



## Module 3: Soil Science & Soil Health

### References/Resources

#### YouTube Video Links:

1. Teaching Slides Video
  - [Humus Does Not Exist In Soil - The New Science of Humus](#)
2. HOA Activity A1 Video Procedure
  - [Texture By Feel Procedure](#)
3. HOA Activity A2 Video Procedure Summary
  - [Soil pH Overview](#)
4. HOA Activity A2 Video Procedure Example
  - [Soil pH Test](#)
5. HOA Activity A3 Video Procedure Summary
  - [Soil Infiltration Overview](#)
6. HOA Activity A3 Video Procedure Example
  - [Soil Infiltration Test](#)
7. HOA Activity A4 Video Procedure Summary
  - [Soil Bulk Density Overview](#)
8. HOA Activity A4 Video Procedure Example
  - [Soil Bulk Density test](#)
9. HOA Activity B1 Video Procedure Summary
  - [Soil Organic Matter Overview](#)
10. HOA Activity B1 Video Procedure Example
  - [Soil Organic Matter Test](#)
11. HOA Activity B2 Video Procedure Summary
  - [Soil Respiration Overview](#)
12. HOA Activity B2 Video Procedure Example
  - [Soil Respiration Test](#)
13. HOA Activity C1 Video Procedure
  - [Soil Glue Demonstration](#)

#### General Module References

1. Overview & Survey - Ecological Landscape Alliance
  - [The Massachusetts Healthy Soils Action Plan: Overview & Survey - Ecological Landscape Alliance](#)
2. ➤ <https://maximumfarming.com/the-science/soil-health/>
3. ➤ [Infographics showing the five \(a\), four \(b\), or six \(c\) principles of...](#)
4. ➤ [What Nutrients Do Plants Need?](#)
5. ➤ [Soil, Ph and Nutrient Availability - PowerRich Fertilizer Inc.](#)
6. ➤ [Natural and managed soil structure: On the fragile scaffolding for soil functioning - ScienceDirect](#)
7. ➤ [The Soil Carbon Cycle: A Solution to Climate Change - Agricarbon](#)
8. ➤ [Soil carbon science | Ag Matters](#)

9. > [The contentious nature of soil organic matter](#)
10. > [Farmer perspectives on carbon markets incentivizing agricultural soil carbon sequestration | npj Climate Action](#)
11. > [Who Are the Important Microbial Players in the Soil Carbon Cycle? | Technology Networks](#)
12. > [Solutions Series: Capturing Carbon in Soil | Climate Central](#)
13. > [Potential for Soil Carbon Sequestration in Cotton Production Systems of the Southeastern USA](#)
14. > [Chapter: 4 Impacts of Agricultural Management Practices on Soil Health](#)
15. > [Nutrient Management](#)
16. > [What Do Microbes Do in the Soil?](#)
17. > [Sustainable agricultural practices contribute significantly to One Health - Yan - 2022](#)
18. > [Soil health – a perspective](#)

### **Lesson A – Why Food Systems Matter: Planetary Boundaries & SDGs**

1. NRCS Guides and Videos
  - > [Soil Health Educators Guide | Natural Resources Conservation Service](#)
2. > [Soil Field Study](#)
3. HOA Activity A1 Guide
  - > [https://www.nrcs.usda.gov/sites/default/files/2022-10/texture\\_feel.pdf](https://www.nrcs.usda.gov/sites/default/files/2022-10/texture_feel.pdf)
4. HOA Activity A1 Supporting Document
  - > [Soil Quality Test Kit Guide](#)
5. HOA Activity A2 Guide
  - > <https://www.nrcs.usda.gov/sites/default/files/2022-10/Soil%20PH.pdf>
6. HOA Activity A2 Supporting Document
  - > [Inherent Factors Affecting Soil pH Soil pH Management](#)
7. HOA Activity A3 Guide
  - > [Inherent Factors Affecting Soil Infiltration Infiltration Management](#)
8. HOA Activity A4 Guide
  - > [Inherent Factors Affecting Bulk Density and Available Water Capacity](#)
9. HOA Activity A4 Supporting Document
  - > [Inherent Factors Affecting Bulk Density and Available Water Capacity](#)

### **Lesson B – From Linear to Circular: Rethinking Food Production**

- HOA Activity B1 USDA NRCS
- > [Soil Health Educators Guide | Natural Resources Conservation Service](#)
- HOA Activity B1 Guide
- > [Guides for Educators \(May 2014\) Soil organic matter \(SOM\) is necessary for all soil functions, and it is the most importa](#)
- HOA Activity B2 Guide
- > [Inherent Factors Affecting Soil Respiration](#)
- HOA Activity B3 Supporting Document
- > [Soil Story Curriculum](#)

### **Lesson C – Paths to Action: Diet, Innovation, Policy**

1. HOA Activity C1 USDA NRCS
  - > [Soil Health Educators Guide | Natural Resources Conservation Service](#)
2. HOA Activity C1 Guide
  - > [https://www.nrcs.usda.gov/sites/default/files/2022-10/soil\\_glue\\_lesson\\_plan.pdf](https://www.nrcs.usda.gov/sites/default/files/2022-10/soil_glue_lesson_plan.pdf)
3. HOA Activity C1 Supporting Document
  - > [Soil Health Demonstration Videos - Montana | Natural Resources Conservation Service](#)

4. HOA Activity A3 Guide
  - [Inherent Factors Affecting Soil Infiltration Infiltration Management](#)
5. HOA Activity C3 Supporting Document
  - [Soil Story Curriculum](#)
6. HOA Activity C4 Guide
  - [Inherent Factors Affecting Soil Respiration](#)

### **Optional Add-Ons for Student Exploration**

For deeper inquiry, data analysis, podcasts, and regional or global case studies.

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### **Teaching Slide References Links**

1. Rawlab Infographic
  - <https://rawlab.org/rhizosphere>