

Extended Learning Opportunities (ELO) Program
Winnacunnet High School
ELO Design Template

ELO Type: *Science Project Based Learning Experience*

Name of Person(s) Completing Plan: *Matt Long*

Grade Level: *11*

Stage 1: Planning

Project Description

I am going to assess the materials needed for the rescaling of the Evolution-In-Action curriculum, a unit created by the University of New Hampshire. This project was run with the help and resources of UNH in previous years, but funding collapsed. Once the new amount of materials is determined, a new protocol and lesson plans will be written to reflect the changes in the program (material amounts, tweaks to the curriculum). I will try the new protocols behind the scenes before they are implemented with students - any problems I find with the protocol will be changed to ensure the best experience possible for the students. In February in the weeks before vacation, I will implement the protocols by preparing materials and teaching the evolution lessons to students. My final product will be a comprehensive guide of how I redesigned and downsized the project, so teachers and students across the country can teach using this real-world science, student-to-student model.

The Essential Questions/Learning Goals

How can I implement my knowledge of Evolution into day to day lab procedures for high school freshmen in Biology Honors?

Competencies

Evolution: *Student will demonstrate an understanding of evolution through natural selection by researching and examining various contributions to the scientific theory of evolution and examining the process of natural selection.*

Biotechnology: *Student will demonstrate an understanding of current innovations in medical biotechnology by researching and analyzing current implications of biotechnology on health, healthcare and quality of health, including pharmaceuticals.*

[ELO Department Competencies](#)

- **Reflection:** *A student participating in an ELO analyzes and demonstrates an understanding of his/her learning experience through reflection.*
- **Research:** *The student applies the ongoing research of the ELO experience to the evaluation and presentation of issues that arise, and the decisions made as their experience progresses.*

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- **Product:** *The ELO student demonstrates his/her gained knowledge and applies an understanding of what they learned by developing a tangible product that relates to his/her interests, skills, and abilities.*
- **Presentation:** *The student clearly communicates the entire ELO experience, including both the process and the learning, in a manner that is appropriate to the experience and the audience.*

Science Department Competencies

- **Scientific Literacy** - *A scientifically literate student is able to apply their knowledge of scientific concepts and processes to the evaluation and presentation of issues that arise and to the decisions that they make in their daily life, about the natural world and changes made to it through human activity.*
- **Facility with Knowledge** - *The ability to critique and apply facts, information, and skills acquired as defined by the discipline and grade level expectations*
- **Scholarship** - *The demonstration of responsible behavior, preparedness, and perseverance in the pursuit of scientific knowledge and understanding.*

WHS Learning Expectations for all students

- **Communication** - *Student uses various media to interpret, question, and express knowledge, information, ideas, feelings, and reasoning to create mutual understanding.*
- **Creativity** - *Student uses original and flexible thinking to communicate ideas or construct a unique product or solution.*
- **Collaboration** - *Student works in diverse groups to achieve a common goal.*
- **Self-Direction** - *Student initiates and manages personal learning, and demonstrates a “growth” mindset, through self-awareness, self-motivation, self-control, self-advocacy and adaptability as a reflective learner in order to develop personal goals*

ELO Partners(s)

- Mike Handwork - Winnacunnet Biology Teacher
- Shani Scarponi - Winnacunnet Biology Teacher
- Donna Couture - Winnacunnet ELO Coordinator
- Community Partners:
 - *Dr. Vaughn Cooper - University of Pittsburgh*
 - *Emily Sileo - University of New Hampshire*
 - *Taylor Warren - Windham High School*
 - *Devon O'Rourke - University of New Hampshire*
 - *Caitlin Reeves - Fisher Scientific*

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Step 2: Implementation

Timeline of Activities and Benchmarks

January 2016

- *Grant application for \$2,500 for autoclave (bacteria sterilizer) submitted to alumni foundation*

March 2016

- *Grant awarded*
- *Preliminary research about rebooting the program conducted*

September 2016 - November 2016

- *Beginning of new school year*
- *Start of emails between Dr. Cooper, Emiley Sileo, and Devon O'Rourke about material preparation and student protocols*

November 2016 - December 2016

- *Organization of materials*
- *Communication with Caitlin Reeves, ordering necessary supplies*
- *Adjustment and creation of student protocols*
- *Creation of materials*

January 2017

- *Behind-the-scenes trial period of protocols*
- *Necessary adjustments made to student protocols after trial*
- *Creation of necessary materials for student implementation*
- *Creation of lesson plans for entire Evolution-in-Action unit*

February 2017

- *Student implementation*
 - *Teaching of evolution principles*
 - *Day-to-day transfer of bacteria*
 - *Examining plated bacteria and subsequent mutants*
- *Presentation to the League of Innovative Schools*

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March 2017

- *Presentation at NESSC*
- *Assesment of final product*

Communication Plan

Student will communicate with Mr. Handwork daily to assess strengths, weaknesses, next steps and the final product. Student will also check in with the ELO Coordinator monthly. All other communication with community partners will be through email or in person as necessary.

Step 3: Completion

Final Product/Project

The final product of my ELO will be a binder containing all of the information necessary to run the protocols at another school. This will include all communications I have with representatives from supply companies, Emily Sileo, Devon O'Rourke, and Dr. Cooper. Also in the binder will be the student protocols and lesson plans for the Evolution-in-Action unit. Any other resources that I generate along the way will be included in the binder, like materials lists and purchase orders.

I will also work with another student to create a video of the Evolution in Action Program.

ELO Presentation

The presentation will include the entire ELO experience from planning to assessment as well as a discussion of the successes and challenges I faced and how this ELO experience will help me moving forward in high school and college.

Presentation will be to the League of Innovative Schools on February 17, 2017. This will include a question and answer segment as well as the League members observing one of my classes. No special equipment or facilities are needed other than the classroom, and a spare room for the questions.

Another part of my presentation will be at NESSC - March 27, 2017. For facilities, I will need the presentation center, and educators from around New England will be invited.

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Assessing the ELO

The ELO will be assessed on the following components of the ELO:

1. [Reflection](#)
2. [Research](#)
3. [Product](#)
4. [Presentation](#)

The final product and presentation will also be assessed using the [Science Department Competencies](#) and the [WHS Learning Expectations for all students](#).

The following tools may also be used by Mr. Handwork and Mrs. Couture in order to monitor changes in this ELO design plan:

- [Initial Meeting Checklist](#)
- [Check-In Worksheet](#)