

Garden Engineers Camp

Abstract

The Garden Engineer camp engages 4th - 6th grade students in hands-on STEM activities that allows them to review and practice skills taught during their core instructional time and then extend their understanding towards synthesizing real life applications. Additionally, activities attempt to informally introduce practices used in computational thinking to logically solve problems within the scope of the project.

The Camp makes use of Computational Thinking which may be defined as

An approach to problem solving that calls the learner to decompose a complex problem or question into smaller segments while using critical thinking, pattern recognition and development to create a logical sequence of steps to draw conclusions and synthesize solutions.



Target Age Group

4th-6th Graders

Program Equipment Supplied Through the Grant

Light Microscope	Balance
Magnifying glasses	Soil Testing Meter (Moisture)
Mbots	Soil Testing Kit (Nutrients)

Required Program Equipment

Computers/Laptops
3D Printer

Instructional lessons are broken up into modules, which represent themes that may be considered as steps to developing a sustainable garden. These modules include:

Module Title	Focuses Within Module
Project Introduction	Basics of Gardening, Intro. To 3d Printing, Plant Life Cycles, Modeling and Mapping.
Plant Hydration	Water as a Essential, Functions of Roots, Tools and Advances in Technologies
Functions of Soil	Filtration, Nutrients and Plant food, Soil Types, Technology Advancements
Weather and Environmental Factors	Tracking Weather Patterns and tools used to do so, Human and Animal actions effect on nature.
Community Impact	Cost Management, Site and Survey Planning, Making Change within your Community

Each module, with the exceptions of Introductions and Community impact, include 2-3 mini activities/experiments and an engineering design challenge. Activity specific overviews, Ohio math and science standards, vocabulary, broad overarching questions and detailed discussion notes are included within all activities.