

## Resource list for NH Envirothon Forestry Section

Below you will find resources that help teach the learning objectives (LO's) for Forestry. These can all be found on the NHE website under the Forestry Section. Updated 2023.

### Plant Biology

- Parts of a tree -  
<https://www.dnr.state.mn.us/forestry/education/foresttreasures/partsofatree.html>
- [Tree Factory Activity](#) from Project Learning Tree
- [NH Forest Action Plan 2020](#) - Carbon Sequestration section
- [Angiosperms vs Gymnosperms](#)

### Forest Ecology

- Forest Fast Breaks - Ecosystems: [https://www.youtube.com/watch?v=qnFYQoHFU\\_I](https://www.youtube.com/watch?v=qnFYQoHFU_I)
- PBS Forests, the stuff of life:  
<https://thinktv.pbslearningmedia.org/resource/5508a2b4-a24c-426e-8f94-08be336ae70b/nature-works-everywhere-forests-the-stuff-of-life-clip/#.YCVgPmhKiUk>
- PBS Nature works- to make clean water:  
<https://thinktv.pbslearningmedia.org/resource/c5cebf97-5753-4d93-b283-bbaf91ef01eb/making-clean-water-nature-works-everywhere/>
- Matter and Energy Teacher Resource:  
<http://beetlesproject.org/resources/for-program-leaders/matter-energy-ecosystems/#1447702870437-ba804ab5-cb15>
- Matter and Energy Student Activity:  
<http://beetlesproject.org/cms/wp-content/uploads/2020/10/Matter-and-Energy-Diagram.pdf>
- Phenology - Study of seasonal changes and effects:
  - Trophic Mismatch -  
<https://umaine.edu/news/blog/2019/10/18/migratory-birds-arriving-earlier-but-theyre-not-keeping-pace-with-flowering-leaf-out/>
  - Gypsy Moth Case Study -  
<https://www.neonscience.org/impact/observatory-blog/how-trees-life-can-change-eco-system-plant-phenology-gypsy-moths-and-heat>

### Plant Communities

- [Good Forestry in the Granite State](#) section 2.1 NH Forest Types
- [NH Forest Action Plan](#) - Climate Change Section

### Forests and Society

#### Past Land-use & Management


- Reading the Forested Landscape, by Tom Wessels
- Reading the Forested Landscape Videos by Tom Wessels
- Part 1 - <https://www.youtube.com/watch?v=zclQz-oR6sw>,
- Part 2 - <https://www.youtube.com/watch?v=L81Ihhqe0gY>,
- Part 3 - <https://www.youtube.com/watch?v=tEAFq3gb30>
- Forest Forensics: A field Guide to Reading the Forested Landscape, by Tom Wessels
- [Simple Forest Survey Guide](#) pdf (SCCD)
- [The Forested Landscape Lesson](#) Series (SCCD)
- [Climate Change: Vital Signs of the Planet](#) NASA
- [Trees and the Climate Crisis](#)
- [Urban Forests and Climate Change](#) USDA
- [NH Forest Action Plan](#) - Urban Trees

## Field Skills

### Forestry Measurements, Calculations & Tools

- How to make your own tools.
  - dbh tape:  
[https://files.dnr.state.mn.us/education\\_safety/education/plt/activity\\_sheets/making\\_diametertapes\\_plt.pdf](https://files.dnr.state.mn.us/education_safety/education/plt/activity_sheets/making_diametertapes_plt.pdf)
  - clinometer  
<https://www.instructables.com/Basic-Clinometer-From-Classroom-Materials/>
  - Biltmore Stick paper template  
[https://schools.wrdsb.ca/environmental-education/files/2017/08/Biltmore-Template\\_25inch.pdf](https://schools.wrdsb.ca/environmental-education/files/2017/08/Biltmore-Template_25inch.pdf)
- How to measure or use...
  - dbh: <http://www.phytosphere.com/treeord/measuringdbh.htm>
  - [https://www.nwf.org/-/media/PDFs/Eco-schools/2013-NASA/03\\_Module-III/Lesson-13/LESSON-13\\_What-Is-DBH.ashx?la=en&hash=4FAB7CE60A21D9543FEE54A423A50A3F521B1939](https://www.nwf.org/-/media/PDFs/Eco-schools/2013-NASA/03_Module-III/Lesson-13/LESSON-13_What-Is-DBH.ashx?la=en&hash=4FAB7CE60A21D9543FEE54A423A50A3F521B1939)
  - dbh and height (2 ways each)  
[http://www.ruraltech.org/virtual\\_cruiser/lessons/lesson\\_06/Lesson\\_6\\_PDF.pdf](http://www.ruraltech.org/virtual_cruiser/lessons/lesson_06/Lesson_6_PDF.pdf)
  - Height using a homemade clinometer:  
<https://www.instructables.com/Using-a-clinometer-to-measure-height/>
  - Carbon storage by hand  
[https://www.unm.edu/~jbrink/365/Documents/Calculating\\_tree\\_carbon.pdf](https://www.unm.edu/~jbrink/365/Documents/Calculating_tree_carbon.pdf)
  - How to use a Biltmore Stick Video:  
<https://www.youtube.com/watch?v=myh-DuR-48g>
- Possible apps to use
  - i-Tree measures carbon storage - for android phones only.  
<https://www.itreetools.org/>
  - [GLOBE Observer App](#) - phone must have magnetometer to use. Measures tree height.

### Tree Identification

- [List of trees to know](#)
- Tree ID tips - pdf on website
- NH Trees Summer Identification Key - [Dichotomous Key Summer Trees](#)
- Winter Tree Identification Booklet with Glossary -  [LEAFWinterTreeIDKey.pdf](#)
- [i-Naturalist](#) - identifying trees, plants, pests, invasive species, wildlife signs
- [Seek](#) - identifying flora and fauna - experts weigh-in - an app by iNaturalist

### Pests and Invasive Species

- Overall Forest Health: <https://www.nh.gov/nhdfi/community/forest-health/index.htm>;
- NH Bugs - <https://nhbugs.org>
- EAB: <https://storymaps.arcgis.com/stories/d11e3aad19434a30834eefe838610c66>
- [NH Forest Action Plan 2020](#) - Invasive Species
- [NH Wildlife Action Plan 2020](#) - Invasive Species & Climate Change