

Upper Valley Linkages for Environmental Literacy (UVLEL)

Unit Roadmap

Teacher name: Rob Stainton

Grade level: 9th Grade

Aside from being accountable to this project, another purpose of this document is to provide an outline to a potential grade level colleague to replicate your teaching/learning experience. Provide enough basic information to give guidance with specifics (GSE/GEs, websites, book titles/authors, etc.) or more general suggestions where it seems reasonable to you (essential questions, activities, assessment ideas, etc.).

Unit title: Ecosystem Health

GEs/GSEs and essential questions addressed (VT/NH GE/GSE codes are fine here. Please include both content and process learning targets. Essential questions should be worded in student-friendly format.):

Overarching Question: What is the health of the Sharon Academy Forest (SAF)?

Essential Questions

- What is health?
- What are indicators of a healthy forest/ecosystem?
- Are indicator species important to the health of a forest?
- Are non-native species invasive or migratory?
- Does an increase in population of non-native species indicate climate change?
- How does a healthy forest mitigate climate change?

S9-12:33 Students demonstrate their understanding of Energy Flow in an Ecosystem.

- Diagramming a model that compares the energy at different trophic levels in a given ecosystem.

S9-12:49 Students demonstrate their understanding of Processes and Change within Natural Resources.

- Explain a natural chemical cycle that has been disrupted by human activity and predict what long-term effect will be on organisms. (Climate change).
 - Science concept: b.

S9-12:5 Students demonstrate their ability to represent data by....

- Representing data quantitatively to the appropriate level of precision through the use of mathematical calculations.

S9-12:8 Students demonstrate their ability to APPLY RESULTS by....

- Using technology to communicate results effectively and appropriately to others.
- Predicting/recommending how scientific conclusions can be applied to civic, economic or social issues.

Length of Unit (days/periods): Four weeks (May)

Assessments of learning (How will you assess whether students have mastered above GE/GSEs and can answer your essential questions?):

- Student presentation of findings to peers.
- A written report to the TSA Board outlining their findings.
- Written reflection.
- Forest Quality Indicators ID sheet.

Activities to support learning targets (include source notations if commonly available or more detailed information if teacher-created):

Searching for Salamanders -

<http://science.nature.nps.gov/im/units/NETN/Education/Curriculum.pdf>

Vermont Vernal Pool Mapping Project – Vermont Center for Ecostudies

Town Forest Health Check – Familyforest.org

Calculating the Amount of CO₂ Sequestered in a Tree Per Year.

Surveying Vermont Stream Salamanders.

Supporting resources (websites, book titles, videos, human resources, etc.):

The World Without Us, Alan Weisman.

Forest Quality Indicators of Illinois, <https://pubsplus.uiuc.edu/FQI.html>

What is Forest Health? http://www2.for.nau.edu/forhlth/fh_doc.html

Forest Inventory and Analysis, <http://www.ncrs.fs.fed.us/4801/national-programs/indicators/>

Indicator Species, <http://science.jrank.org/pages/3553/Indicator-Species.html>

Vermont's Changing Forests (Synthesis Report) October 2009, Vermont Monitoring Cooperative.

Vermont Vernal Pool Mapping Project Training Workshop, with Steve Faccio of the Vermont Center for Ecostudies.

Woods Whys, What are Indicator Plants? Northern Woodlands, Autumn 09

Searching for Salamanders, National Park Service

Numerous plant and wildlife ID books.