My School Garden

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Introduction

Garden isn't just a bunch of plants, It is actually a living, breathing city where thousands of tiny workers are building homes, where giant snacks grow right out of the ground, and where you are the head scientists in charge.

Today, we’re going to go beyond the fence to see what’s growing, what’s crawling, and how you can help us turn a little bit of dirt into a lot of magic.

Lesson Structure

- Prior Knowledge
- Soil Prep
- Structure Building
- Planting

Session: Prior Knowledge

Students Explore soil and Share prior knowledge:

- *Do you know where the vegetables we eat come from?"* and *"Have you ever planted something?"*
- Soil Type:
  - Loamy
  - Clay
  - Sandy
  - Silt

For most gardening and agricultural purposes, **Loamy soil** is considered the best for planting. It is often called the "gardener's best friend" because it offers a perfect balance that supports almost any type of plant. It is a balanced mixture of **sand (40%)**, **silt (40%)**, and **clay (20%)**

Session 2: Structure Building

Materials needed:

- Containers and raised beds
- Soil and Fertilizers
- Engineering and support system
- Water Management

Building the garden with local and recycled materials.

- Student design the garden structure
- They recycle local materials for sustainability
- They prepare the site (clearing, tilling and composting)

Fun Challenge: **"The Scavenger Hunt":** Before you start building, have students walk around the school or their neighborhood and list 3 things that are currently "trash" but could be "treasure" in a garden.

Session 3: Planting

- Know Your Depth (The Rule of Thumb):A general rule is to plant a seed **twice as deep as it is wide**.
- **The "Goldilocks" Zone (Spacing):** Plants are like people—they don't like being crowded!
- **Transplanting: The "Gentle Touch":** If moving a seedling from a pot to the ground, **never grab it by the stem**. The stem is the "spine"—if it breaks, the plant dies
- **The "First Drink" (Hydration):**The moment a seed or plant touches the soil, it needs a drink

Points to Note:

- Student exhibit leadership skills by organizing roles and responsibilities in the garden .
- They develop environmental stewardship by understanding where food comes from and how it is produced naturally.

The Garden as a Tool to Global Connections

- We think our gardens are "local," but they are actually "international." Most common vegetables are "immigrants." Without trade and global movement, we wouldn't have 90% of the food we eat today
- **Tomatoes & Potatoes:** Originally from the Andes in South America.
- **Carrots:** Trace back to Afghanistan.
- **Apples:** First grew in the mountains of Kazakhstan.
- The garden connects us to the biggest challenge of your generation: **Climate Change.** Gardeners all over the world are noticing the same thing as gardeners in Africa, Europe, and Asia

Aim

- Student develop global mindedness Understanding hunger, pollution reduction, and climate action through gardens.
- They develop a sense of gratitude and compassion for farmers who grow food.
- Students are aware of global food challenge and their role as problem solvers

The Garden is Our STEAM Lab

S – Science: Biology & Ecology

- **The Soil Web:** Investigating the microscopic universe of bacteria, fungi, and invertebrates that turn waste into "black gold."
- **Photosynthesis:** Seeing the actual chemistry of how plants turn sunlight and CO_2 into food and oxygen.
- **Life Cycles:** Observing the "Great Transformation" from a tiny seed to a flowering, fruit-bearing plant.

T – Technology: Tools & Data

- **Smart Gardening:** Using soil moisture sensors and weather stations to monitor plant health.
- **Digital Tracking:** Recording growth data over time using apps or spreadsheets to predict harvest dates.
- **Bio-Tech:** Learning how humans have "coded" plants through selective breeding for thousands of years.

The Garden is Our STEAM Lab

E – Engineering: Problem Solving

- **Irrigation Design:** Building gravity-fed watering systems or rainwater collection barrels.
- **Structure Building:** Designing and testing trellises, cold frames, or "insect hotels" to withstand wind and weight.
- **Pest Defense:** Engineering physical barriers or natural traps to protect crops without using chemicals.

A – Art: Design & Aesthetics

- **Landscape Architecture:** Using colors and heights to design a garden that is both beautiful and functional.
- **Botanical Illustration:** Using scientific observation to sketch plants and insects with extreme detail.
- **Color Chemistry:** Extracting dyes from plants like beets, marigolds, or cabbage to create natural pigments.

M – Math: Patterns & Measurement

- **Geometry in Nature:** Identifying the Fibonacci sequence in sunflowers and the fractal patterns in Romanesco broccoli.
- **Volume & Area:** Calculating how much soil is needed for a raised bed ($Volume = Length \times Width \times Depth$).
- **Yield Ratios:** Measuring the "Return on Investment"—how many seeds did we plant versus how many grams of food did we harvest?

STEAM Challenge: The Seedling Survival Sprint

Task: Students design a "Micro-Environment" that allows a seed to germinate and grow to 3 inches the fastest, using the least amount of water possible.

Points to Note

S (Science): Understanding **Germination**. Students learn that seeds need three things to "wake up": Water, Oxygen, and the right Temperature.

T (Technology): Using a **Heat Mat** or **LED Grow Lights** (if available) to manipulate the environment, or simply using a phone to take a "Time Lapse" of the growth.

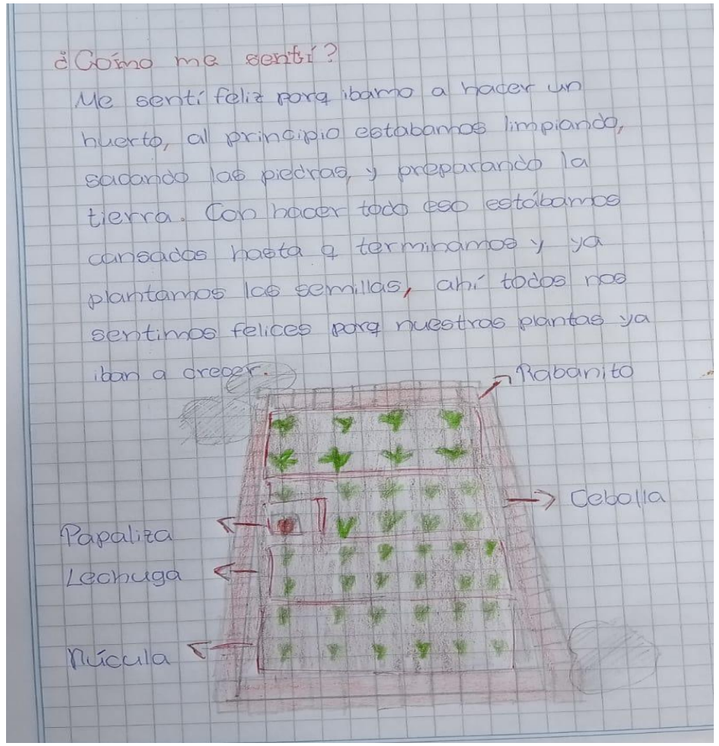
E (Engineering): Building a **"Mini-Greenhouse"** out of recycled materials (like clear egg cartons or fruit containers) to trap humidity and heat.

A (Art): Labeling and documenting. Students create a "Growth Log" with detailed sketches of the **cotyledons** (first leaves) versus the **true leaves**.

M (Math): Calculating the Growth Rate.

Growth Rate = Final Height ÷ Number of Days

Reflection & Closing



- Students share their understanding of the concept and purpose of a school garden. They identify benefits such as food production, environmental care, and teamwork
- They record key learnings in their plant logbook.
- They Celebrate harvest day with a small salad tasting, reflecting on “the effort behind every meal.”

Reflection Prompt: "How does growing food in our school garden help solve a problem that people are facing all over the planet?"

Thank You!