# STEAM Education & Leadership Workshops:

*Lesson Plan - My School Garden*

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### Age range
9-11 years old

### Learning objectives

- ☑ Recognize the school garden as a living laboratory that fosters a sense of place, environmental responsibility, and a direct connection to global food systems and biodiversity.
- ☑ Differentiate between natural soil and prepared soil, identifying elements that make it fertile for plant growth.
- ☑ Identify basic factors (sunlight, water, air, and soil nutrients) that influence how plants grow.
- ☑ Understand the importance of caring for the soil and using local or recycled materials to build a sustainable school garden.
- ☑ Connect scientific concepts (plant needs and growth process) with real-world applications by preparing soil and planting seeds.
- ☑ Develop teamwork and leadership skills by organizing roles and responsibilities in the garden (watering, weeding, observation).

### Structure of the lesson

- Identifying Prior Knowledge
- Understanding What a School Garden Is
- Preparing the Soil
- Building the Garden Structure
- Planting and Caring for the Seeds
- Brainstorming: How to Take Care of Our Garden
- Connecting to Global Challenges
- Reflection and Closing

### Duration
1 hour 30mins

### Note to Educators

- **Foster Student Agency**: Establish a rotation of leadership roles—such as *Soil Scientists*, *Data Recorders*, and *Agronomists*—to give students a sense of ownership over the space.
- **Integrate Community Expertise:** Bridge the gap between school and home by inviting family members or local farmers to share traditional planting techniques and regional "garden wisdom."

- **Leverage the "Living Classroom":** Treat the garden as a long-term resource; use it as a tangible dataset for future units in biology (ecosystems), math (growth ratios), and nutrition.
- **Cultivate Character**: Consistently reinforce the "soft skills" of gardening: the patience required for growth, the teamwork needed for maintenance, and a deeper gratitude for the natural world.
- **Prioritize Field Safety:** Maintain strict protocols for ergonomic tool use, sun protection, and student hydration during all outdoor sessions.
- **Honor the Process:** Conclude the project with a "Harvest Celebration." Even a simple salad tasting provides a powerful moment to reflect on the physical effort and global resources required to produce a single meal.

## Resources

- **Slides**: My School Garden

| Timing | Facilitator's actions | Students outcomes | Technical notes |
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| **0–10 mins** | **Identifying Prior Knowledge**<br>Display a diverse gallery of garden photos and ask:<br><br>*"Where do the vegetables we eat come from?"* and *"Have you ever planted something?"* | **Awareness and Connectedness**:<br>Focus: metacognition, sense of Identity, social awareness, empathy and Perspective thinking<br><br>Students activate prior knowledge and bridge personal experiences with global origins. They develop metacognition by questioning where their food comes from and express curiosity about self-production. | Validate & Connect: Ensure every student's story is heard. Explicitly link their personal answers to the broader concepts of sustainability and global food security. |
| **10–20 mins** | **Defining the Garden**<br><br>• Define the garden as a "Living Laboratory."<br>• Use a "Small Space, Big Impact" story: "Even a 4m X 1m plot can grow 50 salads or provide a home for 100 beneficial insects." | Students define the garden as a productive ecosystem. They identify core benefits: local food production, environmental stewardship, and the social value of teamwork. | Use clear, age-appropriate examples. Emphasize how gardening supports the environment and promotes responsibility. |

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| **20–40 mins** | **Preparing the Soil**<br>• Lead students to the site for a "Soil Physical."<br>• Guide them in clearing debris and using tools to aerate the earth.<br>• Ask: "If you were a tiny root, would you rather grow through a brick or a sponge? How do we make this soil 'spongy'?" | **Awareness and Agency**<br>Focus: Collaboration, Global awareness<br><br>Students identify the physical traits of fertile soil (color, texture, moisture). They demonstrate collaborative labor and a sense of stewardship for their shared environment. | Observation over Speed: Use a "No-Step Zone" rule to prevent compaction. Guide students to notice "Soil Life" (earthworms/insects) as indicators of health |
| **40–60 mins** | **Building the Garden Structure: Sustainable engineering.**<br>• Divide students into "Construction Crews." Task them with marking the 4m X1m boundary and securing the perimeter using salvaged materials (e.g., old bricks, untreated wood, large stones).<br>• Ask: "How can we make this border strong enough to hold soil but porous enough to let water through?" | **Mastery, Agency and Connectedness**<br><br>Focus: Critical thinking, Problem Solving Collaboration and leadership<br><br>Students apply design thinking to repurpose waste into functional structures. They develop spatial awareness through measurement and practice collaborative negotiation to reach a design consensus | Support decision-making, highlight the value of using natural/recycled materials, and ensure balanced participation among groups.<br><br>Resource Stewardship: Explicitly discuss why using a local stone or a recycled bottle is "smarter" than buying new plastic—link it to reducing the school's carbon footprint |
| **60–70 mins** | **Planting and Caring for the Seeds**<br>• Demonstrate the "Rule of Thumb" for depth. Supervise as each student plants and labels their "Global Traveler" (seed).<br>• Ask: "How does this tiny seed contain everything it needs to become a plant?"<br>• Lead a brainstorming session on "The Rules of the Living Lab." Have each student write a "Garden Care Promise" (e.g., "I promise to keep the soil | **Wellbeing, Agency and Connectedness**<br><br>Focus: Precision and empathy, inclusivity, Accountability and ethics.<br><br>Students refine fine motor skills and apply biology concepts. They transition from "builders" to "caretakers," forming a personal bond with the garden's success.<br><br>Students practice assertive communication and | Labeling is Key: Ensure labels are waterproof and durable. Use this moment to check that seeds aren't planted too close together (referencing the "Personal Bubble" concept).<br><br>**Inclusivity:** Use a "Round Robin" style to ensure every student contributes one rule. Record these on a large, weather-proof sign to be posted near |

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| | hydrated and the pathways clear"). | collective decision-making. They internalize that the garden's survival depends on their shared accountability. | the garden |
| **70–80 mins** | **Connecting to Global Challenges**<br><br>Facilitate a "Big Picture" circle. Connect the garden tasks to global issues:<br>• Composting = Less waste in landfills.<br>• Local Food = Fewer trucks/pollution.<br>• Healthy Soil = Carbon capture (cooling the planet).<br><br>Discuss how gardens contribute to reducing hunger, pollution, and climate change. | **Awareness and Connectedness**<br><br>Focus: Global Perspective and Empathy<br><br>Students synthesize their hands-on work into a broader environmental context. They move from "gardening" to **"Global Citizenship,"** recognizing themselves as active participants in solving planet-scale problems. | Reinforcement Strategy:<br><br>The "Micro-to-Macro" Link: Use concrete numbers. "If every school had a garden like ours, we could cool our cities by 2 degrees." Focus on hope and agency rather than "doom and gloom." |
| **80-90 mins** | **Reflection and Closing**<br>• Guide students in making their final logbook entries. Encourage them to look for patterns (e.g., "Why did the plants near the wall grow faster?"). Discuss the journey from seed to table.<br>• Facilitate a closing circle where each student shares one "Highlight" and one "Growth Moment" (a struggle they overcame). Conclude with a collective "Thank You" to the Earth and each other. | **Wellbeing and Mastery**<br><br>Focus: Sense of Belonging, security, gratitude and Observation<br><br>Students practice scientific observation and recognize growth patterns. They bridge the gap between "dirt" and "nutrition," developing a clear sense of environmental stewardship.<br><br>Students build a sense of belonging and optimism. They learn to celebrate incremental success and express gratitude for the natural resources that sustain them. | **Visual Evidence:** Encourage "Scientific Sketching" rather than just writing. A drawing of a leaf change is often more accurate than a written description at this age.<br><br>**The Power of Affirmation:** Explicitly name the "Leadership" or "Resilience" you saw in specific students. This reinforces the **teamwork** values you set at the beginning. |