













### **Unit 13: Constructing Explanations and Comparing Results of Environmental Effects on Biological Systems**

In Unit 13, students will summarize their individualized experiments and present their questions, hypotheses and results to their peers and instructor. They will discuss experimental design flaws and successes and present arguments based upon the evidence that they have collected as to the validity of their hypotheses. They will analyze problems with the experimental implementation and discuss methods that could be used to improve the experiment in the future. Students who are not presenting will provide feedback/input to students who are presenting, switching roles between presenter and reviewer as the different groups take turns reporting their results. The student presentations are the assignment for this unit. Students will create the presentations, including schematics of their design, explanations of the computer code they generated in order to run the experiment, calibrate, acquire, analyze and display the data, and show the resulting plots and simulations. They will also investigate the relationship between environmental quality and measures of human health (e.g., specific environmentally related diseases, measures of longevity, etc.) by comparing local conditions and health measures to similarly measured quantities in other parts of the world.

By the end of Unit 13, the students will have integrated environmental and biological information and will demonstrate their understanding of the relationships between the management of natural resources and the sustainability of biological populations.