**OPIHI Science Assistant Essentials**

**What is OPIHI?**

OPIHI (Our Project In Hawai‘i's Intertidal) is a citizen science project where students survey Hawai‘i’s rocky intertidal. The intertidal is the area along the coast that is covered by water at high tide and exposed to air at low tide. OPIHI students gain valuable scientific skills while being involved in an authentic ongoing scientific research project.

**What happens on OPIHI field trips?**

OPIHI field trips are scheduled during low tides in the spring. Although each field trip will vary, the same basic protocols are followed on each trip. Classes are divided into groups of 3–5 students. Each group collects data along a stretch of the intertidal using transects (long flexible rulers) and quadrats (PVC squares). Transects are laid perpendicular to the coast. Quadrats are laid at predetermined points along each transect. Student groups record what organisms are under transect and quadrat points. Students use identification cards to help them identify organisms.

**You do not have to be a marine biologist to be a science assistant.**

**It is more important that you are a science *enthusiast*!**

**What to wear and bring on an OPIHI field trip**

* **Wear closed toed shoes.** Wear any closed toed shoes that can get wet—like old sneakers, booties, water shoes, etc.
* **Bring a large water bottle.** Stay hydrated!
* **Protect yourself from the sun**. Bring a hat, sunglasses, and apply sunscreen.
* **Be prepared for all types of weather.** Field trips are held rain or shine. Bring a rain jacket and trash bags (to protect your belongings if it should rain).
* **Wear clothes that can get wet**. You will only get wet up to your knees, but there will be splashing waves.

**How can you help?**

**Keep students focused and on task**. Students have been practicing OPIHI sampling techniques and learning the names of intertidal organisms, but it is easy to lose focus in the excitement of a field trip. The following are some tips to help students focus:

* Point out neat things you see, but focus on collecting the biological data in the time allotted as the tide changes quickly.
* Encourage students to record their data as carefully as possible. This includes making sure they fill out the information (e.g., their names) at the top of their data sheets and write neatly.
* Remind students that their data will be used in real research studies.
* Demonstrate that careful observation in the intertidal requires leaning over or squatting down to see small organisms.
* Suggest ways for students to organize themselves, such as switching off student roles (e.g., one person to record, one to squat and ID, and one to look through the ID cards to identify organisms).
* Suggest ways for students to organize their equipment (e.g., suggest securing the transect with bags of sand if it keeps moving, or have one student stand on the sides of the quadrat to hold it firmly in place if waves keep jostling it).

**Help students identify intertidal organisms**. You are not expected to be able to identify all (or any!) of the organisms in the intertidal. Your role is to help the students look though their identification (ID) cards and work *with* them to identify each organism (species).

* Species should be recorded as specifically as possible (e.g., “*Echinometra mathaei*” vs. “urchin”). If a species is not on their data sheet, students should write it in.
* It is more important that students correctly identify the genus of an organism (e.g., “*Echniometra*”) than the species (e.g., “*mathaei*”). It is especially difficult to identify many types of algae to species in the field; so stopping at the genus level is appropriate. However, encourage students to use and record the full name when they can identify things to that level.
* Algae can be “pinch picked” and looked at closely outside the water (or in a plastic bag filled with water) to help with identification. Invertebrates can be temporary placed into small containers to facilitate identification.
* Remind students that there are a lot of organisms that are not on the ID cards! If something does not look like anything on the cards, it might not be there. The students may have to look in a book, ask another science assistant, or ask their teacher.
* “Unknown” organisms should be richly described (e.g., “fuzzy small red algae”). If possible, they should be photographed and a little bit collected (if algae) to try to identify later in the classroom.

**Help student follow OPIHI protocols**. Students should be familiar with the OPIHI protocols and be able to teach *you* the basics of data collection (ask them to explain what they are doing to you!). The following are some common student data collection errors:

* Students should record only the *single* organism or substrate (e.g., “bare rock”) that is *directly* under a transect or quadrat point.
* Quadrats points should total to 25 per quadrat. There is a space for this total at the bottom of the data sheets. Students should total their tally marks before moving their quadrat to the next data point (or they will need to start from scratch).
* Transient objects such as trash, leaf litter, and “water” should not be recorded.
* The intertidal environment is prime real estate—it is rare to have “bare rock” in the lower intertidal. Look closely to make sure that nothing is living there!
* Some commonly mis-IDed categories are crustose coralline algae (pink painted rock is alive!), brown-colored crust (brown slime or paint is also alive!), and turf algae (“fuzzy rock” that is under ~2cm tall, however, if it looks like it can be IDed students should try!).

**Help students (and intertidal organisms) be safe**. Students on OPIHI field trips should not get wet above their knees. Remind students to watch where they step and be aware of the waves. All organisms should be treated with respect. Most intertidal organisms are safe, but some can sting (e.g., cone snails), bite or pinch (e.g., eels and crabs), or cause skin irritations (e.g., fireworms and some sponges). If handled, organisms should be kept wet and handled gently. This means holding organisms in the palm of your hand and not pinching, squeezing, or dangling them. When placing organisms back in the water, return them to their original location.

**Share your excitement**! Be excited about the intertidal and the organisms the students are studying—your excitement is infectious!

**Discipline**

You are not responsible for disciplining students. If a problem arises, tell the instructor.

**We appreciate your assistance and hope you will enjoy the trip!**