



Agro-Tech Dome

Lesson Plan

ZONE: Investigation Zone

AGE: 7-10

EQUIPMENT : Computer, Tinkercad, 3D printers, Vacuum former , plant or seed, ipad , plantify application

MODULE : 6h

DESCRIPTION:

This 3-day investigation module introduces children aged 7-10 to countryside agriculture and the importance of plant diversity. Participants explore how technology can support sustainable farming and the preservation of local herbs. Through hands-on activities, learners design and build an Agri-Dome using 3D modeling, 3D printing, vacuum forming, and simple electronics. They also use AI tools to identify plants and analyze basic observations.

DESIGN CHALLENGE:

Participants explore how technology can help protect plant diversity. They design and build a simple Agri-Tech Dome, create a 3D component, fabricate parts using digital tools, add a UV LED light to support plant growth, and use AI tools to select a plant suitable for their dome.

LEARNING OBJECTIVES:

By the end of the module, participants will:

- Understand how technology supports farming and plant diversity.
- Design a basic Agri-Dome component using 3D modeling software.
- Fabricate and assemble parts using 3D printing and vacuum forming.
- Integrate a simple UV LED light and explain how light supports plant growth.
- Use AI tools to identify plant traits and select a suitable plant for their Agri-Dome.

DURATION	ACTIVITY	MATERIALS
15 mins	- Participants arrive. - Filling of the knowledge assessment.	Projector/Screen Computers
25 mins	- Introduction to Studio 5. - Overview of countryside agriculture and plant diversity. - Discussion on how technology helps farmers grow plants sustainably.	Projector/Screen
20 mins	- Introduction to the Agri-Dome concept. - Examples of technology used in farming (smart farming, sensors, greenhouses).	Projector/Screen
1h	- Introduction to basic 3D modeling. - Participants design one simple component of their Agri-Dome using age-appropriate software.	Computers 3D modeling software Tinkercad

DURATION	ACTIVITY	MATERIALS
15 mins	- Recap of Day 1. - Overview of fabrication tools and safety instructions.	Projector/Screen
30 mins	Demonstration of 3D printing and vacuum forming processes.	3D Printer Vacuum Forming Machine
1h	Participants fabricate components of their Agri-Tech Dome using 3D printing and vacuum forming.	3D Printer Plastic Sheets Vacuum Former
30 mins	- Introduction to simple electronics. - Adding a UV LED light to the dome model. - Discussion on how light supports photosynthesis and plant growth.	UV LED Battery Wires Small electronic components

DURATION	ACTIVITY	MATERIALS
15 mins	- Recap of previous sessions. - Introduction to plant traits and how plants adapt to environments.	Projector/Screen
30 mins	Introduction to AI tools for plant identification and simple bioinformatics concepts.	Computers/Tablets AI plant identification tool (Plantify)
45 mins	Participants analyze plant traits (leaf shape, water needs, growth speed) using AI tools.	Computers/Tablets
45 mins	Participants select a plant suitable for their Agri-Tech Dome and explain why it fits the dome environment.	Worksheets Computers/Tablets



Thank You