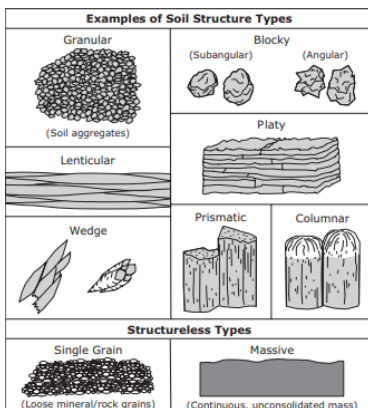


“Field Learning Objective” Resources:

- The Five Soil Forming Factors: <https://rangelandsgateway.org/topics/rangeland-ecology/soil-forming-factors>
- Instructions on how to use a Munsell color chart and record Munsell colors: <https://munsell.com/color-blog/directions-use-of-charts-book-of-color-pocket-edition/#:~:text=In%20recording%20a%20color%20by,CHROMA%20is%20written%205.0R.>
- Drainage class categories:

Depth to seasonal high water table	Drainage Class	Qualifier
Ponded – 0.5 ft	Very Poorly	
0.5 – 1 ft	Poorly	
1 – 1.5 ft	Somewhat poorly	
1.5 – 3 ft	Moderately well	
>3 ft	Well	Loamy
>5 ft	Somewhat excessively	Loamy capped sand/gravel and shallow to bedrock
>5 ft	Excessively	Sand/gravel

- Finding interpretive soil maps: <https://websoilsurvey.sc.egov.usda.gov/app/>
- Soil Structure:



- Link to an online PDF copy of “Field Book for Describing and Sampling Soils”:
<https://www.nrcs.usda.gov/resources/guides-and-instructions/field-book-for-describing-and-sampling-soils>

“Geology” Resources:

- Glossary of Geologic Features/Terms: <https://portal.ct.gov/DEEP/Geology/Glossary-of-Geologic-FeaturesTerms>
- Geologic Map of NH: <https://dec.vermont.gov/sites/dec/files/geo/images/NH1997Map.pdf>
- Plate Tectonics and Landforms: <https://oceanexplorer.noaa.gov/facts/tectonic-features.html>
- Igneous, Sedimentary, and Metamorphic Rock Information: <https://www.amnh.org/explore/ology/earth/if-rocks-could-talk2/three-types-of-rock#:~:text=Igneous%20rocks%20are%20formed%20from,by%20heat%20and%20pressure%20underground>. and <https://education.nationalgeographic.org/resource/rock-cycle/>
- Earth’s Crust: <https://education.nationalgeographic.org/resource/crust/>
- Rocks and Parent Material: <https://landscape.soilweb.ca/parent-material/> and https://www.ctahr.hawaii.edu/mauisoil/a_factor_form.aspx#:~:text=There%20are%20two%20general%20rules,to%20yield%20more%20fertile%20soils.
*neither of these links are specific to NH but provide some good overall info about the formation of different parent materials
- Rock Weathering: <https://education.nationalgeographic.org/resource/weathering/>

“Soil Structure and Function” Resources

- Five Soil Forming Factors: <https://rangelandsgateway.org/topics/rangeland-ecology/soil-forming-factors>
- Different Parent Materials and their Formation: Rocks and Parent Material: <https://landscape.soilweb.ca/parent-material/> and https://www.ctahr.hawaii.edu/mauisoil/a_factor_form.aspx#:~:text=There%20are%20two%20general%20rules,to%20yield%20more%20fertile%20soils.
*neither of these links are specific to NH but provide some good overall info about the formation of different parent materials
- Soil Forming Processes: <https://passel2.unl.edu/view/lesson/293965be23a0/2>
*Bonus: this page has some practice quiz questions
- Soil Orders: <https://www.uidaho.edu/cals/soil-orders>
*The most common soil orders in NH are inceptisols, spodosols, and entisols but it is good to be familiar with all of the orders for the national competition
- Physical Properties of Soils: <https://ag.umass.edu/vegetable/fact-sheets/soil-basics-part-i-physical-properties-of-soil#:~:text=Sandy%20soils%20have%20rather%20large,pore%20space%20than%20sandy%20soils>. and <https://extension.umaine.edu/gardening/manual/soils/soil-and-plant-nutrition/>

- Role of Organic Matter: <https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soils/soil-health/role-of-organic-matter>
- Soil Erosion: <https://crops.extension.iastate.edu/encyclopedia/soil-erosion-agricultural-production-challenge#:~:text=Soil%20erosion%20is%20the%20detachment,main%20objective%20for%20erosion%20control>.
- Soil pH: https://cropwatch.unl.edu/documents/USDA_NRCS_pH_guide_edit_6_3_14.pdf
- Soil Compaction: <https://sheboygan.extension.wisc.edu/files/2010/10/Soil-Compaction.pdf>
- Prime Farmland: https://efotg.sc.egov.usda.gov/references/public/CO/5a_Prime_Farmland_Definition.pdf
- Hydric Soils: <https://floridadep.gov/water/submerged-lands-environmental-resources-coordination/content/wetland-delineation-hydric-soils#:~:text=The%20USDA%20%2D%20NRCS%20recognizes%20four,gleys%20colors%20and%20sulfidic%20odor>.

“Soil Ecology” Resources

- Videos explaining nutrient cycling (nitrogen, phosphorus, and carbon): https://www.youtube.com/watch?v=c76x5yEkK_c and https://www.youtube.com/watch?v=leHy-Y_8nRs
- Soil and the Water Cycle: https://www.weather.gov/mrx/hydro_cycle#:~:text=Water%20infiltrates%20the%20soil%20by,called%20the%20%22water%20table%22.
- Soil Biodiversity: <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/soil-biodiversity>

“Soils, Land Use, and Society” Resources

- Fossil Fuel Formation: <https://ocean.si.edu/conservation/gulf-oil-spill/what-are-fossil-fuels>
- Effects of Pollution on Soil: <https://www.soils.org/about-soils/contaminants/>
- Soil and Agriculture: <https://www.nature.com/scitable/knowledge/library/soil-the-foundation-of-agriculture-84224268/#:~:text=Agriculture%20alters%20the%20natural%20cycling,soil%20amendments%20are%20typically%20required>. and <https://www.sare.org/publications/farming-with-soil-life/farming-practices-that-can-put-soil-health-at-risk/>
- History of Soil Conservation with the NRCS: <https://www.nrcs.usda.gov/about/history/brief-history-nrcs>

“Current Event: Renewable Energy for a Sustainable Future” Resources

- Impact of Renewable Energy on Soils: <https://forestnation.com/blog/from-the-ground-up-understanding-the-soil-impacts-of-renewable->

[energy/#:~:text=Digging%20Deep%3A%20Understanding%20Soil%20Impacts,how%20big%20the%20project%20is.](#) and <https://pubmed.ncbi.nlm.nih.gov/34365815/> and <https://royalsocietypublishing.org/doi/10.1098/rstb.2020.0180>

- Coal as an Energy Source: https://www.energy.gov/sites/prod/files/Elem_Coal_Studyguide.pdf
- The Basics of Geothermal Energy: <https://www.energy.gov/eere/geothermal/geothermal-basics>
- Agrivoltaic Basics: [https://www.climatehubs.usda.gov/hubs/northeast/topic/agrivoltaics-coming-soon-farm-near-you#:~:text=Agrivoltaics%20is%20the%20use%20of,use%20solar%2C%20low%20imp](https://www.climatehubs.usda.gov/hubs/northeast/topic/agrivoltaics-coming-soon-farm-near-you#:~:text=Agrivoltaics%20is%20the%20use%20of,use%20solar%2C%20low%20impact%20solar.)
[act%20solar.](#)