



*Life Lab*

# **General Field Trip Training Manual**

|   |           |
|---|-----------|
| <b>INTRODUCTION</b>   | <b>2</b>  |
| <b>DRESS GUIDELINES</b>   | <b>3</b>  |
| <b>EMERGENCY INFORMATION</b>  | <b>5</b>  |
| <b>ESTABLISHING CULTURAL AWARENESS</b>                                    | <b>9</b>  |
| <b>EMERGENT MULTILINGUAL LEARNERS</b>                                     | <b>13</b> |
| <b>COOKING WITH KIDS</b>  | <b>14</b> |
| <b>TASTE TEST ASSESSMENT CHART</b>  | <b>18</b> |
| <b>SING IT!</b>   | <b>20</b> |
| <b>TEACHING TIPS "THE THREE F<sup>s</sup>"</b>                            | <b>21</b> |
| <b>TIPS FOR EFFECTIVE GROUP MANAGEMENT</b>                                | <b>23</b> |
| <b>TIPS FOR EFFECTIVE COMMUNICATION OF INFORMATION</b>                    | <b>24</b> |
| <b>HONORING STAGES OF DEVELOPMENT IN TEACHING ENVIRONMENTAL EDUCATION</b> | <b>25</b> |
| <b>SIX PLANT PARTS</b>  | <b>26</b> |
| <b>COMPOST</b>  | <b>27</b> |
| <b>HONEYBEES</b>  | <b>29</b> |
| <b>TEACHING ORGANIC FARMING</b>   | <b>31</b> |
| <b>REVIEW QUESTIONS</b>   | <b>32</b> |
| <b>GROUP MANAGEMENT CHEAT SHEET</b>                                       | <b>33</b> |

**FIELD TRIP OFFICE PHONE 831-** [REDACTED]

**CARA'S CELL PHONE 831-** [REDACTED]

**DANI'S CELL PHONE 831-** [REDACTED]

**GRACE'S CELL PHONE 831-** [REDACTED]

## **WHAT IS LIFE LAB?**

Our Mission:

**To Cultivate Children's Love of Learning, Nourishing Foods, and Nature through Garden-Based Programming.**

Life Lab is a nonprofit organization that started over 40 years ago, for the purpose of advocating for school gardens as a center of learning. Life Lab was founded off campus at Green Acres Elementary School in Santa Cruz, but in the mid-1990s, Life Lab moved onto the Farm. Although not part of UCSC, Life Lab is "affiliated", meaning we lease the land and office and in return, agreed to develop a children's garden, The Garden Classroom. Life Lab has local and national reach and offers garden-based curriculum, provides extensive teacher training throughout the region and the country, and holds teacher, community and children's programs in our Classroom gardens on the farm and in south county, including field trip programs throughout the school year and day camps in the summer.

### **WHY DO WE HAVE A FIELD TRIP PROGRAM?**

Local schools bring students to visit the Life Lab gardens to explore plants, organic farming, science, and their own connection to nature. By having schools visit we can connect children to the basic elements that support them, Sun, Soil, Water and Air, and show them that everything they eat and everything they wear comes from the earth. We can begin to instill a care-taking ethic among our visitors. By showing kids that bugs and worms make soil and that farmers grow all the food that they eat we hope to create an appreciation for food systems. By using the garden as a living laboratory we can teach science, nutrition, and many other subjects through hands-on exploration. Our field trip programs also provide a space for our interns in our teacher training program to learn teaching best practices.

# LIFE LAB'S DRESS GUIDELINES

## Guiding Values:

- Everyone should be treated equitably regardless of gender identity, sexual orientation, racial identity, ethnicity, body type/size, religion, ability, and personal style.
- Everyone should be able to dress for work in a way that makes them feel comfortable and confident, without fear of -- or actual -- discipline or body shaming.
- No one needs to change their dress to accommodate someone who is distracted by it. This [video](https://www.youtube.com/watch?v=7sR_UbbpVKw) describes how what we call a “distraction” can actually be discrimination.
- No one should face unnecessary barriers to participation.
- Life Lab values an ongoing process of learning, unlearning and relearning. This document is meant to be updated over time as we all learn, unlearn, and relearn more about body sovereignty. In this spirit, we value open communication and welcome feedback on these dress guidelines.
- We value self expression and creativity!

## Goals:

- Maintain a safe working environment
- Provide consistent and clear recommendations across all Life Lab programs
- Inspire everyone to make intentional decisions around what to wear when teaching or otherwise representing Life Lab
- Think in a new way about dress guidelines that reflects our commitment to antisexism, antiracism, and inclusivity
- Create an inclusive environment where all people in our programs (staff and the communities we work with) feel safe, comfortable, and respected
- Allow everyone to wear clothing of their choice that is comfortable and allows each person to express themselves without fear of discipline or discrimination

## Dress Guidelines:

### Who is this for?

These guidelines are for Life Lab staff and those representing Life Lab (interns, counselors, volunteers, board, etc.) - referred to below as “everyone.” These guidelines are not intended for students.

- 1. Must Wear:** Everyone must wear clothes in a way such that genitals, buttocks, and nipples are covered with opaque material. The following are required:
  - Top - Examples: T-shirt/tank top/long-sleeved shirt/hoodie/warm layer
  - Bottom - Examples: Pants/sweatpants/shorts/skirt/dress/leggings
- 2. Cannot Wear:**
  - Images or language depicting drugs or alcohol (or any illegal item or activity)
  - Clothing that depicts hate speech, profanity, or pornography
  - Violent language or images
  - Images that could be scary for children, such as those from a horror movie

### 3. Recommended:

#### *For Working Outdoors:*

- Closed-toed shoes
- Sunhats
- Layers for changing temperatures

#### *For Public Events:*

- We encourage people to wear Life Lab gear for special events, such as Garden Work Parties, press conferences, tabling events, etc. Life Lab shirts or gear may be required at certain times, such as on the first day of camp.
- Note: Please be mindful of the activities you engage in while wearing Life Lab gear outside of work, since you're representing the organization.

Anything else goes!

If you have any questions on the Dress Guidelines above, we invite dialogue.

- If you are uncomfortable with what someone else is wearing or presenting:
  - Take a self reflection moment to identify why it made you uncomfortable and review these guidelines to determine if the individual is breaking the guidelines in some way.
  - Go to the individual directly, in private, and respectfully inquire about their choice. Remember that they are allowed to have feelings about someone questioning their clothing choices.
  - Some potential questions or dialogue starters to use: "I noticed I felt uncomfortable when\_\_\_\_\_" "Can you tell me more about why you wore\_\_\_\_\_?" "Can we both come up with an agreement about what to wear around kids/when representing Life Lab?"
- If you are triggered by what an individual is wearing, feel free to bring an ally or a supervisor into the conversation with the individual.
- If you wear or present something that someone else is uncomfortable with, you may find yourself in a dialogue with them. You may initially feel hurt, defensive, angry, or other feelings. Take a moment to feel those things and then try to listen respectfully to their feelings and thoughts as well.

# EMERGENCY INFORMATION FOR FIELD TRIPS

In most cases the greatest emergency we encounter is a scraped knee. Usually there is a parent or teacher nearby to help out and you can continue to keep your group focused as not to disturb the injured one. If there happens to be a major emergency such as broken bones, severe allergic reactions or any other life-threatening emergency follow the directions below:

## For Garden Classroom Field Trips:

**Phones:** In case of emergency, call 911. If you have a choice, it's best to use a campus phone (in the Life Lab Office, Lab, or Farm Center) because it gets you straight to campus EMS. If you're not near one of these phones, call from a cell phone and be sure to tell the operator that you are on the UCSC campus. If you have to borrow a cell phone, use a cell phone from an adult rather than a kid if possible. After calling 911, send a grownup to notify LL staff and the school teacher, and send someone to the back gate of the Farm to flag down EMS when they arrive.

**Cell phones:** Please carry on every Farm Walk (at least one in each group, if co-teaching). **First aid kits** can be found in the Life Lab office over the copier in the copy room in a bright orange case and in the Garden Classroom tool shed. Mini first aid kits are in your teaching backpacks.

## For the Blooming Classroom Field Trips:

**Phones:** In case of emergency call 911, use the land line in the farm Shed. The number is: (831) 761-5720. There is a loud bell attached to the phone, so it may be heard by staff in the area, but it won't reach out to the garden. Alert LL staff and the school teacher as soon as possible. Cell reception is spotty at the Blooming Classroom and calls drop easily.

**Blooming Classroom Address: 198 Zils Rd. Watsonville, CA 95076**

**First aid kits** can be found in the Blooming Classroom storage shelves in a soft, zip-up case. A mini first aid kit is in the garden exploration backpack.

## What Is A True Medical Emergency?

**When should you call 911? Ask yourself the following questions:**

- Is the victim's condition life or limb threatening?
- Could the victim's condition worsen and become life or limb-threatening on the way to the hospital?
- Could moving the victim cause further injury?
- Does the victim need the skills or equipment of paramedics or emergency medical technicians?
- Would distance or traffic conditions cause a delay in getting the victim to the hospital?

**If the answer is "yes" to any of these questions, immediately call 911.**

## What Are Some Examples of the Warning Signs of a Medical Emergency?

- Difficulty breathing, shortness of breath
- Chest or upper abdominal pain or pressure
- Fainting or loss of consciousness
- Unresponsiveness when talked to or touched
- Drowning
- Unexplained seizures or convulsions
- Sudden dizziness, weakness, or change in vision

- Mental change (such as confusion, unusual behavior, difficulty walking or speaking)
- Unexplained severe headache
- Sudden or intense pain
- Bleeding that won't stop
- Severe vaginal bleeding
- Coughing up or vomiting blood
- Suicidal or homicidal feelings
- Choking
- Severe burns
- Severe allergic reaction
- Trauma (injury, especially potential head, neck, or back injury)
- Hypothermia or abnormally low body temperature

- Heat stress or heat exhaustion
- Motor vehicle accident injury
- Black widow or brown recluse bite

**Examples of NON-EMERGENCY situations:**

- Minor illness or injury not requiring immediate help
- Flu-like symptoms/common colds
- Chronic (ongoing) aches and pains
- Minor cuts
- Broken fingers or toes

**Always monitor patients for emotional shock.** A person in a state of emotional shock may show the following symptoms:

- Disoriented or state of confusion
- Extremely upset (uncontrollable crying)
- Anxiety or agitation

**Treatment for emotional shock:**

- Sit patient down
- Give patient juice (stocked on top of camp fridge) before allowing the patient to walk.

**Emotional shock is different than MEDICAL SHOCK, which is a life-threatening medical emergency! If a patient displays the following symptoms immediately after a major medical emergency, call 911, keep patient warm, and give fluids by mouth until EMS arrives:**

- Rapid, shallow breathing
- Cold, clammy skin
- Rapid, weak pulse
- Dizziness, fainting, or weakness
- Mental changes

**General Procedure for Serious Emergencies:** accidents that require emergency medical care (see list of true medical emergencies)

- **Remain calm.**
- **Call 911** or send someone to call 911. When sending an adult to call, tell them to call 911 and then notify a Life Lab staff member of the medical emergency. Make sure you tell them to come back to you once they have completed the call, unless they will have to meet an ambulance to direct them to the victim.
- If you are the only adult in the area, and you are on the Farm, stay with the child and ask 2 children in your group to go and find help at the Life Lab office or Farm Center. Have the children tell an adult that there is a medical emergency and they need to call 911. If you are very far from the Life Lab office or Farm Center send the 2 children with a note explaining the emergency and where you are located with the wounded child.

- **Do not move the person or let them move**, unless the scene is unsafe or you need to move them to be able to check for breathing. Especially **DO NOT** move the person in the case of possible back/neck injuries, unconsciousness, snake bite, allergic reaction to bee sting, or broken bones. Immobilize their head or other parts of their body if needed to keep from further harm.
- **If the person is unconscious, continually monitor their ABCs:** Airway, Breathing, Circulation.

**Procedures for Specific Serious emergencies: (always send someone to call 911)**

- **Choking:** Tell the person to keep coughing. If they stop coughing and the object is lodged, alternate 5 back blows (between the shoulder blades) and 5 abdominal thrusts until the object is out or they resume coughing.
- **Injuries to muscles, bones, & joints:** Do not move the person. Immobilize the injured part in the position you found it.
- **Deeper cuts, scrapes, or punctures:** Do NOT remove embedded objects. Apply pressure with a sterile gauze pad to stop bleeding; you can add more pads to the outside, but don't remove gauze that is next to the wound. Once the bleeding is stopped, wrap the injury and tie the wrapping over the wound to apply continued pressure.
- **Seizure:** Protect the person from any objects around them; help their body get to the ground softly; put something soft under their head.
- **Poisoning:** There are many poisonous plants around the Farm, such as foxglove or rhubarb leaves. If a child eats one of these plants or you're not sure, call 911 or Poison Control (800-222-1222) and follow their instructions.
- **Rattlesnake bite:** Wash the wound. Keep the injured area still, and lower than the heart. DON'T apply ice, cut the wound, apply suction or a tourniquet.
- **Anaphylaxis (severe allergic reaction):** This occurs suddenly after contact with the allergen (such as a bee sting or nut allergy). Symptoms include: swelling of the throat and face, dry coughing, contact area turns red & swells, hives, itching, rash, weakness, nausea, vomiting, or stomach cramps, dizziness, difficulty breathing. If you see any of these unusual symptoms, act IMMEDIATELY. Assist the child in administering his/her epi-pen, and send someone to call 911. The epi-pen only works for about 10 minutes, so you need EMS. If a child develops a severe allergic reaction and does not have an epi-pen, you can give a dose of Benadryl (Diphenhydramine)—there is melt-away Benadryl in all first-aid kits. It is advisable to also give Benadryl after administering an epi-pen to give more time with open breathing ways before EMS arrives. Always ask if the child is allergic to Benadryl before giving it to him/her.

**Procedure for Medium Emergencies:**

- Locate a Life Lab staff member to assist you.
- **Checking for injuries:** Check the person from head to toe (or with young children, ask them to wiggle their toes first, because they are sometimes intimidated with starting with their head). Ask if they can move each part of their body, and if there is pain, tingling, or numbness in each part.
- **Nosebleed:** Have the person sit leaning slightly forward. Put tissue in the nostrils and pinch the bridge of the nose firmly for 10 minutes. Applying an ice pack to the back of the neck or the bridge of the nose helps to constrict blood vessels. Sucking on an ice cube often helps the patient too. Seek medical attention if the bleeding persists or recurs.
- **Fainting:** Have the person lie down and elevate their feet 12" to increase blood flow to

the head. Rest until they feel better.

- **Heat exhaustion:** Symptoms include cool, moist, pale, ashen, or flushed skin, headache, nausea, dizziness, weakness, exhaustion, and heavy sweating. If left untreated this can progress to heat stroke, a life-threatening condition. Treat heat exhaustion by moving the person to a cooler place, loosening and/or removing clothing, applying wet, cool towels to the skin, fanning, and giving small amounts of water to drink. If the person refuses water, vomits, or starts to lose consciousness, this has just turned into heat stroke, a serious emergency-- call 911. Place the person on their side and continue to cool them with ice or cold packs on their wrists, ankles, groin, armpits, and neck. Continue to check breathing until EMS arrives.
- **Diabetic emergency:** A diabetic emergency can quickly turn into a serious medical emergency. Give the person a source of sugar, preferably in liquid form (milk is best; juice, soda, or 1 Tablespoon of sugar dissolved in water also work), to help bring up their blood sugar level. A bottle of electrolyte juice is stocked on top of the Field Trip fridge. Call 911 if the person starts to lose consciousness, is unable to swallow, or does not feel better within 5 minutes of taking the sugar. Or, if you can't find a source of sugar, call 911. Symptoms of a diabetic emergency include the following: dry mouth, confused, agitated, short of breath, dizzy, hard to process information, appears to be drunk, fatigued.

#### **Procedures for Minor Incidents:**

- Whenever possible, recruit another staff to handle this so you can continue with the rest of your group.
- **Small cuts/scrapes:** Clean area well with antiseptic wipes or soap & water. Let dry, bandage, and apply tender loving care. (antibiotic ointment optional)
- **Bad bruises:** If a minor injury such as a mild sprain, apply cold (ice pack for 20 minutes, with a towel wrapped around it), and elevate if possible without causing more pain. To make an ice pack, fill a Ziploc bag ½ way with ice from Life Lab fridge, wrap in a clean towel, and instruct child to hold the pack over the bruise as long as is comfortable. Use the R.I.C.E. treatment (Rest, Ice, Compression, Elevation).
- **Burns:** Put under cool running water for 20 minutes, then loosely cover with a sterile bandage. No ointments.
- **Stings:** Ask the child if they are allergic to bees. If the child says no, continue to watch carefully for unusual symptoms since an allergy can develop at any time. If the child says they are allergic, ask what happens when they are stung (if the child says “it hurts” you can probably relax; if they say “I go to the hospital” you know you need to call 911). For how to proceed in the case of a known allergy or symptoms of anaphylaxis, see info below in the Serious Emergencies section. For a non-allergic sting, remove the stinger by scraping it away from the skin with your fingernail or a plastic card. Wash with soap & water. Cover the site & keep clean. Apply a cold pack to reduce pain & swelling, or a sting relief pad.
- **Tick bites:** Use tweezers to grasp the tick as close to the skin as possible and pull slowly out (don't twist, burn, or apply anything to get the tick out). Tape the tick to the Tick Notecard (stocked in the Field Trip Binder) and send home with child, informing parent of tick bite. Wash the bite area with soap & water, and apply antiseptic or antibiotic ointment. Wash your hands and the tweezers thoroughly. The child will need medical attention if the head or mouthparts remain embedded, or if a rash, flu-like symptoms, or joint pain appears.



# Establishing Cultural Awareness, Equity, Inclusivity and Anti-Bias in the Garden

## Land Acknowledgements for Life Lab in Watsonville provided by the Amah Mutsun Tribal Band:

“The land on which we gather is the unceded territory of the Kalentaruuk. Today, the Amah Mutsun Tribal Band encompasses many distinct tribes of Mutsun speaking peoples, encompassing the descendants of indigenous people taken to missions Santa Cruz and San Juan Bautista during Spanish colonization of the Central Coast. To this day, they are working hard to restore traditional stewardship practices on these lands and heal from historical trauma.”

The Amah Mutsun have been working their traditional lands known to them as Popeloutchom for millennia. Though the Amah Mutsun remain a non federally recognized as a tribe, they continue to carry out the obligation given to them by Creator to care for their traditional lands through the nonprofit organization of the Amah Mutsun Land Trust (AMLT). It is the goal of AMLT to restore the Amah Mutsun people and their knowledge to better conserve and protect these lands.

## Land Acknowledgement (Santa Cruz Locations)

“The land on which we gather is the unceded territory of the Awaswas-speaking Uypi Tribe. The Amah Mutsun Tribal Band, comprised of the descendants of indigenous people taken to missions Santa Cruz and San Juan Bautista during Spanish colonization of the Central Coast, is today working hard to restore traditional stewardship practices on these lands and heal from historical trauma”

-----

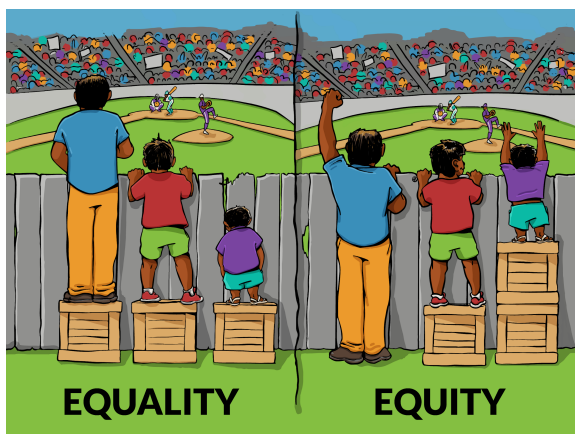
Formulated by the tribal chairperson of the Amah Mutsun Tribal Band in collaboration with Rick Flores, Horticulturist and Steward of the Amah Mutsun Relearning Program at the UCSC Arboretum

## What are we trying to create?

A space where:

- We use inclusive and equitable practices.
- We are actively anti-bias
- We are aware of what is different and the same about all of us, and why both those qualities are important: “we’re all the same, we’re all different.”

## Definitions:



- Cultural Awareness: Being aware of different cultures and how to respect and appreciate cultures other than our own.
- Equality vs. Equity: Equality means everyone gets the same thing. Equity means everyone gets what they need to succeed.
- Inclusivity: Means including everyone; especially people who have been historically

excluded (because of things like race, gender, sexuality, ability, economic status)

- **Anti-Bias:** Anti-bias work focuses on respecting and embracing differences and actively acting against bias and unfairness.

### **Why is it important to create an inclusive environment?**

- Creating an inclusive environment and community culture leads to better group behavior and an overall feeling of happiness and connectedness for everyone. Children are more likely to act out if they are feeling excluded and are more likely to feel a positive sense of self and have fun if they feel included.
- By creating this type of environment we model for children what it looks like to treat people with equity, inclusivity, dignity and respect, and teach by example" and teach by example.
- “[We must] recognize that because we live in a society with pervasive biases, we must actively foster children’s anti bias development. In such an environment, we are all constants and repeatedly exposed to messages that subtly reinforce biases. If we do nothing to counteract them we silently support these biases by virtue of our inactivity.” (From the NAEYC)
- Children absorb everything. Between the ages of two and five children become aware of gender, culture, ethnicity, family structures, varying physical abilities, and economic class. They also become aware of positive and negative biases that go along with those identities. By age four children become aware of biases directed against their own identity. (From NAEYC)
- You can’t necessarily tell from looking at a kid what their: race, gender, family structure, home life, cognitive or physical ability or experience is, and what role that plays in their life. By using inclusive and using culturally aware practices we can make everyone feel like a part of the group.
- We are serving these children in a unique capacity. They are only here for a few hours and we likely won’t see them again. We still can have an effect on their lives though; it is still important to maintain these practices.
- We also are serving kids from a wide variety of places. They can come from many different socio-economic levels. This adds to the importance of being prepared to work with kids from different backgrounds.

### **How can we create this space?**

- Use inclusive words: “We’re all the same, we’re all different”:
  - Examples: We all have a home, and that can be an apartment, house, trailer, or other dwelling; we have noses and all our noses look different.
- Avoid stereotypes and preconceived ideas about groups of people; recognize our own inherent biases and work to unlearn them:
  - Examples: Don’t assume the boys will be louder and more active. Don’t assume a child speaks Spanish because you find out they are Latinx, have Latinx

roots/heritage, look Latinx or have a name that sounds like a traditional Latinx name. Don't assume a kid with a disability will not be able to interact with the class in the same way as others.

## **Language and practices to make a habit of, and when they might come up:**

### Language

- Boys and girls, you guys → Friends, kids, garden explorers, use group name!
- House → home, where you live
- Mom and dad, parents → grownups, family, people who take care of you
  - Refer to chaperones as adults, grownups, etc. -- not every adult is a parent; they can be an aide, grandparent, other caregiver, etc.
- Some communities use “people first” language and other communities prefer “Identity-first” language. Asking individuals how they refer to themselves is a great tool to be more affirming and accurate for that individual.

### Practices

- In your name circle make sure to learn how to pronounce kids' names correctly. Kids sometimes feel uncomfortable correcting adults so check in with them and make sure you're saying it right.
- Remember not all kids are at the same place academically: when you ask kids to write their names don't assume all of them know how to yet: “You can write your name on your paper or I can help you.” Not all kids are at the same reading level, so if there is written information at a station read it aloud so all can learn it.
- Speak Spanish or another language if you hear kids speaking it, rather than speaking it because you've made an assumption based on what they look like.
- It is always a good idea to ask kids if they've had any of the food you are tasting before. If they have tried it and like it they can share how/when/where and make a positive connection to their own experiences; this adds to the feeling of inclusiveness. If they tried it and didn't like it you can explain this is a new way to try it (fresh from the garden!).
- You can also ask kids if they have had a similar experience to what you are doing. “Have you ever been to a farm before?”, “Have you made tortillas/cider/soup before?”, “Have you picked apples before?” This again allows them to make connections to their own experiences; this adds to the feeling of inclusiveness. Don't forget to actively listen to the answers the kids are providing to your questions about their experiences. This is a good jumping off point for fun and engaging conversation!
- Kids ask questions that are uncomfortable to adults sometimes! (Ex: “Why is that child in a wheelchair? Why is that person's skin that color? ) If something like this comes up, don't shut the questions down, (Ex: “We can't ask those kinds of things”, “It's rude to say that”) encourage their curiosity. If you feel like the question is not something you

feel comfortable discussing you can let them know it is something they can talk to their teacher or families about and you can mention it to the teacher before wrap-up.

- Don't assume kids' genders. Boys can have long hair, girls can have it short or they may look like one gender but identify as another."
- Refer to them in general as a child/ren, kid/s, people " versus "boy" or "girl," and rather than basing what you call them on what they look like, or what they are wearing.

### **Questions you can ask yourself while teaching:**

- How can I make this more equitable for the kids? Do certain kids need more support in different activities?
- What barriers stand in the way of people with marginalized identities feeling a sense of welcome and belonging?
- What don't we realize we are doing that is negatively impacting the children, families, and others around us?

### **Wrap Up**

This is a working community document; the lists are not definitive and cannot be definitive. If you have anything you think should be added or adjusted please let us know.

Go easy on yourself while learning and adjusting your teaching to these topics. Just notice yourself when you catch yourself teaching towards a bias and simply try again. We are all learning!"

If you want to learn more about any of these topics here are some resources, not all apply exactly but they have useful information if you are interested in these topics:

*Anti-Bias Education for Young Children and Ourselves* by Julie Olsen Edwards and Louise Derman-Sparks

Focuses on anti-bias work in Early Childhood Education.

<https://www.ucsc.edu/land-acknowledgement/>

More information on the UCSC land acknowledgment and how it should be used.

<https://www.naeyc.org/resources/topics/anti-bias-education/overview>

Published by the National Association for the Education of Young Children, has many resources for teachers to use.


<https://www.tolerance.org/>

Through the Southern Poverty Law Center, gives information mainly for classroom teachers.

## **Scaffolding Lessons for Emergent Multilingual Learners**

## 10 Key Components of SDAIE = Specially Designed Academic Instruction in English

SDAIE is a set of systematic instructional strategies designed to make grade-level curriculum comprehensible to English learners with at least **intermediate** English language proficiency (including listening, speaking, reading and writing). SDAIE combines the use of second language acquisition principles with elements of quality teaching that help make a lesson understandable to students. Through modifying lessons and teacher talk; selecting, organizing and modifying materials used; and by providing frequent opportunities for active student participation, content lessons are made more comprehensible to students.

| Engage/Explore   | Explain  | Elaborate/Evaluate   |
|--|--|--|
| <p>1. Create Emotionally Safe Learning Environment</p> <ul style="list-style-type: none"> <li>Establish procedures for participating</li> <li>Ask open-ended questions with no wrong answers, such as “I Notice, I Wonder, It Reminds me Of”</li> </ul> <p>2. Have Clear, Simple Learning Goals</p> <ul style="list-style-type: none"> <li>Be cognizant of all new, academic vocabulary you use, and take time to introduce it</li> <li>Use visuals and realia to introduce new vocabulary</li> </ul> <p>3. Connect to Prior Knowledge and Experience</p> <ul style="list-style-type: none"> <li>Brainstorm</li> <li>Quick-write or journal entry</li> <li>Think-Pair-Share</li> </ul> | <p>4. Use Multiple Modalities that Best Fit the Content</p>  <p>5. Make Language Accessible</p> <ul style="list-style-type: none"> <li>Slower rate of speech</li> <li>Provide sentence starters</li> <li>Connect to cognates</li> </ul> <p>6. Break Multi-Step Tasks into Small Chunks, Introducing One at a Time</p> <p>7. Use Modeling</p> <ul style="list-style-type: none"> <li>Demonstrate how to complete each task</li> </ul> | <p>8. Diversify Ways to Demonstrate Understanding</p> <ul style="list-style-type: none"> <li>Verbal, non-verbal, written, illustrated, physical, etc.</li> <li>Thumbs-up/Thumbs-down</li> <li>Mini boards</li> <li>Think-Pair-Share</li> </ul> <p>9. Summarize Lesson and Review Vocabulary</p> <ul style="list-style-type: none"> <li>Leave time at the end of the lesson for students to review what they learned with a class conversation, vocabulary game, or the like</li> </ul> <p>10. Extend Learning to New and Relevant Contexts</p> |

## Cooking & Sharing Food With Students

“Cooking with kids is not just about ingredients, recipes, and cooking. It’s about harnessing imagination, empowerment, and creativity.”

-Guy Fieri

### **Safety and Tone-Setting**

The most important aspect of cooking with students is setting them up for success in terms of safety before they enter the kitchen. Some students will have lots of experience cooking at home with their families, and some might not have used a knife before! We all come from different backgrounds, and it is important to approach cooking with students with a lot of patience, empathy, safety-consciousness, and (most importantly) enthusiastic facilitation. Before heading over to the cooking station, gather your group up in a circle and tone-set what you are making and what you expect from them while cooking. . For example begin by asking the students if they have any ideas on how to be safe while cooking. Then, explain that when they get to the station, you want them to find a cutting board and stand in front of it with their hands in their laps or by their sides.

#### **Sample tone-setting script:**

*Alright everyone, let’s get into a toe-to-toe circle! We are about to head over to our cooking station and make a really delicious bean dip all together and then eat it all together. Has anyone made a bean dip before? Does anyone cook at home with your family? What are ways that we can be safe while cooking? (Students might say things like “be careful”, or “listen to the teacher”) Great brainstorming everyone! Now, we are going to head over to the station. When we get there, I want everyone to stand(or sit) by a cutting board and plop! Put your hands in your lap and listen for further instructions.*

**Hand-washing:** Always wash hands before cooking or food prep! Depending on your group, hand-washing can take up to a few minutes. You definitely want to factor the size and overall efficiency of your group into the time it will take. Ask your group, “What is the first thing we do before we start cooking?” Generally, they will know that we have to wash our hands! Model correct hand-washing by soaping your hands well and air drying them by shaking them out (the drying [of germs] is in the drying!). Remind kids that once they have washed their hands, every time they eat a piece of food, touch their face, hair, or clothes, they must rewash their hands before cooking again. Explain that these things might have germs and we will get our hands dirty again by touching them. Sometimes, a cooking lesson can become a life lesson about the importance of hand-washing (more important in our current world than ever!), and that is okay!

#### **Knife and Grater Safety**

Once at the station, demonstrate how to properly handle a knife and grater. Make sure you have everyone’s eyes on you and that everyone can see what you are cutting/grating.

**For knives:** It’s all about the claw and saw method! Demonstrate proper claw method while cutting something for the recipe. Make sure to point out that the claw method is for the student’s own safety and will protect their fingers from injury. Another important thing to remind the students, is to make

direct eye contact with what they are cutting at all times. Remind the students that if you notice them using the knives in an unsafe way (not using claw method, making eye contact, etc.), you will take the knife away and find them another job that does not involve cutting or grating.

### **Sample Knife Safety Script:**

*Alright, I am going to demonstrate how to be safe while using knives! Why might we want to be safe while using knives? Yes, they are sharp and we could accidentally hurt ourselves if we are being unsafe. I need everyone's eyes and ears on me while I am explaining this (wait until you have everyone's attention). While I am cutting, I am going to have the hand that is holding the pepper in a claw formation so that my fingers are protected. Can everyone show me their claw? With the other hand, I am going to gently saw the pepper with the knife. Can everyone show me their sawing motion? The entire time I am using the knife, I am going to make eye contact with where the knife is cutting, so I know that I am being safe. Now you can check for understanding. What method am I using while I use the knife? Where do I want my eyes while I am cutting? Should I be talking to my friends while I cut things?*

*If I notice that you are not using the knife in a safe way, I will take the knife away and we will find you another job that does not involve cutting or grating. Does anyone have any questions?*

**For graters:** It's still about the claw method! And eye contact! For the graters, first demonstrate that students should only use one specific side, not the smallest or largest portions, but the middle sized portion. Next, you want to demonstrate using the claw method to safely hold whatever you are grating. Point out that a grater is still as sharp as a knife, and making eye contact with the grater while grating is important to keep your fingers safe. Also remind the students that if they begin to feel uncomfortable and unsafe with the size of what they are grating (when it gets to be too small), they can eat that piece or compost it! If you happen to be grating beets, you can model some creative cooking by rubbing the beet leftovers on your cheeks or lips for some facepaint!

\*Only after the safety demonstration, should you begin distributing knives, graters, and ingredients to the students. Cooking can be a great station to give students freedom and independence to build confidence in their ability to manage themselves.\*

## **Teaching Tips While Cooking**

- Finding jobs is the second most important aspect of cooking with kids! We are going for experience over efficiency. For example, if a recipe calls for 1 cup of something, you can break that into four ¼ cups. That way, four kids get to measure something instead of one. You can also have one kid hold the measuring cup while the other pours, and then have a third kid pour it into the bowl! Once you hand out jobs to everyone, begin brainstorming what you could have them do next.
- Sometimes one child will take much longer to chop vegetables while others are done in the blink of an eye! Try to manage timing by asking your kids who are more meticulous if some of the other kids can help them. Or double check the work of the kids who are going much faster, can their vegetables be chopped even smaller?

- Other potential jobs for kids: multiple kids can take turns stirring, several kids can take turns being “counters” by counting down the time it takes to stir or mix or blend, taking turns pressing blender buttons or other appliance buttons, etc. Get creative!
- This is also a great time to talk with your students and get to know them a little better! Ask questions about what they might cook at home! What are their favorite foods to eat? Could they make it at home? What would they put in their dream recipe? Spark their cooking creativity and imagination.
- This is also a great time to show your own enthusiasm and share any cooking stories you have.
- As you are mixing ingredients, have the students smell them! Have they cooked with these spices before? What do they smell like? What will they taste like? Are they curious to try a new flavor?
- As you cook, thank the plants for their edible parts. If harvesting is a part of the activity, this is a great opportunity for kids to develop empathy and respect by valuing plants as living beings that are giving us parts of themselves. Have the students practice plant id/recognition by naming the plant before harvesting or thanking the plant. Practice by asking the plant for the specific part(s) we need to harvest. Encourage the students’ observations by “trying to understand” the plant’s response. **Example script:** *OK everyone! Let’s go harvest some mint to make our mint tea. Hello Mint plant, can we harvest some of your leaves? Thanks Mint plant!*

### **Tasting & Eating All Together**

Before passing out the finished food to taste, you can tone-set **Don’t Yuck My Yum**. Tell a story to the students if you have time, such as,

*I love eating worm sandwiches. I think they are so delicious and yummy, but when I tell people they always say, “Yuck, why would you eat a worm sandwich?” And that doesn’t make me feel very good. It’s okay if you don’t like worm sandwiches, but instead of ‘yuck’, you could say, ‘worm sandwiches are not for me’. That makes me feel a lot better. It’s okay that we don’t all like the same foods, but we should be respectful of other people’s opinions and not yuck their yum.*

Next, pass out the food. The most important aspect of tasting is that you, as the teacher, take a bite first and show your enthusiasm for tasting the food! You want to be an encouraging role model. Depending on time, and your goal for this lesson, ask the students not to eat until everyone in the group has received their food. Ask if someone wants to make a toast before everyone takes their first bite together. Or encourage a moment of silence during which the students can send out a silent gratitude to something that helped the food to be there (farmers, plants, soil, sun, each other).

#### **Example Script**

*Ok, now we’re ready to try our \_\_\_\_\_. Before we start eating, how about we take one or two minutes to think about where our food came from? Where did we get our ingredient x from? (from the x plant/tree). Yeah! Does anyone want to thank the x plant? (Thank you x plant!!) What about salt, does anybody know where salt comes from? (The ocean! Thank you for the salt, ocean!) How about olive oil?....*



*Who else might have helped grow our food? Does anyone want to thank something/someone we might be missing? (the Sun, the rain, worms, soil, etc.)*

If a student does not want to try the food, try to be as encouraging as possible and compromising. For example, they could just try a tiny amount, or just one aspect of the meal created. You can tell the student that we want to encourage them to try new things, but we also don't want to force them to eat anything they don't want to.

After everyone has taken a bite, you can ask the students their opinions on what they just ate. Avoid asking the kids if they like it or not, because then that's what they focus on! Instead, ask them questions about the "experience" of eating it. Here are some possible questions to ask students or spark conversation: What does this taste like? Is the flavor familiar or new? How would you describe the flavor or texture? Between these 2 things, which do you like better? (when comparing multiple foods) Does it smell like how it tastes? Does this food remind you of anything? Can you taste or see the ingredient you put in? (for prepared foods) How would you make this even better or how would you eat it at home?

### **Positive Reinforcement Throughout!**

- Make sure you are always giving your students positive reinforcement when they are cooking.
- As you would refer to kids as scientists while facilitating a science lesson, it can be helpful to refer to them as chefs or cooks while facilitating a cooking lesson. This way, they can feel more in charge of what they are cooking ("Yeah, we are the chefs/cooks that created this meal!")
- Encouraging good behavior and giving positive feedback to those using utensils carefully (rather than scolding those that are not being as careful) can go a long way in kitchen group management.
- At the end of the station, have the students give themselves a pat on the back for trying something new and helping to prepare a meal all together. Cooking together can be a good way to bond students and create a stronger group dynamic.

## **Taste Test Assessment Chart**

If you are filling out a tasting chart, here is a step-by-step guide! It may seem self-explanatory, but it is important that all the information collected is consistent. Life Lab actually uses the data collected for grant applications!

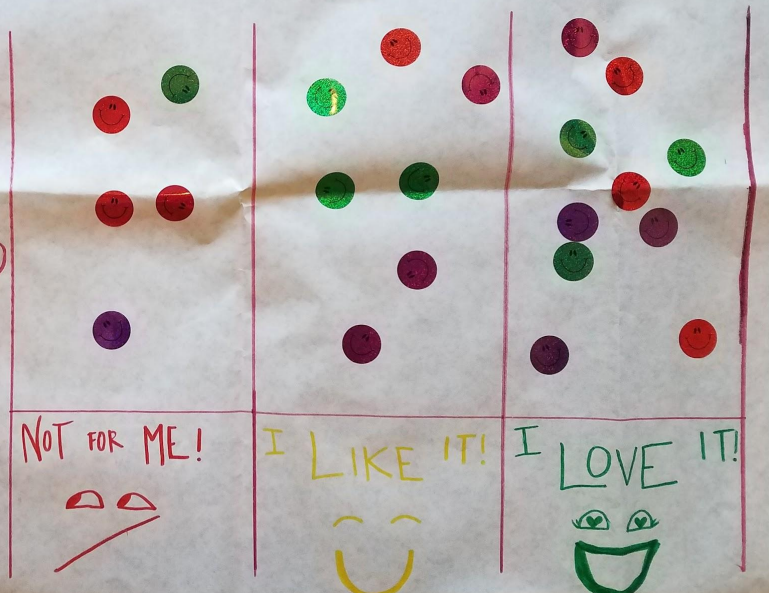
- 1) Introduce the students to whatever you are tasting. *Does anybody know what this is? It's broccoli!*
- 2) Ask the students if any of them have never tried it before. *If this is your first time trying broccoli, raise your hand!*
- 3) Record the number of hands that are raised next to your corresponding group number. Record this number as a fraction over the total number of students in your group. For example, if 3 kids have never tried broccoli before, and there are 8 kids in your group, write  $\frac{3}{8}$ . If zero kids have never tried Broccoli before, you would write 0/8. See the chart below as an example.
- 4) Next, cut it into enough pieces for everyone in your group to try some. You can preface this with something like, *"Please do not grab a piece while I am using the knife. I will come around with the plate and hand each of you a piece of broccoli when I am done."*
- 5) You can have the students wait until everyone has a piece of the food item to try it or you can have them eat it as soon as they get a piece. Either way, showing your own enthusiasm for whatever you are trying is important! *Yum! Broccoli is my jam, I'm so happy to be eating it right now!*
- 6) After all the students have tried the food item, you can explain how to record their data on the tasting chart. Make sure that you use the same color sticker for everyone in your group, and that you use a different color than the other groups! Make sure to read the descriptions for each column on the tasting chart. While you are explaining this, you can mime putting your own sticker on the chart as an example. *In a moment, I am going to hand you a blue sticker. Once you get that sticker, you can put it into one of these three columns. The first one is I tried it, but it's not for me. It is totally okay if you didn't like the broccoli! The second one is I tried it, and I liked it, but I didn't love it. The third column is I tried it, and I love it!!! For example, I'm glad I tried the broccoli, but it's not for me, so I'm going to put my sticker in the first column.*
- 7) If a student seems hesitant to try the food, that's okay! Just let them know that they won't need to put a sticker on the assessment chart.

03/10/20  
Total # students: 22  
H.A. Hyde

# Beet Taste Test

How many students  
have **NEVER**  
tried this before?

group 1: 4/7  
group 2: 3/7  
group 3: 4/7



# Sing It!

## **Dirt Made My Lunch**

Steve Van Zandt

Dirt made my lunch, dirt made my lunch.  
Thank you dirt, thanks a bunch  
For my salad, my sandwich, my milk and my  
munch.  
Thanks dirt, you made my lunch.

Dirt is a word we often use  
When we talk about the earth beneath our  
shoes.  
It's a place where plants can sink their toes  
And in a little while a garden grows.

A stubby green beard grows upon the land.  
Out of the soil the grass will stand,  
But under the hoof it must bow  
For makin' milk by way of a cow.

## **Connected, Connected**

Steve Van Zandt

Connected, connected, everything's  
connected,  
Connected, connected, to everything else.

## **Sun, Soil, Water, and Air**

Steve Van Zandt

Sun, soil, water, and air (Sun, soil, water, and  
air)  
Sun, soil, water, and air (Sun, soil, water, and  
air)  
Everything we eat (Everything we eat)  
Everything we wear (Everything we wear)  
Everything comes from (Everything comes  
from)  
Sun, soil, water, and air (Sun, soil, water, and  
air)  
Sun, soil, water, and air (Sun, soil, water, and  
air)  
(add motions to represent the sun, soil, water,  
and air)  
(SPANISH:  
Tierra, sol, agua y aire  
Toda la comida  
Y toda la ropa  
Todo proviene de...)

## **Six Plant Parts**

Steve Van Zandt

Roots, stems, leaves, flowers, fruits and seeds  
4X  
(SPANISH: Raíz, tallo, hojas, flor, fruta y  
semillas)  
That's six parts, six parts,  
Six plant parts that plants and people need.

## **Take Me Out to the Bee Hive**

Take me out to the bee hive,  
Take me out to the farm,  
Show me their wax and their honey please--  
I can't wait till we see the bees!  
'Cause they work, work work for the whole  
hive, and if they go eat from the flowers,  
There'll be one, two, three fruits we'll see on  
that old apple tree!

## **Little Gross Things**

Sibby Coxhead

Bugs, poop and little gross things  
Dance together and the whole world sings.  
Munchin' on dead things, munchin' on manure  
Poopin' out soil that's A-one pure!  
Cleanin' up the earth, cleanin' up the air.  
Let's show those little gross things we care.  
Can't give 'em kisses, can't give 'em hugs,  
So let's all yell, "Thank you Bugs!"

## **Inch By Inch (The Garden Song)**

David Mallett

*Chorus:*

Inch by inch, row by row, gonna make this  
garden grow.  
All I need is a rake and a hoe and a piece of  
fertile ground.  
Inch by inch, row by row, someone bless these  
seeds I sow  
Someone warm them from below till the rain  
comes tumblin' down.

# Teaching Tips

## "The Three F's"— Focus, Flexibility, & Fun!

### **FOCUS: HOW TO GET KIDS TO PAY ATTENTION TO WHAT YOU'RE SAYING**

- \* LEARN AND USE NAMES - Don't you like it better when someone calls you by name instead of "hey you?"
- \* CALL & RESPONSE - "I say bumble, you say bee!" "If you can hear my voice...say\_\_\_\_\_ or do\_\_\_\_\_"
- \* CHANGE YOUR MODE OF PRESENTATION - Whisper, use an accent, sing your instructions!
- \* SEE THEM EYE TO EYE - Literally get down at their level and look them in the eyes. With younger kids play "where are your eyes?", challenging them to look at you as quickly as they can.
- \* USE GRABBERS - Help make them want to listen. Make a seed container into a "magic box," hide something behind your back, tell a joke, use a fake microphone - these kinds of things grab kids' attention. Show them how excited you are to share this piece of information or move on to the next lesson!
- \* ASK QUESTIONS - Questions get others involved. "What are some things you notice, wonder? What does it remind you of?" Statements require that they already be paying attention.
- \* GET CLOSE - Close physical proximity makes a difference.
- \* USE SILENCE - Announce "I'm waiting for everyone's attention" one time and then wait for it.
- \* USE A GAME - Toe-to-toe circle, quiet coyote hand signal, call out group name and make it a challenge to see how fast the students can come together.
- \* DISCUSS WHAT'S HAPPENING - Talk with the kids about how they are feeling and behaving and tell them how you are doing. An honest exchange of thoughts and feelings often makes everyone feel better and get along. "I notice that...not everyone is paying attention...I can't hear the person talking..."
- \* ASK FOR WHAT YOU NEED - "I need everyone's eyes and ears for the next two minutes."
- \* HAVE THE STUDENTS BE THE FOCUSER - Whisper to just a couple kids the next instructions and have them relay the information to the rest of the group. If you need to call the group together, ask a couple students to get everyone in a circle as fast as they can!

### **FLEXIBILITY: REMEMBER, EVERY GROUP IS DIFFERENT**

- \* VALUE DIVERSITY - Different kids have different needs, talents, and abilities.
- \* "READ" YOUR KIDS - How much energy do they have? How much do they know? Are they "getting" what you're giving them?
- \* PACE YOUR DAY - Alternate active and quiet activities, and tailor them to your group's energy level.
- \* DEVELOP A BAG OF TRICKS - Keep learning new activities and ways of explaining things. Carry a list of activities with you in case you draw a blank.
- \* FOLLOW THEIR LEAD - What do they want to do and learn about?
- \* LET THEM HAVE "FREE" MOMENTS - You don't always have to be talking or doing an activity. Give the kids a break and let them talk about whatever they want.

- \* GIVE THE KIDS CHOICES - Offer them real alternatives (where appropriate) and honor their decisions.
- \* EXPERIMENT! - Try new things. It's OK to make mistakes.
- \* USE TEACHABLE MOMENTS - For example, if you are trying to explain the concept of composting and the students are focused on one of our cats or a hawk flying by, use the refocused energy and go with it. Ask them "What purpose does that cat (or hawk) serve on our farm?", or "What could happen to these predators if chemicals were used on our farm?" Try to recognize where the students are focused and use this to teach something.

### **FUN: THAT'S WHAT IT'S ALL ABOUT!**

- \* REMEMBER - We're here to introduce children to farms and the natural world and to help them become comfortable in this setting. You can't teach them everything in a morning.
- \* LAUGH AT YOURSELF - A sense of humor can cure all ills.
- \* BE A KID, BE SILLY
- \* PLAY GAMES - They are fun and can teach things too. Make up your own games.
- \* ROLE PLAY - Imitate animals, plants, anything.
- \* EXPLORE
- \* SING

# Tips for Effective Group Management

## EXPECTATIONS

- \* Set the tone you want your group to have. Let them know how to be "successful." Tell them what behaviors you expect of them so that when you need that behavior you can remind them. Demonstrate the behaviors you want them to display. Then reward them for getting it right!
- \* If you are scattered and unfocused the kids will be, too. The more "together" you are, the more together they'll be.
- \* Let them know what to expect. Give them an idea of what you are going to do when. If you tell them that they will see the worms at the end of the tour, they won't ask you about it all morning.

## REDIRECTION

- \* Try to avoid saying "Don't do this, don't do that." Give the kids ideas of what they should do. Try "Please hold this" rather than "stop grabbing the cat", or "Walking feet" rather than "Don't run."
- \* Ask hyperactive kids to help you with something. Channel their energy into something positive.
- \* Have the kids consider the consequences of inappropriate behavior. "What would happen if everyone picked a pepper from this plant?" or "What might happen if you reach for apple slices while I'm still cutting?"
- \* Challenge kids to demonstrate alternate behavior. "What else could we do?" "How else can we...?"

## CHOICE MAKING

- \* Offer your group choices and honor their decisions. Be careful to give them real choices and ones that you are willing to abide by.
- \* Avoid false choices such as "Do you wanna take a seat?" when you really mean "Please take a seat."

## ANTICIPATION

- \* Try to prevent problems before they happen. Stay a mental step ahead of your group. Identify your "high energy" kids, keep them busy, maybe by giving them specific responsibilities or tasks to carry out.

## POSITIVE REINFORCEMENT

- \* Catch a kid doing something good and tell them. Others might follow.
- \* A behavior that gets reinforced (rewarded) is much more likely to happen again!
- \* Be genuine. Smile and thank the child for coming back to the group, sharing a tool, etc.

## INVOLVEMENT

- \* If everyone is involved in whatever you are doing, there won't be anyone left to "act up." Use activities that get them doing things, not just listening and watching.
- \* Make a point to involve those individual kids who aren't already involved. What do you think Melissa? Billy, would you...?

## AVOID STEREOTYPING

- \* Don't expect that only boys want to get dirty or that girls will be afraid of spiders. Be aware of the tone of voice and the ways that you convey approval to children of different sexes /cultures.

# Tips for Effective Communication of Information

## **DEVELOP AND MAINTAIN AN AWARENESS OF YOUR GROUP.**

- \* Listen to them and watch them. What seems to "click" with them?
- \* Use "active listening" by being sure you understand what they are really asking and saying. "How many flowers are there?" can refer to either the number of kinds of flowers there are or the total number of blooms.
- \* Be aware of body language. Are they focused on what you want them to be focused on?

## **TALK ON THEIR LEVEL.**

- \* Talk to them with respect - they are people.
- \* Feel out their level of knowledge by asking them questions. Listen to the kinds of answers they give and questions they ask. If they tell you that rabbits lay eggs or that lettuce is a root, you know you need to backtrack.
- \* Convey information in terms the kids understand and in ways that have relevance to their lives. Draw analogies between their homes and animal homes, for example. Use your imagination!!!

## **HELP THEM TO "FIGURE IT OUT" THEMSELVES.**

- \* Allow them to discover things rather than telling them things.
- \* Answer their questions with a question. "Why do you think it's that way?" Promote speculation as to how and why things are the way they are. Admit it when you don't know something yourself.
- \* Know whether you are asking open-ended or closed-ended questions. Closed-ended questions require a definite right or wrong answer; open-ended questions have multiple answers and can generate discussion. Open-ended questions also allow kids to wonder and express their own ideas. Example of closed-ended questions: "What kind of plant is this?" Example of open-ended: "How can we help the plants on the farm survive?" "What do you think...".
- \* Ask sequential questions that lead them to a discovery or realization.
- \* Encourage your kids to ask questions of their own.

## **USE A VARIETY OF ACTIVITIES AND METHODS OF PRESENTATION.**

- \* Different children learn through different means. Some learn best by seeing, some by listening, and some by doing. A combination of activities that utilize all three of these modes will help ensure that the children in your group will get the most out of their experience here.

## **REINFORCE LEARNING BY TALKING ABOUT WHAT THEY ARE DOING.**

- \* After you do an activity, ask your group how they liked it, what their favorite part was, what they know now that they didn't know before, etc. Processing our experiences into language helps reinforce the experiences.



# Honoring Stages of Development in Teaching Environmental Education

## THE RESEARCH OF DAVID SOBEL

As reported in Jenny Anderson's talk in Education 212A

Based on Sobel's analyzing hundreds of maps that children in the US, Caribbean, and England have drawn of their neighborhoods.

1. Empathy ~ 4-7 years old (K-2<sup>nd</sup>) - Maps have children's homes in the center.

Between the ages of four and seven is developmentally when kids are making emotional connections to things. This is the foundation on which they will build abstract thought and action later. At this age they are learning primarily through their senses and bonding to the natural world through play and their imaginations. Worms, ants, common birds, pets, are important. They need not know about issues, problems, pollution, etc. They need to develop empathy.

Stories, songs, moving like animals, celebrating seasons, fostering a sense of wonder, bonding with animals.

2. Exploration ~ 8-11 years old (2<sup>nd</sup> - 4<sup>th</sup>) - Maps expand geographically. Home is not in the center. Becomes part of the larger map—the neighborhood, and beyond. Explorable landscape becomes important. Parks, streambeds, vacant lots, the blocks between home and school.

This too is a bonding period. Making forts, exploring yards and parks, gardening, doing simple restoration projects, finding out where a stream goes, creating small imaginary worlds of living off the land, hunting and gathering, etc.

3. Social Action ~ 12 years old -and beyond (5<sup>th</sup> - ) - Maps now include social gathering places.

The third stage is social action and it doesn't start until kids are 12— As children start to discover the "self" of adolescence and feel their connectedness to society, they naturally incline toward wanting to save the world. Now they are ready to learn and do something about the issues."

Managing school recycling programs, river clean-up, passing town ordinances, testifying at hearings, planning and going on school expeditions are all appropriate.

## LESSONS FOR ENVIRONMENTAL EDUCATORS

- Avoid premature abstractions. Kids can't deal with problems beyond their understanding or control.
- No tragedies before 4th grade.
- No easy dichotomies—i.e. something is good, something else is bad. Emphasize the complexities.

Taken from Beyond Ecophobia: Reclaiming the Heart in Nature Education, David Sobel. Orion Society, 1996.

# The Six Plant Parts

## ROOTS

The root, the part underground, anchors the plant and absorbs water and nutrients from the soil. Simple sugars, made in the plant's leaves, are stored in the form of starches in the roots, to be used later for plant growth or for animals to eat. Some plants that store a particularly large amount of starch in their roots have become important in our diet, such as carrots, beets, radishes, and turnips.

## STEMS

The stem supports the plant and contains most of its circulatory system. Vessels in the stem transport sugar and starches made in the leaves as well as water and minerals absorbed through the roots--to other parts of the plant where the nutrients are needed. Some stems we eat are asparagus, broccoli, sour grass, and fennel.

## LEAVES

The leaf is a flattened or extended part of the stem. Leaves are the main food-producing part of the plant. They produce food through a process called photosynthesis, using carbon dioxide, sunlight, and water. The chlorophyll in leaves collects the sun's energy (light). The pores (stomata) of leaves absorb carbon dioxide (CO<sub>2</sub>) from the air. This carbon dioxide plus water from the roots is combined, using the sun's energy, to make simple sugars and starches: CO<sub>2</sub> + H<sub>2</sub>O + Light ---> CH<sub>2</sub>O (a simple sugar.) We eat leaves such as lettuce, spinach, chard, basil, cabbage, and mint.

## FLOWERS

The flower is the reproductive part of a plant. It gives rise to seeds from which new plants develop. Just like humans, flowers must be fertilized so that the male and female genes can be brought together. But, some flowers have both sexes in the same flower and others need insects, animals, wind, or water to fertilize them. Flowers that we eat are cauliflower, broccoli, brussel sprouts, and artichokes. Some ornamental flowers such as borage, nasturtiums and calendula are also edible.

## FRUITS

Fruits grow from fertilized flowers. It is the outer covering that surrounds and protects the seeds. Fruits we eat are apples, plums, zucchini, cucumber, tomato, peppers, green beans, pumpkins, and pea pods. Some fruits we don't eat like the husk of the corn or the shell of a walnut, but they are considered fruits too since they grow from the ovary and protect the seeds.

## SEEDS

All seeds come from the ovary of a flower that has been fertilized. After fertilization, the seed contains the embryo of a new plant, and its own food supply stored in the surrounding tissues. When a seed sprouts, it produces an above ground shoot with a stem and leaves, and roots that sink underground. Some seeds we eat include peas, corn kernels, sunflower seeds, beans ,nuts, and wheat.

## WHAT'S A VEGETABLE THEN?

Vegetable is a culinary term, not a botanical one. In cooking, a vegetable is savory and a fruit is sweet. Botanically speaking, a fruit is the flesh protecting the seeds of a plant.

# Compost

## WHY COMPOST?

There are two main reasons to compost. By composting our leftover food waste, plant waste, and weeds, we can reduce the amount of waste being sent to our landfills. At the same time, we are creating an amazing, slow-released, nutrient-rich food source for our plants, increasing water retention of the soil, improving the structure of the soil and making soil microorganisms happy. By producing our own compost we do not have to purchase any fertilizers to feed our garden. Composting is one way organic farmers and gardeners get organic matter and nutrients into the soil.

## HOW DOES COMPOSTING WORK?

A compost pile is built by a process of carefully layering or mixing equal amounts of greens (leftover food, pulled up plants, and fresh weeds) and browns (straw, dried plant matter). To create a hotter (faster-decomposing) pile, some farmers add manure. By mixing these three elements (“MSG” = manure, straw, and greens) we create an optimal situation for the decomposers to “munch” on as well as the best balance of nutrients for our plants. A compost pile should be at least 3' x 3' x 3' to heat up and compost well, and should be built in a cube shape (not a pyramid), to allow the most materials to be stacked and create enough bulk to heat up.

Decomposition in a compost pile begins with fungus and bacteria breaking down the organic material. The energy of these microorganisms can heat a pile to 160 degrees. Just as humans produce heat when they work hard, so do the decomposers. This heat helps kill any diseases or weed seeds in the pile. Then when the pile begins to cool down, bugs (mites, beetles, sow bugs, earthworms, millipedes, earwigs, etc.) continue to break down the pile.

The farm garden on the UCSC farm is a good place to find steaming hot piles and check their temperature with a compost thermometer. In the Garden Classroom we have slower & cooler piles, because we don't add manure and we don't turn our piles very often.

## WHAT DON'T WE PUT IN OUR COMPOST PILES?

The main things not to put into a compost pile are dairy products and meat. Both of these items will decompose but they make the compost pile smelly. The smell attracts wild animals to the pile. We also avoid adding oily or greasy food and large amounts of citrus.

## Worm Composting

Another composting method, which works differently than the pile method, is worm composting (vermicomposting). Vermicomposting is a simple, efficient composting system that appeals to many people, especially those who mainly have food wastes to compost. Maintenance is simple: bury food scraps in the bedding, add new bedding occasionally, and harvest the digested results, known as castings. Finished worm castings can be harvested in four months, and these crumbly, brown castings have a higher nutrient content than many other composts.

## HOW DOES IT WORK?

Redworms, also known as “red wrigglers,” thrive in areas with high organic matter content. They will naturally colonize a manure or compost pile, surface feeding in the top 18 inches of material. Red-worms are not the same as “earthworms” and “night-crawlers” which prefer to construct semi-permanent burrows in undisturbed soils. Redworms can be bought from a worm supplier or “borrowed” from a friend's worm bin. They reproduce rapidly in the right conditions.

Redworms do their best work in a dark, damp (but not soggy) environment with temperatures averaging between 55° and 77° F. They need a dark bin with plenty of holes drilled in the sides for air, holes in the bottom for drainage, and a tightly-fitting lid to keep out pests and rain. There are many

styles of commercial worm bins available, though many people start out with a plastic storage tub or build their own bin. Bedding materials such as leaves, peat moss, and shredded newspaper, provide worms with a damp, aerated place to live, as well as a food source. Bulky and high in carbon, the bedding materials provide a matrix in which to bury the wet, high-nitrogen food scraps. Composting food scraps without bedding results in a slimy, smelly mess. Together, the bedding and the food scraps are a balanced compost composition and a balanced diet for the worms. In a few months the worms will eat their way through both the food scraps and the bedding.

After about four months, the worms will have chewed their way through most of the food scraps and the bedding material, leaving behind a box-full of nutrient-rich castings. The easiest method for harvesting the castings is called the “Divide and Migrate” method. Simply push all the material to one side of the box (side A). Add moist, fresh bedding to the remaining space (side B). Bury food only in the new bedding in side B. Over the next six weeks to two months, the worms will work their way through the remaining material in side A, and will migrate to the new food and bedding in side B. Once the castings are removed from side A, fresh bedding can be added and food burial can be shifted to that side only. This method will keep you in a new supply of worm castings about every four months and will keep your worms in fresh food and bedding.

The harvested castings will look dark and crumbly and should smell like good soil. High in nitrogen and phosphorus and a great source of organic matter, castings are wonderful additions to potting mixes for seeds, transplants, or house plants. Castings can also be used like compost in vegetable and flower beds, as a cover soil for seed beds, and as a top-dressing for perennials.

## WHAT CAN WORMS EAT?

Redworms can eat their way through any food waste except for hard bones. Fruit and vegetable scraps, grains and breads, coffee grounds and tea bags are all wonderful worm food. Worms will also eat meat, dairy products, and oily foods, but if pests and odors are a problem, then avoid putting these attractive items in the worm box. Worms have favorite foods and foods they will avoid. They will flock to the underside of a melon rind, and may avoid a citrus peel or onion for weeks until bacteria have broken down its caustic substances.

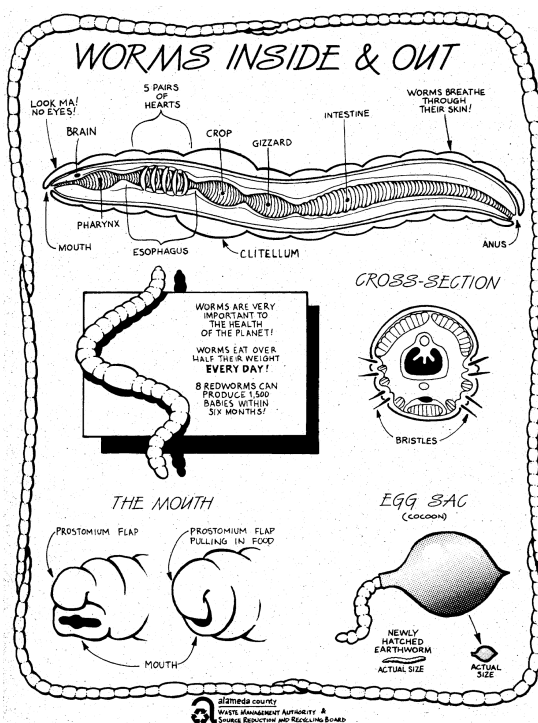
The easiest system for feeding the worms is to bury food scraps in holes dug into the bedding. Use a hand fork to open a hole or a small trench in the bedding, dump in the food scraps, and then cover them with a few inches of bedding. Covering the food with bedding and worm castings will help keep flies and odors away. Rotate food burial sites to distribute the food scraps evenly throughout the box.

**Intestine** The intestine or digestive tract is a canal that moves the food along. Strong juices in the digestive tract break down the food bits into even smaller pieces. Food that is not absorbed into the bloodstream is passed out through the worm’s anus. The waste material is called a casting.

**Clitellum** The clitellum is a light colored band on the worm’s body. The clitellum has a role in fertilization. The clitellum makes mucus when the two worms join to exchange sperm.

**Hearts** Worms have five hearts. The hearts pump blood throughout the worm’s body. The blood carries the digested food particles to where they are needed.

**Gizzard** Worms do not have teeth. They grind their food into tiny pieces in their gizzard, with the help of particles of sand and dirt that collect there.



**Brain** A worm's brain is primitive, but has kept worms alive for hundreds of millions of years.

**Mouth** A worm has a small pad of flesh that sticks out above its mouth. When the worm is hungry, the pad stretches out searching for food. When the worm finds something to eat, the pad pulls the food into the mouth and closes over the mouth.

## Honeybees

### WHAT DO WE WANT TO TEACH ABOUT BEES?

The honey bee, *Apis mellifera* L., is an organism essential to the welfare of humankind. Not only does it provide humans with honey-- a delightful food with many delicate flavors-- but, more importantly, the honey bee ensures the fertility of many plant species humans depend upon for direct and indirect food supply. The #1 thing we try to convey about honeybees is their importance to our food supply. Pollination is crucial to agriculture; scientists say thank a bee for every third thing you eat.

### BEES AND PLANT POLLINATION

The honeybee are not native to the Western Hemisphere (North and South America, Australia, and New Zealand); they were brought to these areas by the very earliest settlers. How were the plants pollinated in these areas before the introduction of the honeybee? There are hundreds of kinds of native bees that also pollinate plants, in some cases even more efficiently than the honeybee. However, when humans increased crop acreages, many nesting sites of the native solitary and semicolonial bees were eliminated. The cultivation of specific crops in large acreages was as favorable to crop pests as it was detrimental to the native wild bees. The need for chemical control of these pests further upset the natural balance between the flowers that require pollination and the pollinators that were available to do the job. Honey bees in millions, or even billions, can be supplied more easily than a few thousand of the native bees.

All bees, including the honeybee, have branched hairs covering their bodies. This is one of the important characteristics that distinguishes bees from other insects. These branched hairs become dusted with pollen grains as they visit flowers. A bee may visit 100 to 400 blossoms during each trip to the field.

### THE QUEEN

The queen is a large, slender individual whose sole function is to lay eggs. In this she is most remarkable, since she may produce up to 1,500 eggs per day, 250,000 per year, and, under some circumstances, more than a million during her lifetime. She lays two kinds of eggs-- those that she fertilizes and places in small hexagonal cells that develop into worker bees, and those that she does not fertilize, which she places in the larger hexagonal cells. These develop into drone bees. The queen develops from a fertilized egg the same as the worker bees. For 5 days the queen larva is fed a food secreted by the worker bees known as royal jelly. This high quantity of royal jelly is the determining factor that turns a normal egg into a queen (normal worker bees only receive 2 1/2 days of royal jelly). Five to 8 days after the queen emerges, she leaves the colony to mate with a number of drones. From these matings she is able to store 5 to 8 million sperm cells in a tiny organ called the spermatheca. She releases several sperm from the spermatheca each time she lays an egg destined to produce a worker or queen bee. When she places an egg in the drone cell, she does not release sperm to fertilize the egg. Once the mated queen commences egg-laying she never leaves the hive, except when the colony swarms. The queen is constantly attended and fed by the worker bees in the colony. She may live 1, 2, and sometimes as many as 7 years.

## **THE DRONES**

The drones are the largest bees in the colony, heavy bodied, and more or less rectangular in body shape. They develop in 24 days from an unfertilized egg and thus have a grandfather but no father. Their only job in life is to mate with a queen from another hive. They become sexually mature about 12 days after emergence and die instantly upon mating. The matings take place in flight, often several miles from the colony and high in the air. The queen flies as fast and high as she can to ensure that she only mates with the strongest and fastest drones. Only a small percentage of the drones fulfill their basic function. At the close of the honey harvest, the drones remaining in the colony are driven off the combs until they become weakened from starvation. They are then carried out of the hive by the worker bees to perish. A few drones may develop late in the season and overwinter with the colony. The drones are mainly reared and tolerated by the colony during spring and summer.

## **THE WORKER BEES**

The worker bees are sexually underdeveloped females smaller than the queen but capable of laying small numbers of eggs under some conditions. Worker bees that lay eggs are called laying workers. The worker bees exhibit a well-defined division of labor based primarily upon their physiological age but modified to some degree by the needs of the colony. In a general way, bees under 3 days old clean and polish the cells for the queen to lay in and for food storage; those 3 to 7 days old feed the older larvae; those 7 to 14 days old secrete royal jelly for feeding the queen, younger worker larvae, and queen larvae of any age, and they secrete wax for comb building; those 14 to 21 days old forage primarily for pollen; and those over 21 days old forage for nectar. They may fly 50,000 miles and visit 5,000,000 blossoms to gather enough nectar to produce one pound of honey, which is stored not for themselves but for the survival of the colony.

## **HOW HONEY BEES COMMUNICATE**

The language dance performed within a colony is oriented on the combs in relation to the sun. The angle between the sun, food source, and hive determines the direction of the dance orientation. A dance straight up on the comb's vertical axis means towards the sun; to the right, so many degrees to the right of the sun; and to the left, so many degrees to the left of the sun. A rapid dance means a short distance; a slower dance means increased distance. The bees do not actually have to see the sun to be capable of transmitting or interpreting this food source information, since they can perceive and interpret direction from the polarized light they receive from the sky. The plant producing the food is identified by the odor association of the food gathered by the dancing bee. Dances similar to those giving direction for food are performed by scout bees who locate a domicile (new home) to be occupied by a swarm that has issued from a colony. There are many other dances performed by bees that obviously extend the area of communication beyond food gathering and locating a domicile.

## **BEES DO STING**

Many people know only that bees make honey and sting. Practically all bees, hornets, and wasps are stinging insects. Only the females have stingers and only the worker honeybee has a barbed stinger. These barbed stingers are left in you if you are stung. A sting from a bumblebee, hornet, or wasp is often more severe than that from a honeybee. If you are attacked by these insects, they are likely to sting several times in rapid succession as their sting is not barbed. If stung by a honey bee, scrape the stinger free from the wound as quickly as possible. This will reduce the amount of venom and the consequent irritation. Because the poison sac of the honey bees' stinger is attached to it, any attempt to grasp the stinger to pull it out will only squeeze more poison into the wound.

## Teaching about Organic for Kids

Please use good judgement when talking about conventional versus organic food. We are not here to preach that one is better than the other; we are here to explain how an organic farm works. We don't want kids to go home and refuse to eat their veggies, or accuse their parents of poisoning them.

### WHAT IS ORGANIC?

Organic refers to the way agricultural products—food and fiber—are grown and processed. Organic food production is based on a system of farming that maintains and replenishes soil fertility without the use of toxic and persistent pesticides and fertilizers. Organic foods are minimally processed without artificial ingredients, preservatives, or irradiation to maintain the integrity of the food. "Organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony."

### GOOD SOIL MAKES HEARTY PLANTS

Compost is what feeds our plants. It makes them hearty and more resistant to pests. You can use an analogy of a child getting a good night's sleep and a good breakfast and how that makes them feel. It's the same with plants. If they get good soil, with plenty of compost in it, they will be stronger and healthier, less vulnerable to pest attack or disease.

### GOOD BUGS AND BAD BUGS

Explain that some bugs are good, some are bad and some are both. All "bad" bugs (pests) have a "predator" bug that eats them. Explain that we grow perennial shrubs & trees in our garden and on the Farm to attract good bugs-- organic farmers like to have good bugs around to eat "bad" bugs, pollinate plants, and help decomposition.

### Mini list of common bugs:

#### Good bugs

lady bugs, ground beetles,  
wasps, big eyed bug, lacewings

#### Bad Bugs

snails and slugs, spotted  
cucumber beetle (looks like a  
yellow lady bug)

#### Neutral Bugs

Sow bugs, earwigs, spittle  
bugs, Jerusalem cricket

### PREDATORS ON THE FARM

Insects are not the only beneficial predators on the farm. Organic farmers also encourage the presence of farm cats, snakes, owls, and predatory birds such as hawks, to help decrease the rodent population of the farm. You can ask the students to keep an eye out for these beneficial predators on the farm! Even with all this help, farmers need to set traps for rodents as well.

### OUR GARDEN IS LIKE A FOREST

Our garden is its own ecosystem, just like forests, meadows, or wetlands. The more diverse the garden ecosystem, in creatures, plants and soil microbes, the healthier it will be and it won't have need for chemical pesticides or fertilizer.

## REVIEW QUESTIONS

1. What would you do if a kid is stung by a bee and tells you that they are highly allergic to bees? (p.6)
2. What does it mean to teach with questions? (p.20)
3. Name the six plant parts. (p.22)
4. What is a true medical emergency? When and where should you call 911? (p.3)
5. What is cultural awareness and why is it important to create an inclusive teaching environment? (p.7)
6. What are some good language and practice habits that create a more inclusive, culturally aware learning environment? (p.8)
7. What is the special knife holding technique called when cooking with kids? Practice introducing this method to a group of students. (p.12)
8. What kind of focusers could you use to get your students to pay attention to what you're saying? List as many as you can think of! (p.17)
9. What do we want to teach about honey bees? (p.26)
10. How does composting work? (p.23)
11. How should you record information on the taste test assessment chart? (p.5)



# **A Group Management Cheat Sheet**

(Not that any kid can be so easily categorized, nor that there will be behavior that doesn't fit into any of these groups!)

Let's write in some strategies!!

The Silent Kid

"What's your name?" "....."

The Know-It-All

"I've already done this before. The last time I did this, we did it like this and like that..."

The Hyperactive Kid

The kid is halfway across the garden halfway through your instructions for an activity.

The Bullying Kid

"That's my chard leaf!" (accompanied by a shove)

The No-Participation Kid

"This is boring! I don't want to do this!"

## The Distracting Kid

Insert joke here- right in the middle of what you were saying or what another kid was saying

The five Group management TRICKS that work for any group.

1. Learn NAMES quickly and use them!
2. Use TONE-SETTING and framing- Set the rules/expectations 1st thing and before every activity, explain exactly what you want from them.
3. Have a fun CALL-BACK SIGNAL- Or any tool that gets kids to you when they are spread out in a space, it could be a group name, a sound, quiet signal, etc. Use a countdown with your call-back.
4. Praise kids when they are doing well!- Make sure that it is meaningful praise as opposed to empty praise. Meaningful praise= “Wow, I am so impressed by how quickly you all got into our circle! Thank you!” Empty praise= “You guys are so cool!”

AVOID DOWN TIME- keep them busy, they won't have time to get distracted! Down time is not the same thing as quiet time or mindfulness activities.