</a> and <a href="#">Part II</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>Build a Model Drifter</b> Students construct a model ocean drifter, demonstrate how it floats in water and observe how it follows ocean currents: <b>Surface Drifter Student Worksheet</b> → <a href="#">Link</a> <b>Surface Drifter Teacher Version</b> → <a href="#">Link</a></p> <p><b>Drogue Drifter Student Worksheet</b> → <a href="#">Link</a> <b>Drogue Drifter Teacher Version</b> → <a href="#">Link</a></p>
Ocean Physics & Chemistry	<p><b>Ocean Currents &amp; Drifters</b> This lesson explores the factors that affect ocean currents and explains what drifters are and why they are important: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>Pre-Assessment: Latitude &amp; Longitude</b> This document is used as an assessment of what your students already know about latitude and longitude:</p>



	<p><b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>Coordinate Calculations</b> Students learn how to read and locate latitude and longitude coordinates on a globe, how to calculate distance between two locations, and determine speed: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>What's in the Ocean?</b> Students learn about what is in the ocean and why it is important to monitor. Topics covered include salinity, pH, and density layers in the ocean: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Student Lab</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p>
Climate Change	<p><b>Pre-Assessment: Climate Change</b> This document is used as an assessment of what your students already know about climate change: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>Weather vs. Climate</b> Students learn the difference between weather and climate and interpret models of environmental data. It also introduces the topic of greenhouse gases. Students will get a chance to collect, interpret, and graph their own weather data, as well: <b>Student Pre-Reading</b> → <a href="#">Link</a> <b>Student Lab</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>The Ocean &amp; Climate Change</b> Students learn how the ocean is affected by climate change and why researchers are concerned. They will get the chance to explore data involving sea ice and sea surface temperature: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p>
Marine Biology	<p><b>What is Plankton?</b> This multi-lesson document contains background information on plankton (i.e. types of plankton, where they fall on the trophic, how to identify different species in the Gulf of Maine). This unit also includes an identification lab for in the classroom or</p>



	<p>virtually. The Teacher document contains additional lab ideas, as well:</p> <p><b>Student Worksheet</b> → <a href="#">Link</a> <b>Student Lab</b> → <a href="#">Link</a> <b>Student Virtual Lab</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a> <b>Teacher Virtual Lab</b> → <a href="#">Link</a></p>
<p>Student Drifter Data</p>	<p><b>Mapping Drifter Data</b> Students map historical Student Drifter data to infer how the Gulf of Maine currents move over time: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>Tracking Drifter Data</b> Students actively track their drifter once it is deployed and calculate distance traveled and speed: <b>Student Worksheet</b> → <a href="#">Link</a> <b>Teacher Version</b> → <a href="#">Link</a></p> <p><b>How to Download Data</b> <b>Teacher Tutorial</b> → <a href="#">Link</a></p> <p><b>How to Read the Data</b> <b>Teacher Tutorial</b> → <a href="#">Link</a></p> <p><b>How to Use ERDDAP Graph Function</b> <b>Teacher Tutorial</b> → <a href="#">Link</a></p>

