Team Protocol: Specialists

The Specialists protocol gives each individual student a specific, defined role to play during data collection. While each student is responsible for his/her assigned tasks, effective communication among the entire team of specialists is critical. This protocol allows for differentiation of learning, whereby roles can be assigned to students based on their individual learning needs and abilities.

IN THE CLASSROOM

1. **Create small teams** of 4-5 students each.

2. **Modify and print Specialist Role Cards**. Example cards for a Quadrat: Randomized-placement sampling method are below. Please modify roles to fit your own learning goals, sampling method, and student needs.

3. **Discuss responsibilities** of each specialist as a whole class. What they do. Who they must communicate with. What equipment they are responsible for.

4. **Assign a specialist role** to each student, or ask students to self-select roles within teams.

5. **Students share roles** with their teammates to make sure each specialist knows what to do and how, when, and with whom he/she must communicate.

IN THE FIELD

1. **Students remind one another of their roles** and responsibilities.
   eg. I am the Species Expert. I am going to help the Biodiversity Expert search for species. I will decide whether the species we are looking for is here or not. I will tell that to the Principle Investigator. I will work with the Principle Investigator and the Nature Photographer to get written and photo evidence that supports our found/ not found claim.

2. **Specialists carry out their roles**. Complete datasheet together in the field.

3. **Specialists return equipment** they were responsible for.

4. **Reflect** on successes, challenges, and team communication.

EXAMPLE: **SPECIALIST ROLE CARDS**
SAMPLING METHOD: **Quadrat (randomized-placement)**
ECOSYSTEM: **Coastal**
HABITAT: **Rocky intertidal**

Please post your Special Role Card modifications to *Vital Signs* for others to learn from and use!
http://vitalsignsme.org
>VS in Classrooms
>Share Curriculum Resources

PRINCIPAL INVESTIGATOR

Stay at the end of your transect in one place where all of your teammates can easily find you

1. Help your teammates understand what data they need to collect and report to you in the correct units

2. Record all observations and measurements made by your teammates on the Species & Habitat Datasheet

3. Make sure your team completes all 4 Datasheet Tabs

4. Write detailed Field Notes as you go

Responsible for equipment: Datasheet, clipboard, pencil

SPECIES EXPERT

Help the biodiversity experts collect species in your team's quadrat

Once the container has been counted and the biodiversity number recorded by the PI….

1. Use your *Vital Signs* Species Card to help you look for the native or invasive species you were assigned

2. Decide whether you think you found it, or think you did not find it. Tell your PI your decision

3. Work with your PI to record written evidence on the Datasheet that supports your claim

4. Work with the Nature Photographer to take photo evidence that supports your written evidence (that supports your claim)

Responsible for equipment: Species Card, clipboard

BIODIVERSITY EXPERT

1. Place your quadrat in the randomly-generated location along the transect line.

2. Look closely at *all* of the plants and animals in the *entire* quadrat

3. Determine which are the *same* and which are *different*.

4. Put one representative of each *different* animal or plant in a container for the biodiversity count
   NOTE: For sessile organisms (like barnacles), please note them in your field notes with a name, tick mark, or sketch. Do not do any destructive harvesting.

5. Once all representatives are in the container, bring it back to your team (PI & photographer) at the end of your transect line

6. Work with your PI to determine and record on the Datasheet a final biodiversity count for the quadrat

7. Start your next quadrat

Responsible for equipment: Transect line, quadrat

NATURE PHOTOGRAPHER (side 1)

Stay at the end of your transect in one place where all of your teammates can easily find you

1. Take the site photo (tell your PI when you've taken it)

2. Take the sampling method photo (tell your PI when you've taken it)

3. *Before* you take a species evidence photo, take a photograph of the *Vital Signs* Species Card. This is critical in organizing and matching photos and evidence later when we enter our data online.

4. Work with your Species Experts & PI to take evidence photos that support the written evidence really really well

Responsible for equipment: Camera

NATURE PHOTOGRAPHER (side 2)

Guidelines for site photo:

- In focus
- No faces, just the scene
- Shows your study site and the surrounding area
- Study site is in the center of the frame
- Shows important habitat features
- Shows important land use features
- Includes a useful landmark like a building or funny-shaped rock or distinct tree or road sign near your site that would help someone else find your study site

Guidelines for sampling method photo:

- In focus
- No faces, just the sampling method
- Sampling equipment (quadrat, transect, trap, etc.) is in the center of the frame

Guidelines for species evidence photos:

- Take a photo of the species card FIRST
- All photos that follow are evidence photos for this species observation

- In focus (use macro function on camera when taking close-up photos)
- No faces, just the plant or animal
- Plant or animal is in the center of the frame
- Shows important identification features (look at your VS Species Card for hints about the features that are important)
- Supports your written evidence

GEOGRAPHER

Help each team get the latitude and longitude coordinates of their transect.

At each transect:

1. Place the GPS receiver at the end of the transect line (close to the PI)

2. Wait patiently for the GPS receiver to pick up a strong signal from *at least* 3 satellites

3. Slowly dictate the latitude and longitude coordinates to the PI. Ask the PI to repeat the coordinates back to you to make sure they are recorded correctly on the Place Tab

4. Check the PI's Datasheet to make sure that there is a negative sign before the longitude coordinate!

5. When you finish, be helpful. Help a PI complete her Place Tab or Habitat Tab. Help a Species Expert identify and return his organisms to the intertidal.

Responsible for equipment: GPS

CHEMIST

Help each team measure water quality along their transect line

Along each transect:

1. Find a tide pool of standing water
2. Measure pH
3. Measure temperature in degrees Celsius
4. Measure dissolved oxygen in
5. Measure salinity in %
6. Ask the PI to record these measurements on the Habitat Tab. Ask the PI to repeat the measurements back to you to make sure they are recorded correctly on the Habitat Tab
7. When finished, be helpful. Help a PI complete her Place Tab or Habitat Tab. Help a Species Expert identify and return his organisms to the intertidal.

Responsible for equipment: pH meter, dissolved oxygen kit, refractometer

---