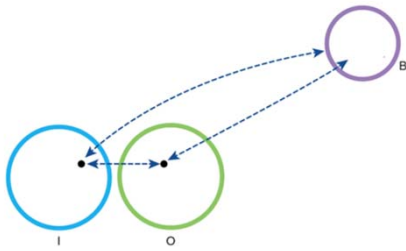


"Beyond" Learning with Nature at UCSB Greenhouse and Garden Project



Learning With Nature

- Visiting the Expert
- Enlarging student's frame of knowledge
- Forging symbiotic relationship with nature



The diagram above shows the movement and links in learning from the classroom (I) to the Orfaela Family Children's Center garden (O) to the UCSB Greenhouse and Garden Project (B).

The Importance of the "Expert"

An important notion in the "beyond" space is the strong presence of the expert. The expert offers:

- A real world example of the overarching theme
- A possible role model outside of an educational setting
- A memorable archetype that might influence deeper learning
- An observable example of a symbiotic relationship between nature and human beings
- Visualization of the lesson
- Assimilation of prior knowledge with real-life experience
- The next form of support and knowledge (after a teacher) within a scaffolding frame



Students follow the expert in handling worms to put into their compost castles

Critical Pedagogy & Garden Curriculum:

If a student is not doing well academically, it may be because they are "reacting to a curriculum and other material conditions in schools that negate their histories, cultures, and day-to-day experiences" (Freire & Macedo, 1987, p. 121). However, the subject of food is very communal, cultural, and social—something that all humans relate to. It is something that calls upon a student's culture and day-to-day experience in a very realistic way. Inculcating food literacy into the classroom could help schools address a real world issue of equity—many underrepresented students are lacking reliable access to abundant and healthy fruits and vegetables (food insecure). This makes it difficult for students to properly recognize and assess food through a dietary lens. Hence, implementing a garden curriculum may be a universal solution that effectively consolidates a personal, contextual basis (Vidgen & Gallegos, 2014) by which students become aware of their choices and consequences that lead to changes in both the natural environment and their own physical well-being (Miller, 2007).

Beyond Lesson: Compost Castles

Lesson plan modified from: Kid's Garden: 40 Fun Indoor and Outdoor Activities and Games by Whitney Cohen, 2009.

Learning Objectives:

- Learn what a compost pile is and how it functions
- Have a deeper understanding of a closed-loop ecosystem
- Gain appreciation and knowledge of worms

Preschool Learning Foundations fulfilled:

- Socio-emotional development
- Language and literacy
- Mathematics domain
- English-language development domain

Method:

Step 1: Students and teachers made their way to UCSB's Greenhouse and Garden Project and gathered at the entrance to greet the expert "Worm Wrangler".

Step 2: The expert shared fun facts about red worms with the students (see section on the importance of the expert).

Step 3: Students broke into groups and adults led each group. Adults prompted students to pick a garden inspired team name that would get the students excited about building their compost castle.

Step 4: Volunteers passed out clear buckets with lids, rulers, and gloves to each student team. Students decorated their bucket with their team name.

Step 5: The expert introduced materials and vocabulary—"browns" and "greens," and instructed students to first put a layer of browns in the bucket. Using the rulers, the students were asked to measure how many inches of browns were added and then add about the same amount of greens to the pile. The students then took turns with the watering can and sprinkled water on the browns and greens. The expert walked around reminding students that worms breathe through their skin and advised against excess-watering.

Step 6: The expert prompted students to repeat the layering—adding browns, water, greens- and water incorporation until most of the materials were used and the "compost castle" was about as moist as a wrung-out sponge.

Step 7: The expert distributed worms one team at a time and let students play with the worms. The students were also told to add a small amount of browns for the last step and cover the compost castle with lid (for transportation only).



Step 9: Students were guided through an interactive movement that explained the closed-loop ecosystem with simple but important terms.

Step 10: The students got a tour of the garden space and learned about the "friend garden," where plants in commensal relationships were planted together.

Step 11: Students were then introduced to the milkweed bush to see the monarch caterpillars.

Step 12: Students thanked the expert and took their compost castles with them back to the school's greenhouse. Now, for 6-8 weeks following the lesson, students must shift, water the compost and feed the worms twice a week.

Step 13: Once the compost is ready, the classrooms will begin adding it to their classroom garden plots in hopes to make the soil more fertile for future garden projects.

Reflections:

When learning takes place in the "beyond," children are given a hands-on, real-world learning experience that suggests great potential in building meaningful relationships with the natural world. Guidance from an outside expert allowed the students insight into what these experts do in various fields. The experts who helped guide and interact with children at the Greenhouse and Garden Project, affectionately called "Worm Wranglers," demonstrated the impact that could be made on the natural environment through use of plant knowledge. For instance, the experts highlighted the use of marigolds planted together with herbs to illustrate a commensal relationship, in which bugs that like to eat herbs are repelled by the marigold's poison. Students reacted by asking questions in order to confirm this new knowledge, such as "They're poisonous to bugs, but not me?" or "The flower protects the little plants?"

By creating their own "compost castles," students can imitate the experts by generating a mini-environment that they themselves can control and take responsibility for. This, in turn, may enhance students' understanding of the symbiotic relationship between the individual and the natural world, and may even prompt increased concern for the environment (Palmer, 1993).

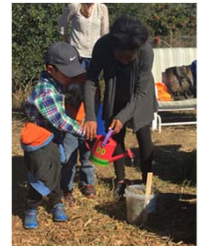
Future Curriculum

Edible Campus plans to continue developing garden curriculum by utilizing a "Inside, Outside, Beyond" structure that stimulates play and self-drive that promotes food literacy. Possible curricular themes will follow naturally after soil, decomposition and compost:

- seeds
- growing food
- preparing food
- nutrition
- ecological awareness
- environmental stewardship



A student waters the friend garden for the growing plants



A teaching assistant helps a student water the last layer of their compost castle

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