Unit 3 Soil Science and Environmental Conditions for Growth

Content Area: **Science**
Course(s): **Horticulture 2**
Time Period: **September**
Length: **8 blocks**
Status: **Published**

Enduring Understandings

There are large differences between the different types of soil.

Proper drainage is the best way to increase moisture retention in soil.

All nutrients, minerals and water needed by plants can only be obtained through the soil.

Underground environment must be monitored to provide the optimum conditions for plant growth and development.

Essential Questions

What is the driving force behind creating the “perfect” growing media?

What is the moral obligation to preserve native soil?

Content

Vocabulary:

medium, sand, silt, clay, gravitational water, capillary water, field capacity, aeration, aggregation, perlite, sphagnum moss, vermiculite, limestone, tree bark, slow release fertilizers

Objectives

Prepare greenhouse for spring planting.

Plant annual and perennial plugs.

Discuss the makeup of soil and define soil profile.

List the three layers of soil.

Analyze soil in outdoor gardens and determine composition.

Develop a plan, based on soil analysis, of soil improvement at home and in a school garden.

Resources

Standards

HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

CCC.1	Patterns.
SEP.1	Asking Questions and Defining Problems
	Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.
SEP.1.a.1	that arise from careful observation of phenomena, or unexpected results, to clarify and/or seek additional information.
CCC.2.1	students understand that empirical evidence is required to differentiate between cause and correlation and to make claims about specific causes and effects. They suggest cause and effect relationships to explain and predict behaviors in complex natural and designed systems. They also propose causal relationships by examining what is known about smaller scale mechanisms within the system. They recognize changes in systems may have various causes that may not have equal effects.

SEP.1.b	Evaluate a question to determine if it is testable and relevant.
SEP.1.c	Ask questions that can be investigated within the scope of the school laboratory, research facilities, or field (e.g., outdoor environment) with available resources and, when appropriate, frame a hypothesis based on a model or theory.
SCI.9-12.1.3	Patterns of performance of designed systems can be analyzed and interpreted to reengineer and improve the system.
9-12.HS-LS2-7	Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
9-12.HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Resources

Text:

Introductory Horticulture 8th ed(Cengage Learning), Hardcover (2011)
by H Edward Reiley, Carroll L Shry

Greenhouse

Planting Materials including soil, water, seeds, Fertilizer.

Additional Soil Samples